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# GENDER

## Topic a) - How citizens’ benefit from scientific research

### Keywords

* Gender and social impact of research
* Gender and social impact of gender research
* Social benefits of research on gender
* Social benefits of gender research
* Science social impact and gender inequalities
* Science social impact on
* Science social impact and gender
* “scientific evidence” AND gender policy
* evidence-based policy AND gender
* gender-based AND polic\* AND scientific evidence
* “social impact” AND “gender-based”
* “social impact” AND gender AND intervention

### Criteria of selection

Sources explored:

* Scientific papers indexed in the top scientific databases, namely Web of Science (mainly in those journals indexed in Journal Citation Reports) and Scopus, specially articles in Q1 or Q2 journals indexed in JCR or in Q1 journals indexed in Scopus .Sources will be selected seeking an interdisciplinary approach, both regarding the journals’ and the articles of selection.
* Relevant reports from EU-funded research projects and official EU documents with relevant contributions

Inclusion criteria:

* Having been published within the last 10 years.
* The impact achieved by the article: articles achieving a high impact will be considered
* as more relevant.
* The social impact reported by the article: articles presented experiences of success will be considered as more relevant.

Exclusion criteria:

* Not fulfilling the inclusion criteria
* Not falling into the scope of the review

Regarding Web of Science database, searches were made following a specific procedure:

* Firstly, a general search of the keywords on all the indexes belonging to the Web of Science Core Collection.
* Secondly, a specific search of the keywords on Social Sciences Citation Index (SSCI).
* Thirdly, a specific search applying the data range exclusion criteria.
* Fourthly, a specific search applying the “article” and “journal” criteria.
* Fifthly, a specific search selecting only a list of the main Social Sciences areas.
* A final selection applying “Q1” and “Q2” exclusion criteria.

In the case of Scopus, searches were made as follows:

* Firstly, keyword searches were made applying the first filter: “Article, Abstract, Keywords”.
* Secondly, a specific search applying the data range exclusion criteria.
* Thirdly, a specific search applying the “Social Sciences” criteria.
* Fourthly, a specific search applying the “article” and “journal” criteria.
* A final selection applying “Q1” exclusion criteria.

### Identified Sources

Diagrama

Descripción generada automáticamente

A total of 285 articles resulted after the searching on Web of Science database and Scopus, of which 234 were out of scope, 11 were discarded due to lack of journal impact, 24 due to lack of evidence of impact of research and 3 were repeated. In addition, 21 additional articles were added from searches on education or topic “b”.[[1]](#footnote-1)

### Outcomes

* **Regarding the relationship between gender diversity and firm performance, previous studies report conflicting evidence**: some find that gender-diverse firms experience more positive performance and others find the opposite. This research predicts that gender diversity’s relationship with performance depends on both its normative and regulatory acceptance in the broader institutional environment. As a result, it is stated that the more gender diversity has been normatively accepted in a country or industry, the more gender-diverse firms experience positive market valuation and increased revenue. (Zhang, 2020)[[2]](#footnote-2).
* **Individuals vary in research productivity predominantly because of the generative mechanism of incremental differentiation**, which is the mechanism that produces power laws with exponential cutoffs. The incremental differentiation occurs to a greater degree among men and certain forms of discrimination may disproportionately constrain women’s output increments. In this sense, women may have to accumulate more scientific knowledge, resources, and social capital to achieve the same level of increase in total outputs as their male counterparts. (Aguinis, Ji & Joo, 2018)[[3]](#footnote-3).
* **Experiences that compel people to challenge social stereotypes can promote enhanced cognitive flexibility on a range of judgmental domains**. Women in STEM (science, technology, engineering, and math) fields are chronically exposed to such experiences and may therefore also demonstrate these benefits. Imagining or recollecting these experiences led women from STEM fields to exhibit a lesser reliance on heuristic thinking compared to women from non-STEM fields, and this difference was mediated by self-perceived resilience to the negative impact of gender stereotyping. (Di Bela, Crisp, 2015)[[4]](#footnote-4).
* **Results from a Structural Equation Model demonstrated that women in STEM face double trouble**: The combination of working almost solely with male colleagues (being outnumbered) and working in the technical sector (where women are negatively stereotyped) predicted the highest levels of experienced gender identity threat, particularly among women who highly identified with their gender group. Gender identity threat, in turn, negatively predicted women’s work engagement and career confidence. Men did not face double trouble: Their experience of gender identity threat was not related to working in a masculine STEM sector. (Van Veelen, Derks & Endedijk, 2019)[[5]](#footnote-5)
* **The increasing influence of women directors up to a limit, both in the American and European markets, and this influence is higher in Europe**. This result implies that gender‐diverse boards are favourable to the sustainable behaviour of companies. Therefore, policymakers should promote gender policies. (Valls Martínez, Martín Cervantes & Cruz Rambaud, 2020)[[6]](#footnote-6).
* **In many languages, the use of masculine forms has traditionally been used to refer to both women and men, although feminine forms are available, too**. A cross-linguistic (Italian and German) study shows that word pairs help to avoid a male bias in the gender-typing of professions and increase women's visibility; at the same time, they decrease the estimated salaries of typically feminine professions. This potential payoff has implications for language policies aiming at gender-fairness. (Horvath et al., 2016)[[7]](#footnote-7).
* After revising an extended and complete database of funding, scientific papers and citations compiled at the individual researchers’ level, **results show that when it comes to gender differences, not having enough public funding and raising private funding appear slightly detrimental for women in the health sciences**. In addition, when women collaborate with the same number of co-authors as men, or target similar Impact Factor journals, their articles are less cited than those of their male colleagues. (Beaudry, Larivière, 2016).[[8]](#footnote-8)
* **It is important for the evaluation of gender equality interventions in RTDI (Research, Technology Development and Innovation) to consider its context – gender equality regime and evaluation culture** –. This context does influence effects and long-term impacts of such activities. Research showed that when it comes to gender equality policies, most EFFORTI countries can either be assigned to the Social-Democratic category or Conservative Equal Employment Regime category in the typology of von Wahl (2005), with the latter type tending to provide less favourable conditions for women in the general labour market as well as women in RTDI. (Reidl et all, 2020)[[9]](#footnote-9).
* **Efforts to understand and alleviate the pervasive underrepresentation of women in science, technology, engineering, and mathematics (STEM) fields may benefit from the utilization of research methodologies that can model STEM engagement** from multiple levels of analysis. In this sense, the use experience sampling methodology (ESM) may provide fine‐grained details of women's STEM experiences, and thus model the challenges they face in STEM fields. (London, Rosenthal & Gonzalez, 2011).[[10]](#footnote-10)
* **Ambiguity of definition within gender mainstreaming literatures compromises the implementation of gender mainstreaming within organizational practices**. It also observes the need, within some gender mainstreaming theoretical and policy literatures, to move away from stable definitions of ‘male’ and ‘female’ (which identify women's and men's concerns as often in contrast) towards a more situated approach. (Rittenhofer, Gatrell, 2012).[[11]](#footnote-11)

## Topic b) - Citizen awareness of the impact of scientific research

### Keywords

* Social awareness of gender research
* Social awareness of scientific research and gender
* Social awareness of scientific research and social inequalities
* Science impact in reflective societies
* Gender research impact in reflective societies
* Gender research and impact in reflective societies
* Knowledge transfer societal impact
* Gender and Knowledge transfer societal impact
* Knowledge transfer gender impact
* Knowledge transfer and gender impact
* Gender research and knowledge transfer
* Knowledge transfer age impact
* Knowledge transfer and age impact
* Knowledge transfer and social inequalities

### Criteria of selection

Sources explored:

* Scientific papers indexed in the top scientific databases, namely Web of Science (mainly in those journals indexed in Journal Citation Reports) and Scopus, specially articles in Q1 or Q2 journals indexed in JCR or in Q1 journals indexed in Scopus .Sources will be selected seeking an interdisciplinary approach, both regarding the journals’ and the articles of selection.
* Relevant reports from EU-funded research projects and official EU documents with relevant contributions

Inclusion criteria:

* Having been published within the last 10 years.
* The impact achieved by the article: articles achieving a high impact will be considered
* as more relevant.
* The social impact reported by the article: articles presented experiences of success will be considered as more relevant.

Exclusion criteria:

* Not fulfilling the inclusion criteria
* Not falling into the scope of the review

Regarding Web of Science database, searches were made following a specific procedure:

* Firstly, a general search of the keywords on all the indexes belonging to the Web of Science Core Collection.
* Secondly, a specific search of the keywords on Social Sciences Citation Index (SSCI).
* Thirdly, a specific search applying the data range exclusion criteria.
* Fourthly, a specific search applying the “article” and “journal” criteria.
* Fifthly, a specific search selecting only a list of the main Social Sciences areas.

A final selection applying “Q1” and “Q2” exclusion criteria.

* In the case of Scopus, searches were made as follows:
* Firstly, keyword searches were made applying the first filter: “Article, Abstract, Keywords”.
* Secondly, a specific search applying the data range exclusion criteria.
* Thirdly, a specific search applying the “Social Sciences” criteria.
* Fourthly, a specific search applying the “article” and “journal” criteria.
* A final selection applying “Q1” exclusion criteria.

### Identified Sources

Diagrama

Descripción generada automáticamente

A total of 343,496 articles resulted after the searching on Web of Science database and Scopus, of which 243,255 were out of scope, 73,115 were discarded due to lack of article impact, 26,728 due to be out of range, and 294 were off topic.[[12]](#footnote-12)

### Outcomes

* **Knowledge Transfer (KT) activities are based on relational rather than commercial activities.** The most frequent relational activities in which Social Sciences and Humanities (SSH) research groups engage are consultancy and contract research. The characteristics of research groups and individuals are associated with involvement in KT and that a deliberate focus on the societal impacts and relevance of the research conducted is strongly related to active engagement of research groups in all the modes of KT considered in this study. From a managerial perspective, findings on this paper suggest that measures promoting a focus on the societal impact of research could enhance research groups’ engagement in KT activities. (Olmos-Peñuela, Castro-Martínez & D’Este, 2014). [[13]](#footnote-13)
* **It is commonly believed that the academic sector does not generate enough value for society.** However, others maintain that academic research generates benefits in many ways. Applying a new version of the ‘technological innovation system’ framework to nanotechnology in Sweden, researchers found a rich pattern of impact, including substantial ‘commercialisation’. However, the effect of academic activities is constrained by factors exogenous to academia: a lack of knowledge about environmental and health risks, institutional and market uncertainties, poorly coordinated policies and insufficient access to innovation-related capital. (Perez Vico, Jacobsson, 2012)[[14]](#footnote-14).
* **Gender equality and gender mainstreaming in research is one of the six European Research Area (ERA) priorities**. Integrating the gender dimension in research content and teaching is one of its three objectives. By applying the EFFORTI evaluation framework to three empirical case study interventions that aim to integrate the gender dimension in tertiary education and research content, researchers highlight the importance of design, specifically regarding resources, legal status and the definition and operationalisation of the gender concept. (Palmén et. all, 2020)[[15]](#footnote-15).
* A common understandingaboutopenness and collaboration in scientific research is hindered by disciplinary boundaries and disconnected research streams. By proposing a unifying Open Innovation in Science (OIS) Research Framework, researchers link dispersed knowledge on Open Innovation, Open Science, and related concepts such as Responsible Research and Innovation capturing the antecedents, contingencies, and consequences of open and collaborative practices along the entire process of generating and disseminating scientific insights and translating them into innovation. (Beck et all., 2020)[[16]](#footnote-16).
* **The growing pressure to produce ‘policy relevant’ research is diminishing the capacity of academia to provide a space in which innovative and transformative ideas can be developed** and is instead promoting the construction of institutionalized and vehicular (chameleon‐like) ideas. (Smith, 2010).[[17]](#footnote-17). These results are based on an empirical research project designed to explore of the relationship between health inequalities research and policy in Scotland and England between 1997 and 2007.

## Topic c) - Awareness-raising initiatives succeeding at engaging citizens in scientific participation, including the Open Access movement

### Keywords

* Under-representation AND awareness AND science AND technology AND gender
* Citizen science AND gender
* Open access AND gender
* Open science AND gender

An additional search in the bibliografies of the selected articles was carried out.

### Criteria of selection

Sources explored:

* Scientific papers indexed in the top scientific databases, namely Web of Science (mainly in those journals indexed in Journal Citation Reports) and Scopus, specially articles in Q1 or Q2 journals indexed in JCR or in Q1 journals indexed in Scopus .Sources will be selected seeking an interdisciplinary approach, both regarding the journals’ and the articles of selection.
* Relevant reports from EU-funded research projects and official EU documents with relevant contributions

Inclusion criteria:

* Having been published within the last 10 years.
* The impact achieved by the article: articles achieving a high impact will be considered
* as more relevant.
* The social impact reported by the article: articles presented experiences of success will be considered as more relevant.

Exclusion criteria:

* Not fulfilling the inclusion criteria
* Not falling into the scope of the review

### Identified Sources

A total of 47 articles were obtained from the 5 searches in JCR and Scopus, and 37 were excluded because they were out of the topic. 47 additional reports were also retrieved and 37 were excluded after a deep reading. Therefore, the final sample was 20 sources (10 articles and 10 reports).[[18]](#footnote-18)

### Outcomes

* **The motivation for citizens' involvement in life sciences research is predicted by age and gender**: Men and younger individuals tend to be attracted to life science research by extrinsic motives (including external benefits or rewards), whereas women and older people, are more likely to be persuaded by intrinsic motives (originated from within an individual). These findings provide relevant knowledge for policymakers in order to effectively designing public involvement activities targetting diverse groups of the public in research projects.[[19]](#footnote-19)
* **Why (not) participate in citizen science? Motivational factors and barriers to participate in a citizen science program for malaria control in Rwanda:** The aim of this stuay is to explore the motivational factors and barriers to participate in a citizen science program for malaria control in Rwanda. Initially, people are willig to participate in the program because of curiosity, desire to help others, and the opportunity to contribute to malaria control. However, there were differences in the motivational factors across age and gender groups. This way, in the cas of gender, the usefulness of the project and learning opportunities were the main motivational factors among women, while men were looking for recognition of their efforts.[[20]](#footnote-20)
* **Citizen Science in Post-Fukushima Japan: The Gendered Scientization of Radiation Measurement**. This article explores the motivation of many laywomen to create citizens organizations to measure the concentration of radioactivity after the Fukushima nuclear accident. The main reasons were, the desire to protect their families, the importance and expansion of scientization and the increasing role of science in defining social problems. Finally, science dealing with environmental threats might result in gendered opportunities[[21]](#footnote-21).
* **Who wants to be a citizen scientist? Identifying the potential of citizen science and target segments in Switzerland[[22]](#footnote-22)** Citizen science projects have mostly attracted highly educated people, male and people with positive attitudes towards science. This study shows that attitudes towards science play a significant role in interest to participate in citizen science - although it is not the case of gender and education.
* **Quantifying gendered participation in OpenStreetMap: responding to theories of female (under) representation in crowdsourced mapping[[23]](#footnote-23)** The objective of this study is to explore gendered contributions to the online mapping project OpenStreetMap (OSM). The results reveal that this project is significantly dominated by men.
* **Evaluating environmental education, citizen science, and stewardship through naturalist programs[[24]](#footnote-24)** This study aims to understand citizens motivations, barriers, and perspectives as well as actions to advance science, stewardship, and community engagement. The main motivations were learning about the local environment, connecting with nature, and spending time with people who have similar interests. Participants in naturalist programs increased their content knowledge about ecosystems, had greater confidence in conserving them, and continued to engage as citizen scientists after completing the program.
* **Contribution of Multimedia to Girls’ Experience of Citizen Science[[25]](#footnote-25)** The article assessed a model of engagement that examined the impact of SciGirls multimedia to fifth grade girls’ experience of citizen science. The results show that incorporating multimedia is an effective method to influence girls’ citizen science interest, self-efficacy and learning.
* **Attitudes toward open access, open peer review, and altmetrics among contributors to Spanish scholarly journals**[[26]](#footnote-26) This paper deepens on the perspectives of contributors to Spanish scientific journals regarding open access, open peer review, and altmetrics. The results indicate that younger and female scholars were more reluctant to accept open peer review practices.
* **An intersectional approach to analyse gender productivity and open access: a bibliometric analysis of the Italian National Research Council[[27]](#footnote-27)** This paper explores the relation between gender and Open Access. The results point to the existence of gender disparities in scientific production in STEM disciplines.
* **Who support open access publishing? Gender, discipline, seniority and other factors associated with academics’ OA practice[[28]](#footnote-28)** This paper studies publishing behaviour of UK academics. The results point to differences in the Open Access practice between gender, universities, disciplines, age and seniorities. Thus, men were more likely to have experience of using both Gold and Green OA publishing than women

## Topic d) - Awareness-raising actions that foster the recruitment of new talent in sciences

### Keywords

* Equality (AND/OR science AND/OR scientific innovation AND/OR ICT)
* Career (AND/OR science AND/OR scientific innovation AND/OR ICT)
* Inclusion (AND/OR science AND/OR scientific innovation AND/OR ICT)
* Gender stereotypes (AND/OR science AND/OR scientific innovation AND ICT)
* Ethnic (racial) stereotypes (AND/OR science AND/OR scientific innovation AND ICT)
* Citizenship (AND/OR science AND/OR scientific innovation AND ICT)
* Sexism (AND/OR science AND/OR scientific innovation AND/OR ICT)
* Racism (AND/OR science AND/OR scientific innovation AND/OR ICT)
* Discrimination (AND/OR science AND/OR scientific innovation AND/OR ICT)
* Equal Opportunities (AND/OR science AND/OR scientific innovation AND/OR ICT
* LGBTQI (AND/OR science AND/OR scientific innovation AND/OR ICT)
* Gender Gap (AND/OR science AND/OR scientific innovation AND/OR ICT)
* Glass Ceiling (AND/OR science AND/OR scientific innovation AND/OR ICT)
* Awareness raising (AND/OR science AND/OR scientific innovation AND/OR ICT)
* Structural change (AND/OR science AND/OR scientific innovation AND/OR ICT)
* Women (AND/OR science AND/OR scientific innovation AND/OR ICT)
* Girls (AND/OR science AND/OR scientific innovation AND/OR ICT)
* Second generations (AND/OR science AND/OR scientific innovation AND/OR ICT)
* Implementation (AND/OR science AND/OR scientific innovation AND/OR ICT)
* Leaking pipeline (AND/OR science AND/OR scientific innovation AND/OR ICT)
* Efficacy (AND/OR science AND/OR scientific innovation AND/OR ICT)
* Gender/ethnic/racial diversity (AND/OR science AND/OR scientific innovation AND/OR ICT)
* Disability (AND/OR science AND/OR scientific innovation AND/OR ICT)
* Gender prejudices (AND/OR science AND/OR scientific innovation AND/OR ICT)
* Ethnic (racial) prejudices (AND/OR science AND/OR scientific innovation AND/OR ICT)
* Gender bias (AND/OR science AND/OR scientific innovation AND/OR ICT)
* Gender training (AND/OR science AND/OR scientific innovation AND/OR ICT)
* Ethnic (racial) bias (AND/OR science AND/OR scientific innovation AND/OR ICT)
* LGBTQI bias (AND/OR science AND/OR scientific innovation AND/OR ICT)
* Sexism (AND/OR science AND/OR scientific innovation AND/OR ICT)
* Neo-sexism (AND/OR science AND/OR scientific innovation AND/OR ICT)
* Racism (AND/OR science AND/OR scientific innovation AND/OR ICT)
* Neo-racism (AND/OR science AND/OR scientific innovation AND/OR ICT)
* Homophobia (AND/OR science AND/OR scientific innovation AND/OR ICT)
* Transphobia (AND/OR science AND/OR scientific innovation AND/OR ICT)
* Gender based discrimination (AND/OR science AND/OR scientific innovation AND/OR ICT)
* Ethnic (racial) discrimination (AND/OR science AND/OR scientific innovation AND/OR ICT)
* LGBTQI discrimination (AND/OR science AND/OR scientific innovation AND/OR ICT)
* Disability discrimination (AND/OR science AND/OR scientific innovation AND/OR ICT)
* Social/cultural marginality (AND/OR science AND/OR scientific innovation AND/OR ICT)
* Racial micro aggressions (AND/OR science AND/OR scientific innovation AND/OR ICT)
* Gender-based violence (AND/OR science AND/OR scientific innovation AND/OR ICT)
* Ethnic violence (AND/OR science AND/OR scientific innovation AND/OR ICT)
* Race violence (AND/OR science AND/OR scientific innovation AND/OR ICT)
* Homophobic violence (AND/OR science AND/OR scientific innovation AND/OR ICT)
* Transphobic violence (AND/OR science AND/OR scientific innovation AND/OR ICT)
* Ethnocentrism (AND/OR science AND/OR scientific innovation AND/OR ICT)
* Citizenship (AND/OR science AND/OR scientific innovation AND/OR ICT)
* Gendered citizenship (AND/OR science AND/OR scientific innovation AND/OR ICT)
* Ethnic citizenship (AND/OR science AND/OR scientific innovation AND/OR ICT)
* LGBTQI citizenship (AND/OR science AND/OR scientific innovation AND/OR ICT)
* Youth citizenship (AND/OR science AND/OR scientific innovation AND/OR ICT)
* Youth (AND/OR science AND/OR scientific innovation AND/OR ICT)
* Transition to adulthood (AND/OR science AND/OR scientific innovation AND/OR ICT)
* Youth cultures (AND/OR science AND/OR scientific innovation AND/OR ICT)
* Youth socialization (AND/OR science AND/OR scientific innovation AND/OR ICT)
* Intergenerational relations (AND/OR science AND/OR scientific innovation AND/OR ICT)
* Youth participation (AND/OR science AND/OR scientific innovation AND/OR ICT)
* Youth agency (AND/OR science AND/OR scientific innovation AND/OR ICT)
* Youth resilience (AND/OR science AND/OR scientific innovation AND/OR ICT)
* Youth, family relations (AND/OR science AND/OR scientific innovation AND/OR ICT)
* Peer groups (AND/OR science AND/OR scientific innovation AND/OR ICT)
* Neets (AND/OR science AND/OR scientific innovation AND/OR ICT)
* Youth representations of the future (AND/OR science AND/OR scientific innovation AND/OR ICT)
* Youth, belonging (AND/OR science AND/OR scientific innovation AND/OR ICT)
* Age gap (AND/OR science AND/OR scientific innovation AND/OR ICT)
* Religious visions (AND/OR science AND/OR scientific innovation AND/OR ICT)

### Criteria of selection

Sources explored:

* Scientific papers indexed in the top scientific databases, namely Web of Science (mainly in those journals indexed in Journal Citation Reports) and Scopus, specially articles in Q1 or Q2 journals indexed in JCR or in Q1 journals indexed in Scopus .Sources will be selected seeking an interdisciplinary approach, both regarding the journals’ and the articles of selection.
* Relevant reports from EU-funded research projects and official EU documents with relevant contributions

Inclusion criteria:

* Having been published within the last 10 years.
* The impact achieved by the article: articles achieving a high impact will be considered
* as more relevant.
* The social impact reported by the article: articles presented experiences of success will be considered as more relevant.

Exclusion criteria:

* Not fulfilling the inclusion criteria
* Not falling into the scope of the review

### Identified Sources

A total of 55 articles that fulfill all the inclusion criteria were included in this topic.[[29]](#footnote-29)

### Outcomes

* This study points to the negative effect a variety of stereotypes have on STEM identity among a diverse group of undergraduate women. Implicit gender-STEM associations may directly affect women’s motivation to enter STEM careers and the value they place on STEM, independent of STEM identity. Similarly, the more women explicitly associated STEM with men, the lower their identification with people in STEM was. Endorsing stereotypes that people who work in STEM are nerdy geniuses who are tech obsessed, have no social lives, and are not successful romantically was negatively related to STEM identity and, in turn, to motivation. Addressing stereotypes may be helpful to increase women in STEM. These interventions might incorporate growth-mindset, employ STEM role models, diversifying media representations of people in STEM.[[30]](#footnote-30)
* Several factors influence the academic climate and the careers in STEM departments: identity, climate and experiences have career consequences for LGBT faculty. The efforts to improve the retention of LGBT faculty need to address the climate; furthermore, reducing exclusionary behavior could enhance retention and comfort.[[31]](#footnote-31)
* Through their presentations, interactional styles, and the images they project, companies convey a gendered sense of who will fit best in their company culture. Company representatives often engage in behaviors that are known to create a chilly environment for women. By emphasizing geeky masculinity, they risk appealing only to a narrow range of men and virtually no women. In male-dominated fields, companies have an opportunity to increase the representation of women by being more mindful of the images they project in recruitment sessions, interviews, and the workplace more generally.[[32]](#footnote-32)
* The existence of gender bias produces STEM gender gaps. When explicitly exposed to the reality of bias in the gender bias condition, women expected to experience less sense of belonging, positive attitudes, and aspirations to participate in STEM than did men. These gender differences were fully eliminated when participants were exposed to the idea of gender equality. This suggests that women may project being just as enthusiastically engaged in STEM as men in the absence of gender bias. Evidence-based interventions targeting gender bias are needed to boost women’s representation.[[33]](#footnote-33)
* The results indicated that participants across 66 nations strongly associated science with men more than women, including in nations where women were approximately half of the nation’s science majors and employed researchers. Results indicated robust relationships between women’s representation in science and national gender-science stereotypes, defined as associations connecting science with men more than women. Even nations with high overall gender equity had strong gender-science stereotypes if men dominated science fields specifically.[[34]](#footnote-34)
* There was a gender-biased perception regarding gender suitability for various fields. Women were perceived to be best-suited to nursing and least-suited to mechanical engineering. Music, art, humanities and economics, which were not STEM fields, ranked among the top nine fields for women. Conversely, for men, eight out of top nine fields were STEM. Mechanical engineering was perceived to be the best and biology was perceived to be the worst. Findings showed that perceptions for academic fields are still gender biased.[[35]](#footnote-35)
* The hypothesis about an increase in the traditionality view (verbal abilities: girls; math abilities: boys) with age was found only for verbal stereotypes. For math and science, girls tended to favor girls at all three ages, and sixth and eighth grade boys either were egalitarian or also favored girls. Children’s reports of their own gender stereotypes were correlated with their perceptions of adults’ gender stereotypes. The results support a synthesis of developmental and social identity theories regarding individual differences in children’s stereotype endorsement. Children’s tendency to favor girls in verbal domains may contribute to gender differences in educational and career choices by pulling girls toward the humanities and social sciences and discouraging boys from pursuing those domains.[[36]](#footnote-36)
* The authors indicate continuing subtle forms of discrimination that largely go unnoticed – by both women and men alike in healthcare science. While women act and behave within healthcare science, the discourses constituting masculinity and femininity typically reinforce interpretations that men are more suited to high-level posts than women. Men were thought subtly to treat women as though they were inferior to men; however, it is apparent from the interviews that women rarely challenge male behaviour they see as problematic, finding ways to cope that typically reinforce their subordination. Women are expected to undertake roles that are institutionally associated with women (the necessary laboratory support, operational work or relational activities) but these do not earn them accolades in science. Their undertaking these roles is expected not only by the male bosses but also by women themselves. Even when women are praised for their scientific skills, it is because they work well under direction. Some women are also moved away from their scientific specialty into management or support roles, seemingly having little control over the direction of their supposed careers. Women, then, become invisible as scientists and become excluded by men from decision-making forums. While many of the interviewed women were at least initially resistant to any possibility that gender was important in their career or wider life-opportunities, as the interviews typically proceeded, there were glimpses of men’s actions thought to have had subtly negative consequences. Once women began to talk about the subtle masculinities in action that they experienced, they seemed prepared to discuss them further; it was as though articulating their disadvantage initially troubled them and talking about their experiences presented an opportunity for women to consider the men’s actions in a way they had not previously considered doing.[[37]](#footnote-37)
* This study explores the perceptions of the stereotypes applied to female STEM professionals who publicly speak about their work in both academic and non-academic settings. The results show the top three stereotype categories for women in science who publicly communicate their work as ‘Bitchy’, lack of ‘Credibility’, and judged on ‘Appearance’. Participants had mixed positive and negative associations, which may indicate that women were often judged more harshly when they did not conform to the stereotype. The results also show the majority of stereotypes women face when communicating are perceived to be negative.[[38]](#footnote-38)
* The goals were understanding a) whether women’s experiences of sexual harassment and STEM-related gender bias negatively predicted women STEM motivation (task value, competence beliefs, and perceived costs) and STEM career aspirations; b) whether STEM encouragement from friends and family positively predicted motivation and aspirations. To consider domain-specific effects, the authors also tested the predictors in relation to non-STEM motivation and career aspirations. STEM-related gender bias from classmates and sexual harassment from instructors (faculty, teaching assistants, or graduate students) were negatively related to STEM motivation and career aspirations. Perceived STEM encouragement from friends was positively related to motivation, and STEM encouragement from friends and family predicted STEM career aspirations.[[39]](#footnote-39)

## Topic e) - Policies that promote awareness-raising actions and citizen engagement in science

### Keywords

* Polic\* AND awareness AND science AND technology AND gender
* Polic\* AND awareness AND engagement AND science AND gender
* Polic\* AND awareness AND involvement AND science AND gender
* Polic\* AND awareness AND citizen science AND science AND gender
* Polic\* AND awareness AND open science AND science AND gender
* Polic\* AND awareness AND open access AND science AND gender

An additional search in the bibliografies of the selected articles was carried out.

### Criteria of selection

Sources explored:

* Scientific papers indexed in the top scientific databases, namely Web of Science (mainly in those journals indexed in Journal Citation Reports) and Scopus, specially articles in Q1 or Q2 journals indexed in JCR or in Q1 journals indexed in Scopus .Sources will be selected seeking an interdisciplinary approach, both regarding the journals’ and the articles of selection.
* Relevant reports from EU-funded research projects and official EU documents with relevant contributions

Inclusion criteria:

* Having been published within the last 10 years.
* The impact achieved by the article: articles achieving a high impact will be considered
* as more relevant.
* The social impact reported by the article: articles presented experiences of success will be considered as more relevant.

Exclusion criteria:

* Not fulfilling the inclusion criteria
* Not falling into the scope of the review

### Identified Sources

A total of 40 articles were obtained from the abovementioned searches in JCR and Scopus. None of them was of the scope of the topic.[[40]](#footnote-40)

### Outcomes

* **Increasing research impact with citizen science: The influence of recruitment strategies on sample diversity[[41]](#footnote-41)** The objective of this paper is to explore the effect on the profile, motivation and retainment of citizen science volunteers of a targeted recruitment strategy versus a generic recruitment in five citizen science projects in the domain of drinking water research. The three projects which used a targeted recruitment strategy attracted a significantly higher diversity of participants. This article concludes that by using a targeted recruitment strategy it is possible and succeed in the recruitment of diverse citizen science volunteers.
* **Inclusiveness and Diversity in Citizen Science[[42]](#footnote-42)** This book chapter analyses how inclusiveness in citizen science is tackled through three case studies. After the analysis, the authors offer recommendations for a possible plural participation in citizen science activities, including projects to explain citizen science to target audiences and funding organisations to promote more inclusive citizen science approaches. The chapter demonstrates how research impacts are enhanced through citizen participation, with a focus on gender representation.
* **The diversity of participants in environmental citizen science[[43]](#footnote-43)** The article aims to study citizens’ participation in environmental citizen science in Great Britain. The results show that men were more likely to participate than women and whit people more than those identifying as from minority ethnic groups. Intersectionality of gender and ethnicity points that the participation of women from minority ethnic groups was particularly low. In this line, the study discusses mechanisms for widening participation, such as providing a variety of activities for people with different types of skills. The study encourages monitorization of diversity in citizen science.
* **Learning Through Citizen Science: Enhancing Opportunities by Design[[44]](#footnote-44)** This book by the US National Academies of Sciences, Engineering, and Medicine Committee on Designing Citizen Science to Support Science Learning summarises available research on citizen science and science learning. In this line, it shares a set of evidence-based principles to orient the design of citizen science projects. These recommendations include that designers, researchers, and stakeholders in citizen science address issues of equity throughout all phases of project design and implementation and that the citizen science community collaborate to identify, enhance, and develop shared tools and platforms that they can use to support science learning across a large number of citizen science projects, among others.
* **Strategic advice for enhancing the gender dimension of Open Science and Innovation Policy[[45]](#footnote-45)** This report of the H2020 GENDERACTION reveals that most analyses and policy documents related to Open Science and Open Innovation (OS/OI) adopt a gender blind approach. The report argues that the consideration of gender issues in the development of OS/OI policies could have a positive impact on the promotion of gender equality goals and elimination of gender biases. The analysis of the existing literature and examples of promising practice has informed the formulation of the following sets of recommendations, clustered into five priorities for action, targeting a variety of stakeholders (European Commission, Member States, RFOs, RPOs, innovative firms as well as researchers)

# EDUCATION

## Topic a) - How citizens’ benefit from scientific research

### Keywords

* Societal impact of research AND education
* Social benefits of science AND education
* Science social impact on / AND inequalities
* Science social impact on / AND education
* “political impact” AND education
* evidence-based AND education\* AND social impact
* successful AND educational AND vulnerable
* successful AND educational AND impact
* “social impact” AND education AND inequalities
* “societal impact” AND education
* “social impact” AND education AND school

### Criteria of selection

Sources explored:

* Scientific papers indexed in the top scientific databases, namely Web of Science (mainly in those journals indexed in Journal Citation Reports) and Scopus, specially articles in Q1 or Q2 journals indexed in JCR or in Q1 journals indexed in Scopus .Sources will be selected seeking an interdisciplinary approach, both regarding the journals’ and the articles of selection.
* Relevant reports from EU-funded research projects and official EU documents with relevant contributions

Inclusion criteria:

* Having been published within the last 10 years.
* The impact achieved by the article: articles achieving a high impact will be considered
* as more relevant.
* The social impact reported by the article: articles presented experiences of success will be considered as more relevant.

Exclusion criteria:

* Not fulfilling the inclusion criteria
* Not falling into the scope of the review

Additional inclusion criteria are: 1) Subject area is Social Sciences, 2) the writing language is English, 3) the document type is article, 4) the keyword is education when available, 5) the publish year of these literature were during 2010-2021, 6) the source type is journal and 7) the journal is indexed in Journal Citation Reports (Q1 or Q2) or Scopus (Q1)

### Identified Sources

Diagrama

Descripción generada automáticamente

The literature search yielded 784 potential articles, of which 598 were discarded because they were out of scope, 54 due to the journal impact, 92 due to the lack of evidence of scientific, political or social impact and 5 due to repetition. One article published in a journal indexed in Scopus (Q2) was not discarded due to lack of journal impact because the article has been cited by 17 articles indexed in JCR. Additionally, 7 articles from the research on gender or on topic “b” were added as deemed relevant for the topic. One report was identified in the search for grey literature, but its content felt out of the scope of this report. Finally, 41 articles were included in the analysis.[[46]](#footnote-46)

### Outcomes

* **Which role do student prefer to assume during peer discussions, and how a preferred role may vary given a student’s social identities?** The results indicate that self-reported preferred roles in peer discussions can be predicted by student gender, race/ethnicity, and nationality (Eddy et al., 2015). Gender predicted whether a student reported preferring to be a collaborator or a leader/explainer, with males more likely to prefer the leadership/explainer role and females more likely to prefer to be collaborators. Race/ethnicity and nationality influenced whether or not students preferred to do any explaining in their groups. Underserved American, Asian-American, and international students were all more likely to prefer playing listening roles compared with white students.[[47]](#footnote-47)
* **Overall, students seem to be less anxious in small peer-group discussions**. This pattern is true for all white, Asian, and underserved American students participated in the research, but particularly true for females. Females feel an equally low level of anxiety as their male peers in peer discussions but disproportionately more anxiety than males in whole-class discussions (Eddy et al., 2015).
* Socioeconomic inequalities and disadvantages, which are patterned by policies, have negative—and long-lasting—consequences for the educational development of children (Merry, Condron, & Torres, 2020).[[48]](#footnote-48)
* The University of Calgary’s Cumming School of Medicine has spearheaded a year-round, **mini-med school outreach initiative for Aboriginal students addressing systemic barriers** experienced by low-income and minority students to accessing medical school. A mini-medical school for Aboriginal youth highlights mutual, long-term benefit for diverse partners, encouraging medical educators and community-based science educators to explore the possibilities for deepening partnerships in their own regions (Henderson, Williams, & Crowshoe, 2015).[[49]](#footnote-49)
* National level data on 45 countries for 8 years (2006–2013) were obtained to analyze the direct effect as well as moderation effect of social security on technology-based entrepreneurial activity (Song, Park, & Kim, 2020). Social security has a positive effect on the share of technology-based entrepreneurial activity. In addition, the positive impact of social security showed a gradual decline as individualism increases. This implies that social security can contribute to the promotion of technology-based entrepreneurial activity even if it negatively impacts the overall rate of entrepreneurial activity.[[50]](#footnote-50)
* Sánchez, Krajcik, and Reiser (2018) describe a process of **contextualizing science materials from the perspective of Culturally Relevant Pedagogy.** They present a way to adapt a biology unit on natural selection to achieve relevance for students whose culture is not the dominant Western culture (specifically Mexican Nahua adolescents), as a way to increase access to science education for ethnic and culture minority students. The significant learning gains and the application of content knowledge that students exhibited throughout the enactment of the unit suggest that the contextualization principles can support students’ learning of western science knowledge, potentially facilitating their access to and understanding of challenging concepts such as natural selection. [[51]](#footnote-51)
* Georgia, USA: Imbalances between black students and white students are higher in integrated schools. Increased contact between black students and white students in integrated schools did not result in greater tolerance and lower levels of discrimination, thus reducing racist patterns in discipline (Freeman & Steidl, 2016)[[52]](#footnote-52)
* Lange (2011) questioned the popular assumption that education promotes peaceful ethnic relations and explored ways education potentially contributes to ethnic violence.Analysis of three case studies of Cyprus, Sri Lanka, and Assam offers evidence that education can promote ethnic violence by strengthening ethnic divisions and inter-communal disfavor, increasing frustration and aggression, intensifying competition, and providing mobilizational resources. Despite its influence, the case studies do not suggest that education was the most important cause of ethnic violence. In fact, they do not even suggest that education is a direct cause of ethnic violence. Instead, the analysis provides evidence that limited economic opportunities, political discrimination, and preexisting ethnic antagonisms are the most proximate determinants of ethnic violence[[53]](#footnote-53).
* Poverty simulation did not significantly alter the nutrition students’ sensitivity towards low-income individuals, but they identified that the community needs to provide a more effective and efficient services. Results suggests that incorporating experiential learning in a nutrition course can help student develop a more empathetic understanding of poverty (Nnakwe, 2020)[[54]](#footnote-54).
* Serbin, Stack, and Kingdon, (2013) investigated the transition from primary to secondary schooling during early adolescence, when academic performance among youth often declines. The results support a central hypothesis derived from transition theory: at-risk children have more difficulty in adapting post transition because they typically have developed weaker social and academic skills prior to the transition and they may receive less support from family and other environmental resources.[[55]](#footnote-55)

## Topic b) - Citizen awareness of the impact of scientific research

### Keywords

* Social awareness of scientific research AND education
* Social awareness of scientific research and youth AND education
* Social awareness of scientific research AND education
* Social awareness of scientific research and social inequalities AND education
* Science impact in reflective societies AND education
* Knowledge transfer societal impact AND education
* Knowledge transfer education impact OR Knowledge transfer and education impact
* Knowledge transfer and social inequalities AND education

### Criteria of selection

Sources explored:

* Scientific papers indexed in the top scientific databases, namely Web of Science (mainly in those journals indexed in Journal Citation Reports) and Scopus, specially articles in Q1 or Q2 journals indexed in JCR or in Q1 journals indexed in Scopus .Sources will be selected seeking an interdisciplinary approach, both regarding the journals’ and the articles of selection.
* Relevant reports from EU-funded research projects and official EU documents with relevant contributions

Inclusion criteria:

* Having been published within the last 10 years.
* The impact achieved by the article: articles achieving a high impact will be considered
* as more relevant.
* The social impact reported by the article: articles presented experiences of success will be considered as more relevant.

Exclusion criteria:

* Not fulfilling the inclusion criteria
* Not falling into the scope of the review

Additional inclusion criteria of the literature we used is: 1) Subject area is Social Sciences, 2) the writing language is English, 3) the document type is article, 4) the keyword is education when available, 5) the publish year of these literature were during 2010-2021, 6) the source type is journal and 7) the journal is indexed in Journal Citation Reports (Q1 or Q2) or Scopus (Q1).

### Identified Sources

Diagrama

Descripción generada automáticamente

The literature search yielded 104 potential articles, of which 82 were discarded because they were out of scope, 12 due to unavailability on Scopus and there were 2 articles repeated. A final sample of 10 articles was included in the analysis.[[56]](#footnote-56)

### Outcomes

* **How may education for sustainable development (ESD) be implemented in early childhood education?[[57]](#footnote-57)** Looking through the literature on ESD, certain common critical points needed to orient the pedagogical approaches: 1) they should be action-integrative, meaning they should encourage practical activities that integrate scientific and non-scientific knowledge; 2)t hey should be community-based, and encourage relevant activities with transformative goals; and 3) they should be value-oriented, with a large enough scope to develop ethics and aesthetics attitudes regarding humans and non-humans.
* **Science, Camera, Action! (SCA), an after-school program**, designed by Trott (2020) to empower ten- to twelve-year-old children as change agents for sustainability within their families and communities through individual and collaborative action. SCA integrated transformative sustainability pedagogy with arts-based and participatory methodologies. Through the combination of hands-on climate change educational activities, photovoice process, and youth-led action projects, children simultaneously acquired critical knowledge, made personal and place-based connections to the issue, and enacted sustainable solutions they envisioned for themselves[[58]](#footnote-58).
* The incorporation of Bayesian updating activities, including direct evaluation activities in lab reports and indirect evaluation activities in lecture, homework, and exams, appears to have produced epistemic gains that are credible and of moderate-to-strong effect size (Warren, 2020)[[59]](#footnote-59).
* **The transfer of climate experts' knowledge by itself has little chance of changing publics' behaviors**. It may be that such approaches work with people already disposed to the information or who defer to experts, but it is unlikely to affect publics who are doubtful, those whose livelihoods are precarious, or those who do not want to consider the terrifying implications of climate change (Cook & Overpeck, 2019)[[60]](#footnote-60).
* Nölting et al. (2020) provided a definition of sustainability transfer and identified and described six descriptive characteristics that enable such transfer activities. Visibility can increase appreciation for this form of transfer. The descriptive characteristics also enable empirical analysis and comparison between different forms of sustainability transfer, which in turn allows a more precise positioning in the focal area of universities and increases the academic compatibility.[[61]](#footnote-61)
* Forms of discrimination, whether conscious or unconscious, may be negatively impacting the abilities of BAME students both in examinations and in coursework choice (Claridge, Stone & Ussher, 2018).[[62]](#footnote-62)
* Multimedia design principles are easy to implement and result in improved short-term retention among medical students (Issa et al., 2011)[[63]](#footnote-63)
* The following three pedagogical approaches can integrate the three cornerstones presented and can be very useful for teachers and teacher trainers to make explicit the goals behind an ESD activity: Art-Based Inquiry Experiences, Outdoor Education, Project and Problem-Based Learning.[[64]](#footnote-64)

## Topic c) - Awareness-raising initiatives succeeding at engaging citizens in scientific participation, including the Open Access moviment

### Keywords

* Science or technology and education and under-representation
* Science or technology and education and “vulnerable groups”
* Science or technology and education and “Citizen engagement” or “public engagement”
* Science or technology and education and "Learning design" or "Learning engagement"

### Criteria of selection

Sources explored:

* Scientific papers indexed in the top scientific databases, namely Web of Science (mainly in those journals indexed in Journal Citation Reports) and Scopus, specially articles in Q1 or Q2 journals indexed in JCR or in Q1 journals indexed in Scopus .Sources will be selected seeking an interdisciplinary approach, both regarding the journals’ and the articles of selection.
* Relevant reports from EU-funded research projects and official EU documents with relevant contributions

Inclusion criteria:

* Having been published within the last 10 years.
* The impact achieved by the article: articles achieving a high impact will be considered
* as more relevant.
* The social impact reported by the article: articles presented experiences of success will be considered as more relevant.

Exclusion criteria:

* Not fulfilling the inclusion criteria
* Not falling into the scope of the review

### Identified Sources

A total of 180 articles were retrieved from the abovementioned searches in Scopus. After looking through the articles, 148 were excluded because they were out of the scope.[[65]](#footnote-65)

### Outcomes

* **The under-representation of minority ethnic groups in UK medical research[[66]](#footnote-66):** Explanations for ethnic disparities in engagement with medical research relate to the practices/outlooks of the medical research community, and/or the experiences/outlooks of potential research subjects. There is evidence suggesting fear and mistrust on the part of potential research subjects (including experiences of discrimination within the healthcare system); difficulties in access (relating to low socio-economic status and language differences); and potentially conflicting socio-cultural beliefs (e.g. modesty/gender roles and the use of alternative medicines).
* **Reassembling the Problem of the Under-Representation of Girls in IT Courses[[67]](#footnote-67)** There has been little impact upon the numbers of girls following the pathway to tertiary study of information technology and the numbers of girls studying IT in schools are actually trending down. In particular, it is important to differentiate between the different kinds of IT career pathways and the need to emphasise the relevance of senior IT subjects to university studies in software engineering and information technology.
* **How Cardiac Anesthesiology Can Help “STEM” the Tide of Under-representation of Minorities in Science and Medicine[[68]](#footnote-68)** Many medical centers have developed educational outreach programs for students with the hopes of attracting a diverse cohort of talented young individuals to careers in STEM. Stanford University developed an effective 5-week residential program (including classroom instruction, anatomy practicum, hospital field placements, and research projects) for low-income high school students in an attempt to meet this goal. Cardiac anesthesia is uniquely positioned as a subspecialty to advance the goal of promoting interest in STEM in diverse groups of young students.
* **Catalyzing Public Engagement With Climate Change Through Informal Science Learning Centers[[69]](#footnote-69)** Informal science learning centers (ISLCs; zoos, aquariums, national parks, museums, science centers, and nature centers) in the United States can catalyze public engagement with climate change through greater incorporation of the topic into their curriculum. This contrasts with popular suggestions to avoid directly discussing climate change in environmental communication and illustrate that the prevailing social narrative that climate change is a politically unpalatable topic for public discourse is unfounded.
* **Transforming a school learning exercise into a public engagement event: ‘The Good, the Bad and The Algae’[[70]](#footnote-70)** Practical activity in the classroom should provide a simplified version of science, making it easier to understand, and be seen as a communication rather than a discovery exercise. Some of these experiences are founding principles on which scientific public engagement activities are built, encouraging social involvement whilst enabling learning more overtly than the more formal classroom setting. However, public engagement allows science to be presented in different ways to the conventional school science laboratory.
* **Instagram and the science museum: a missed opportunity for public engagement[[71]](#footnote-71)** Based on an analysis of science museums’ Instagram posts, most of these organizations are not tapping into the platform’s potential as a window into the scientific life of the museum, for example through features of researchers, glimpses of behind-the-scenes activities or highlights of citizen science inside and outside the museum. Posts featuring such content have the potential to inspire museum audiences to engage in scientific activities in their daily lives and to see themselves as citizen curators for a living museum. Research has established a higher level of viewer engagement with visuals that include a human element, particularly faces.
* **Learning design for science education in the 21st century[[72]](#footnote-72)** Science educators need to focus on supporting students to develop sufficient bases of conceptual knowledge required not only for thinking and solving problems, but also for sense-making, and designing, engineering and applying technologies. An activity is a critical component for full achievement of learning outcomes - it provides students with an experience where learning occurs in the context of emerging understanding, testing ideas, generalizing and applying knowledge.
* **An empirical examination of e-learning design: The role of trainee socialization and complexity in short term training[[73]](#footnote-73)** The implementation of e-learning has not automatically resulted in increased training efficacy. Those who received face-to-face socialization outperformed those who received either online socialization or no socialization. Trainees should be given the opportunity to get to know their fellow trainees in person prior to training when possible. One way to do this would be to have geographically-based pre-training socialization, or networking opportunities (to minimize travel time and organizational expenses) where trainees could briefly get to know each other.
* **Facilitating inpatients' family members to learn: A learning engagement-promoting model to develop interactive e-book systems for patient education[[74]](#footnote-74)** A learning engagement-promoting model is proposed for developing interactive e-book systems for patient education. An experiment was conducted to explore the effects of the system on the learning outcomes and perceptions of inpatients’ family members. Learning with authentic contexts can help learners realize the meanings and values of the learning content, and hence improve their learning engagement and outcomes
* **Cultural diversity online: student engagement with learning tecnologies[[75]](#footnote-75)** Cultural differences have an impact on participant satisfaction with organisational and technological issues, with local respondents indicating significantly more positive perceptions than international respondents. Students whose first language was English had significantly more positive perceptions when compared with students whose first language was not English.

## Topic d) - Awareness-raising actions that foster the recruitment of new talent in sciences

### Keywords

* Science or technology and education and Under-representation and recruitment
* Science or technology and education and “vulnerable groups” and recruitment
* Science or technology and under-representation and recruitment
* Science or technology and "vulnerable groups" and recruitment
* Science or technology and education and diversity and "business case"
* Science or technology and education and careers and success
* Science or technology and education and teaching and diversity
* Science or technology and education and “smart cities”

### Criteria of selection

Sources explored:

* Scientific papers indexed in the top scientific databases, namely Web of Science (mainly in those journals indexed in Journal Citation Reports) and Scopus, specially articles in Q1 or Q2 journals indexed in JCR or in Q1 journals indexed in Scopus .Sources will be selected seeking an interdisciplinary approach, both regarding the journals’ and the articles of selection.
* Relevant reports from EU-funded research projects and official EU documents with relevant contributions

Inclusion criteria:

* Having been published within the last 10 years.
* The impact achieved by the article: articles achieving a high impact will be considered
* as more relevant.
* The social impact reported by the article: articles presented experiences of success will be considered as more relevant.

Exclusion criteria:

* Not fulfilling the inclusion criteria
* Not falling into the scope of the review

### Identified Sources

A total of 147 articles were retrieved from the searches in Scopus. 140 were excluded because they were not the scope of the topic. Thus, the final sample was constituted by 43 articles[[76]](#footnote-76)

### Outcomes

* **Which are my Future Career Priorities and What Influenced my Choice of Studying Science, Technology, Engineering or Mathematics? Some Insights on Educational Choice—Case of Slovenia[[77]](#footnote-77)** All STEM students want to realize their own potential by doing something interesting and fulfilling and by using their talents and abilities in their future careers. ‘Interest in STEM subjects’ were found to be the most influential on the choice of studying STEM, especially for female students. Therefore, engaging and absorbing classroom experiences that enhance intrinsic motivation can foster interests towards STEM and ultimately influence the choice of studying STEM. There is a significant gender difference in favour of females who found school lessons showing the relevance of the respected STEM subject to society as more important in terms of the influence they had on their choice of studying STEM.
* **Creating change: building the capacity of the medical workforce in Aboriginal health[[78]](#footnote-78)** The initial focus was on developing recruitment and retention strategies that meaningfully address the significant under‐representation of Aboriginal and Torres Strait Islander people in the medical and broader health professions. Providing comprehensive student support is the other key factor in assisting students to successfully complete their health degree. There are several key strategies that have enabled this success to be achieved. These include a strong school high school programme; the creation of alternative entry requirements for Aboriginal and Torres Strait Islander students; the creation of individually tailored educational pathways for each student; and the implementation of comprehensive and ongoing supports for students once they enter the health programme of their choice.
* **Analysis of instruments focused on gender gap in STEM education[[79]](#footnote-79):** Groups such as women and ethnic minorities are under-represented in science, technology, engineering and mathematics. This under-representation becomes evident as the academic and professional scale progresses, making representation figures smaller at higher levels. This is due to the existence of stereotypes about the presence in the technological and scientific sector. The influence established by this decision and the school trajectory, the academic achievements, the recommendations and work of parents, the stereotyped ideas they have towards this sector, are variables of analysis. These variables may make it possible to detect the key point on which to influence the investigations and the proposals for intervention that derive from them.
* **Gendered Interests in Electrical, Computer, and Biomedical Engineering: Intersections With Career Outcome Expectations[[80]](#footnote-80):** The current study finds that female identified students report stronger associations between “helping others” and interest in bioengineering/biomedical engineering than non-females, while they report less interest in electrical and computer engineering overall, with similar associations to factors such as “inventing/designing things” than non-females. These results suggest that a potential path to improved participation of women in electrical and computer engineering may be to recruit participants through an emphasis on the communal or relational importance of these domains.
* **Catch 22 — improving visibility of women in science and engineering for both recruitment and retention[[81]](#footnote-81):** There is a significant under-representation of women in STEM which is damaging societal progress for democratic, utilitarian, and equity reasons. However, changing stereotypes in STEM requires a solution denied by the problem — more visible female role models. Science communicators are critical to curate the conditions to bypass this Catch 22. We propose that enhancing self-efficacy for female scientists and engineers to mentor others will generate more supportive workplaces. Similarly, enhancing self-efficacy for public engagement improves the visibility of diverse female role models for young girls. These social connections will ultimately improve the science capital of girls and other minorities in STEM.
* **Carrots or Sticks? A Study on Incentives to Attract and Retain Women in Science, Engineering and Technology in South Africa[[82]](#footnote-82)**:Examines the way incentives can be used to attract and retain women and, subsequently, enable them to re-enter the diverse fields of Science, Engineering and Technology (SET) in South Africa. Incentives must be implemented in the SET sector in a general drive to allow women professionals to advance in their careers and to improve gender sensitivity in the SET organisational culture. Incentives available in the SET higher education and corporate sector should be used to increase gendered and racial diversity to meet South Africa’s constitutional and legal requirements.
* **Theoretically and Practically Speaking, What is Needed in Diversity and Equity in Science Teaching and Learning? [[83]](#footnote-83)**Issues of diversity include being able to see the range of diversity and equity issues associated with knowing who teachers are, who they teach, how they teach, and what they teach. This involves knowledge of pedagogy in teaching subject matter to students; awareness of student identities and cultures; inclusion of multiple perspectives in the classroom to enhance student learning; and implementation of diverse assessments to capture students’ understandings of the content. Preparing teachers to teach diverse students must include efforts to transform one’s minds and challenge one’s thinking about what it means to teach more effectively students who are being underserved in their education.
* **Race, multiculturalisms and the role of science in teaching diversity: towards a critical post-modern science pedagogy[[84]](#footnote-84)** This research suggests that teachers’ pedagogical content knowledge and cultural understandings are central to effective teaching and high levels of student achievement. History provides several examples of attempts to legitimate discriminatory practices against non-white ethnic groups by appropriating the narratives of science and culture. Using science as a catalyst for teaching about diversity has the potential to unravel misconceptions about race and ethnicity by systematically addressing fundamental aspects of our shared humanity, as well as evoke critical questions about the social and historical discourse of diversity in education.
* **Educating the smart city: Schooling smart citizens through computational urbanism[[85]](#footnote-85)** By equipping young people with the relevant data literacies and coding skills, these smart city initiatives seek to encourage them to occupy the forms of conduct that are appropriate for participation in coded urban infrastructures, thus responsibilizing them as data analysts, digital makers and civic coders who will design the technologies that will enable the city, as a digital governor, to interact with its citizens and to learn about their activities and behaviours in real-time.
* **Gamification and citizen motivation and vitality in smart cities: a qualitative meta-analysis study[[86]](#footnote-86)** Gamification has attracted the attention of many scholars of different fields such as education, commerce, management, urban planning, and citizen science since a decade ago. Gratitude and reward systems, which are parts of gamification, make people engage with what they are doing and increase their communication with others. Gamification stems from the ignition of the competitiveness that exists in all humans. Gamification is being used in e-learning systems to motivate and engage learners.

## Topic e) - Policies that promote awareness-raising actions and citizen engagement in science

### Keywords

A combination of the following searchable keywords will be used to conduct the literature review:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **policy** | **actions** | **groups** | **Science** | **Scope** |
| Policies | awareness-raising | vulnerable groups | science | education |
| Policy | citizen science | youth | scientific | educational |
|  | social impact | young citizens | research | culture |
|  | social transformation | special needs |  | cultural |
|  | social cohesion | cultural minorities |  | High School Education |
|  | Equality | ethnic minorities |  | Primary Education |
|  | Egalitarian | children |  | Preschool Education |
|  | Inclusion | teenager |  | Early childhood education |
|  | Engagement | adolescent |  | Ordinary School |
|  | awareness | migrant |  | School |
|  | implementation | student |  | College |
|  | literacy | community |  | University |
|  | Successful Educational Actions |  |  | Adult School |
|  |  |  |  |  |

### Criteria of selection

Sources explored:

* Scientific papers indexed in the top scientific databases, namely Web of Science (mainly in those journals indexed in Journal Citation Reports) and Scopus, specially articles in Q1 or Q2 journals indexed in JCR or in Q1 journals indexed in Scopus .Sources will be selected seeking an interdisciplinary approach, both regarding the journals’ and the articles of selection.
* Relevant reports from EU-funded research projects and official EU documents with relevant contributions

Inclusion criteria:

* Having been published within the last 10 years.
* The impact achieved by the article: articles achieving a high impact will be considered
* as more relevant.
* The social impact reported by the article: articles presented experiences of success will be considered as more relevant.

Exclusion criteria:

* Not fulfilling the inclusion criteria
* Not falling into the scope of the review

### Identified Sources

Interfaz de usuario gráfica, Aplicación

Descripción generada automáticamente

Interfaz de usuario gráfica, Diagrama, Aplicación

Descripción generada automáticamente

From the same search in the two databases (JCR and SCOPUS), 425 (out of 12.226) articles were coinciding, and among these, 18 of the selected for the review. This implies that the final sample of articles potentially eligible for analysis resulting from the two searches in JCR and SCOPUS databases was 34. After a thorough read of the 34 articles, 31 more were discarded: 20 of them because they were not from the topic, 5 more because the full document was not available, and 6 because their journal impact was lower than stated (Q1 or Q2 in JCR and Q1 in SCOPUS). 3 articles were finally selected as relevant for the literature review but excluded after an in-depth reading for not fulfilling all the criteria. However, given the proximity of these three articles to the original topic, a snowball search on the basis of the references cited in the articles was conducted to make sure that the topic was covered. Thus, from these 3 articles, 58 more were extracted that initially appeared to meet the topic. Among these 58, 42 articles were out of the topic, 14 articles were unavailable, and 1 was below  the established impact factor in order to be considered (the impact factor of its journal did not reach Q1 in Scopus or Q1/Q2 in JCR). 2 articles were selected for a further analysis and discarded afterwards for not fulfilling the topic.

In the case of the reports, a free search was conducted among documents and relevant reports that were considered related to the topic (*policies that promote awareness raising actions and citizen engagement in science)* with a focus on education and a special consideration for those policies involving vulnerable groups. The scrutinised documents were from different European project platforms and had to meet the criteria mentioned above for these specific documents. Based on these principles, 18 reports were identified to be related to the topic. In regard to the 18 reports, 9 were excluded after an in-depth reading: 5 of them because they were not from the topic, 3 because their impact did not meet the requirements (belonging to the European Commission or other relevant public administrations and organizations linked to impact programmes); and one more because the full report was not available. The remaining 9 were considered for analysis but after an in-depth reading all were discarded for not meeting the required criteria. [[87]](#footnote-87)

### Outcomes

1. Higher education institutions such as Eotvos Lorand University, Australian National University tend to support scientists’ public communication through training and provide programmes that contribute to the professionalisation of science communication to promote opportunities for citizens to participate in and benefit from science (Trench and Miller, 2012)[[88]](#footnote-88)
2. The European Commission promotes scientists to engage in public communication through policy statements, conferences, publications, contracts for organisation of events and funding for research projects and ‘co-ordination actions’ under successive Framework Programmes for Research. EC requires funded projects to undertake ‘dissemination’ activities and it also developed models of communication and of communication training oriented to social dialogue. These ways make it possible for the public to participate in science and benefit from its results (Trench and Miller, 2012)1
3. EU-Citizen. Science is building a central platform for citizen science in Europe to share useful resources about citizen science, including tools and guidelines, good practices and training modules. By this way, it raises awareness of citizen science, and facilitates engagement with citizen-science projects (Warin and Delaney, 2020; Latham and Ceccaroni, 2020)[[89]](#footnote-89).
4. In the field of the interaction between policy and citizen science, the Natural Environment White Paper, “The Natural Choice: securing the value of nature” highlights the importance that people in the UK are motivated to protect nature and the role of volunteers in environmental monitoring. Through voluntarily participating in environmental monitoring, citizens engage in citizen science and also benefit from citizen science (Roy et, al 2012)[[90]](#footnote-90).
5. The European Biodiversity Research Strategy 2010-2020 aims to “generate and share the knowledge necessary to bring human societies into a sustainable and mutually beneficial relationship with the living world”. This strategy emphasizes the development of links between science and public engagement networks like natural history museums, science centres and citizen science programmes could benefit citizens (Roy et, al 2012)[[91]](#footnote-91).
6. Governments require the universities to change their way of acting and to be more responsible with the requirements of social development. Thus, the policies which are based on Open Science have been developed, such as “A recommendation on Open Science” ; “Open and inclusive collaboration in science: a framework” ; “Open science by design”. These policies require universities to be more transparent regarding the dissemination of scientific results so that the benefit of science could pass to the public (Saraite et al, 2020)[[92]](#footnote-92).
7. Private and older universities, best-ranked in terms of excellence researching and those that have been gradually adopting Open Government policies concerning the dissemination of information through institutional web pages and social participation, are the most interested in complying with the recommendations established by the authorities of the Open Science projects (Saraite et al, 2020)5.
8. Focus group participants suggested that Citizen Science can help evaluate the effectiveness of a policy that has already been legislated and implemented, leading to validation of current policy or demonstrating a need for policy change (Cigliano et al, 2015)[[93]](#footnote-93).
9. Citizen Science (CS) is one of the five strategic orientations of the new Work Programme 2018-2020 of “Science with and for Society” (SwafS) in Horizon 2020. The citizens would benefit from CS as CS could increase scientific literacy and critical faculties, democratize the research process and motivate young people to follow scientific careers (Science with and for Society, 2017)[[94]](#footnote-94).
10. The initiative “from ‘asking the citizens’ to ‘co-creating with citizens’“ calls for more accountability, openness, and transparency in producing and integrating citizens’ knowledge in order to bring benefit to the public (Figueiredo Nascimento et al, 2016)[[95]](#footnote-95).

# ANNEXES – LITERATURE REVIEW GRIDS

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **TOPIC A - GENDER** | | | | | | | |
| SCOPUS |  |  | Discarted | | | |  |
| Keyword combination | Total Obtained Scopus | Non-availble Scopus | Date range | Article Impact | Social impact of Findings | Out of scope | Final sample Scopus |
| Gender and social impact of research (29.01.2021) | 505916 |  | 52657 | 132688 |  | 320427 | 144 |
| Gender and social impact of gender research (29.01.2021) | 505906 |  | 52657 | 132688 |  | 320417 | 144 |
| Social benefits of research on gender (29.01.2021) | 158397 |  | 14248 | 41087 |  | 103008 | 54 |
| Social benefits of gender research (29.01.2021) | 158397 |  | 14248 | 41087 |  | 103008 | 54 |
| Science social impact and gender inequalities (29.01.2021) | 86084 |  | 10458 | 29046 |  | 46540 | 40 |
| Science social impact on gender (29.01.2021) | 448871 |  | 42416 | 117403 |  | 288924 | 128 |
| Science social impact and gender (29.01.2021) | 448871 |  | 42416 | 117403 |  | 288924 | 128 |
| JCR |  |  | Discarted | | | |  |
| Keyword combination | Total Obtained Scopus | Non-availble Scopus | Date range | Article Impact | Social impact of Findings | Out of scope | Final sample Scopus |
| Gender and social impact of research (25.01.2021) | 5341 |  | 859 | 556 |  | 2840 | 1086 |
| Gender and social impact of gender research (26.01.2021) | 5343 |  | 859 | 499 |  | 2906 | 1079 |
| Social benefits of research on gender (26.01.2021) | 1339 |  | 200 | 119 |  | 693 | 327 |
| Social benefits of gender research (26.01.2021) | 1703 |  | 262 | 151 |  | 874 | 416 |
| Science social impact and gender inequalities (27.01.2021) | 67 |  | 19 | 4 |  | 36 | 8 |
| Science social impact on gender (27.01.2021) | 762 |  | 179 | 53 |  | 432 | 98 |
| Science social impact and gender (27.01.2021) | 895 |  | 202 | 46 |  | 541 | 106 |
| "scientific evidence" AND gender policy | 71 | 0 | 0 | 7 | 6 | 55 | 3 |
| evidence-based policy AND gender | 61 | 2 | 0 | 1 | 6 | 51 | 1 |
| gender-based AND polic\* AND scientific evidence | 95 | 4 | 0 | 1 | 4 | 86 | 0 |
| "social impact" AND "gender-based" | 15 | 1 | 0 | 1 | 1 | 6 | 6 |
| "social impact" AND gender AND intervention | 43 | 0 | 3 | 1 | 0 | 36 | 3 |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **TOPIC B - GENDER** | | | | | | | |
| SCOPUS |  |  | Discarted | | | |  |
| Keyword combination | Total Obtained Scopus | Non-availble Scopus | Date range | Article Impact | Social impact of Findings | Out of scope | Final sample Scopus |
| Social awareness of gender research (29.01.2021) | 82090 |  | 7743 | 19870 |  | 54458 | 19 |
| Social awareness of scientific research and gender (29.01.2021) | 15349 |  | 1224 | 3267 |  | 10855 | 3 |
| Social awareness of scientific research and social inequalities (29.01.2021) | 4872 |  | 439 | 989 |  | 3444 | 0 |
| Science impact in reflective societies (29.01.2021) | 34954 |  | 2418 | 8714 |  | 23820 | 2 |
| Gender research impact in reflective societies (29.01.2021) | 7174 |  | 811 | 2151 |  | 4211 | 1 |
| Gender research and impact in reflective societies (29.01.2021) | 7174 |  | 811 | 2151 |  | 4211 | 1 |
| Knowledge transfer societal impact (29.01.2021) | 7219 |  | 436 | 1421 |  | 5357 | 5 |
| Gender and knowledge transfer societal impact (29.01.2021) | 1728 |  | 144 | 274 |  | 1310 | 0 |
| Knowledge transfer gender impact (29.01.2021) | 21850 |  | 1595 | 4880 |  | 15371 | 4 |
| Knowledge transfer and gender impact (29.01.2021) | 21850 |  | 1595 | 4880 |  | 15371 | 4 |
| Gender research and knowledge transfer (29.01.2021) | 30797 |  | 2586 | 7174 |  | 21032 | 5 |
| Knowledge transfer age impact (29.01.2021) | 46439 |  | 2674 | 6794 |  | 36963 | 8 |
| Knowledge transfer and age impact (29.01.2021) | 46439 |  | 2674 | 6794 |  | 36963 | 8 |
| Knowledge transfer and social inequalities (29.01.2021) | 13555 |  | 1380 | 3631 |  | 8541 | 3 |
| JCR |  |  | Discarted | | | |  |
| Keyword combination | Total Obtained Scopus | Non-availble Scopus | Date range | Article Impact | Social impact of Findings | Out of scope | Final sample Scopus |
| Social awareness of gender research (27.01.2021) | 840 |  | 114 | 47 |  | 547 | 132 |
| Social awareness of scientific research and gender (28.01.2021) | 24 |  | 3 | 0 |  | 17 | 4 |
| Social awareness of scientific research and social inequalities (28.01.2021) | 10 |  | 1 | 1 |  | 7 | 1 |
| Science impact in reflective societies (28.01.2021) | 31 |  | 3 | 2 |  | 22 | 4 |
| Gender research impact in reflective societies (28.01.2021) | 4 |  | 0 | 1 |  | 2 | 1 |
| Gender research and impact in reflective societies (28.01.2021) | 4 |  | 0 | 1 |  | 2 | 1 |
| Knowledge transfer societal impact (28.01.2021) | 60 |  | 2 | 7 |  | 44 | 7 |
| Gender and Knowledge transfer societal impact (28.01.2021) | 2 |  | 0 | 1 |  | 1 | 0 |
| Knowledge transfer gender impact (28.01.2021) | 72 |  | 4 | 13 |  | 46 | 9 |
| Knowledge transfer and gender impact (28.01.2021) | 72 |  | 4 | 13 |  | 46 | 9 |
| Gender research and knowledge transfer (28.01.2021) | 154 |  | 19 | 27 |  | 89 | 19 |
| Knowledge transfer age impact (28.01.2021) | 289 |  | 19 | 4 |  | 246 | 20 |
| Knowledge transfer and age impact (28.01.2021) | 289 |  | 19 | 4 |  | 246 | 20 |
| Knowledge transfer and social inequalities (28.01.2021) | 55 |  | 10 | 4 |  | 33 | 8 |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **TOPIC C - GENDER** | | | | | | | |
| JCR + SCOPUS |  |  | Discarted JCR + Scopus | | | |  |
| Keyword combination | Total Obtained JCR/Scopus | Non-availble JCR/Scopus | Date range | Article Impact | Social impact of Findings | Out of scope | Final sample JCR/Scopus |
| Under-representation AND awareness AND science AND technology AND gender | 5 |  |  |  |  | 5 | 0 |
| Citizen science AND gender | 22 |  |  |  |  | 18 | 4 |
| Open access AND gender | 2 |  |  |  |  | 2 | 0 |
| Open science AND gender | 16 |  |  |  |  | 12 | 4 |
| Searching bibliographies | 2 |  |  |  |  | 0 | 2 |
| TOTAL | 47 |  |  |  |  | 37 | 10 |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **TOPIC D - GENDER** | | | | | |
| N. | Main area | Full Reference | Journal title | JCR Class | Citations (Scopus) |
| 1 | *Public perception, public engagement/participation in S&T and gender* | Johnson KM, Simon RM. Women’s Attitudes Toward Biomedical Technology for Infertility: The Case for Technological Salience. Gender & Society. 2012;26(2):261-289. | *Gender & Society* | Q1 | 9 |
| 2 | *Public perception, public engagement/participation in S&T and gender* | Cornelia Fraune, Gender matters: Women, renewable energy, and citizen participation in Germany, Energy Research & Social Science, 7, 2015, Pages 55-65, ISSN 2214-6296, https://doi.org/10.1016/j.erss.2015.02.005. | *Energy Research & Social Science* | Q1 | 32 |
| 3 | *Public perception, public engagement/participation in S&T and gender* | Haynes RD. Whatever happened to the ‘mad, bad’ scientist? Overturning the stereotype. Public Understanding of Science. 2016;25(1):31-44. | *Public Understanding of Science* | Q1 | 20 |
| 4 | *Public perception, public engagement/participation in S&T and gender* | Laurel Elder, Steven Greene, Mary Kate Lizotte, The gender gap on public opinion towards genetically modified foods, The Social Science Journal, Volume 55, Issue 4, 2018, Pages 500-509, ISSN 0362-3319, https://doi.org/10.1016/j.soscij.2018.02.015. | *The Social Science Journal* | Q2/Q3 | 6 |
| 5 | *Public perception, public engagement/participation in S&T and gender* | Bren􏰁 S. S􏰁eel, Rebecca L. Warner and Denise Lach, Gender Differences in S􏰀uppor􏰁t for Scien􏰁ific In􏰂volvement􏰁 in U.S. En􏰂ironmen􏰁al, in Science, Technolog􏰃y, & H􏰀man Val􏰀es , March 2010, Vol. 35, No. 2 (March 2010), pp. 147-173 | *Science, Technology and Human Values* | Q1 | 10 |
| 6 | *Public perception, public engagement/participation in S&T and gender* | Losh SC. Stereotypes about scientists over time among US adults: 1983 and 2001. Public Understanding of Science. 2010;19(3):372-382. doi:10.1177/0963662508098576 | *Public Understanding of Science* | Q1 | 37 |
| 7 | *Public perception, public engagement/participation in S&T and gender* | Hetsroni A and Lowenstein H (2014) Is She an Expert or Just a Woman? Gender Differences in the Presentation of Experts in TV Talk Shows. Sex Roles 70(9): 376–386. https://doi.org/10.1007/s11199-014-0370-z | *Sex Roles* | Q1/Q2 | 5 |
| 8 | *Public perception, public engagement/participation in S&T and gender* | Anzivino, M., Ceravolo, F.A. & Rostan, M. The two dimensions of Italian academics’ public engagement. High Educ (2020). https://doi.org/10.1007/s10734-020-00624-0 | *Higher Education* | Q1 | 0 |
| 9 | *Public perception, public engagement/participation in S&T and gender* | Simon RM. Gendered contexts: masculinity, knowledge, and attitudes toward biotechnology. Public Underst Sci. 2011 May;20(3):334-46. doi: 10.1177/0963662509344272. PMID: 21796882. | *Public Understanding of Science* | Q1 | 7 |
| 10 | *Public perception, public engagement/participation in S&T and gender* | Taragin-Zeller L, Rozenblum Y, Baram-Tsabari A. Public Engagement With Science Among Religious Minorities: Lessons From COVID-19. Science Communication. 2020;42(5):643-678. doi:10.1177/1075547020962107 | *Science Communication* | Q2 | 0 |
| 11 | *Public perception, public engagement/participation in S&T and gender* | Yuko Ikkatai, Azusa Minamizaki, Kei Kano, Atsushi Inoue, Euan McKay and Hiromi M. Yokoyama Gender-biased public perception of STEM fields, focusing on the influence of egalitarian attitudes toward gender roles, Journal of Science Communication 19(01)(2020) DOI: https://doi.org/10.22323/2.19010208 | *Journal of Science Communication* | Q2 (Scimago) | 0 |
| 12 | *Public perception, public engagement/participation in S&T and gender* | Crettaz von Roten F. Gender Differences in Scientists’ Public Outreach and Engagement Activities. Science Communication. 2011;33(1):52-75. doi:10.1177/1075547010378658 | *Journal of Science Communication* | Q2 (Scimago) | 32 |
| 13 | *Public perception, public engagement/participation in S&T and gender* | Mitchell M, McKinnon M. ‘Human’ or ‘objective’ faces of science? Gender stereotypes and the representation of scientists in the media. Public Understanding of Science. 2019;28(2):177-190. doi:10.1177/0963662518801257 | *Public Understanding of Science* | Q1 | 3 |
| 14 | *Under-representation of women in STEM curricula* | Steinke J. Adolescent Girls' STEM Identity Formation and Media Images of STEM Professionals: Considering the Influence of Contextual Cues. Front Psychol. 2017;8:716. Published 2017 May 26. doi:10.3389/fpsyg.2017.00716 | *Frontiers in Psychology* | Q1 | 15 |
| 15 | *Under-representation of women in STEM curricula* | Pamela R. Aschbacher Erika Li Ellen J. Roth (2010) Is science me? High school students' identities, participation and aspirations in science, engineering, and medicine, in Journal of Research in Science Teaching, Volume47, Issue5 May 2010 Pages 564-582 | *Journal of Research in Science Teaching* | Q1 | 303 |
| 16 | *Under-representation of women in STEM curricula* | Kurtz-Costes, B., Copping, K.E., Rowley, S.J. et al. Gender and age differences in awareness and endorsement of gender stereotypes about academic abilities. Eur J Psychol Educ 29, 603–618 (2014). https://doi.org/10.1007/s10212-014-0216-7 | *European Journal of Psychology of Education* | Q1 (Scimago) | 17 |
| 17 | *Under-representation of women in STEM curricula* | Louise Archer, Jennifer DeWitt, Jonathan Osborne, Justin Dillon, Beatrice Willis & Billy Wong (2013) ‘Not girly, not sexy, not glamorous’: primary school girls’ and parents’ constructions of science aspirations, Pedagogy, Culture & Society, 21:1, 171-194, DOI: 10.1080/14681366.2012.748676 | *Pedagogy, Culture and Society* | Q1/Q2 (Scimago) | 113 |
| 18 | *Under-representation of women in STEM curricula* | Rainey, K., Dancy, M., Mickelson, R. et al. Race and gender differences in how sense of belonging influences decisions to major in STEM. IJ STEM Ed 5, 10 (2018). https://doi.org/10.1186/s40594-018-0115-6 | *International Journal of STEM Education* | Q2 | 49 |
| 19 | *Under-representation of women in STEM curricula* | Moss-Racusin, C., Sanzari, C., Caluori, N., & Rabasco, H. (2018). Gender bias produces gender gaps in STEM engagement. Sex Roles, 79(11-12), 651-670. doi:http://dx.doi.org.proxy.unimib.it/10.1007/s11199-018-0902-z | *Sex Roles* | Q1/Q2 | 20 |
| 20 | *Under-representation of women in STEM curricula* | Leaper C, Starr CR. Helping and Hindering Undergraduate Women’s STEM Motivation: Experiences With STEM Encouragement, STEM-Related Gender Bias, and Sexual Harassment. Psychology of Women Quarterly. 2019;43(2):165-183. doi:10.1177/0361684318806302 | *Psychology of Women quarterly* | Q1 | 17 |
| 21 | *Under-representation of women in STEM curricula* | Yu Xie, Michael Fang, Kimberlee Shauman (2015) STEM Education Annual Review of Sociology, 41:1, 331-357 https://doi.org/10.1146/annurev-soc-071312-145659 | *Annual Review of Sociology* | Q1 | 20 |
| 22 | *Under-representation of women in STEM curricula* | Ran Liu, Do Family Privileges Bring Gender Equality? Instrumentalism and (De) Stereotyping of STEM Career Aspiration among Chinese Adolescents, Social Forces, Volume 99, Issue 1, September 2020, Pages 230–254, https://doi.org/10.1093/sf/soz137 | *Social Forces* | Q1/Q2 | 0 |
| 23 | *Under-representation of women in STEM curricula* | Legewie J, DiPrete TA. The High School Environment and the Gender Gap in Science and Engineering. Sociology of Education. 2014;87(4):259-280. doi:10.1177/0038040714547770 | *Sociology of Education* | Q1 | 93 |
| 24 | *Under-representation of women in STEM curricula* | Brittany Bloodhart, Meena M. Balgopal , Anne Marie A. Casper, Laura B. Sample McMeeking, Emily V. Fischer (2020) Outperforming yet undervalued: Undergraduate women in STEM, PLOSone. https://doi.org/10.1371/journal.pone.0234685 | *PlosOne* | Q2 | 1 |
| 25 | *Under-representation of women in STEM curricula* | Wang, MT., Degol, J.L. Gender Gap in Science, Technology, Engineering, and Mathematics (STEM): Current Knowledge, Implications for Practice, Policy, and Future Directions. Educ Psychol Rev 29, 119–140 (2017). https://doi.org/10.1007/s10648-015-9355-x | *Educational Psychology Review* | Q1 | 199 |
| 26 | *Under-representation of women in STEM curricula* | Starr CR. “I’m Not a Science Nerd!”: STEM Stereotypes, Identity, and Motivation Among Undergraduate Women. Psychology of Women Quarterly. 2018;42(4):489-503. | *Psychology of Women Quarterly* | Q1 | 17 |
| 27 | *Under-representation of women in STEM curricula* | UNESCO. (2017). Cracking the code: Girls’ and women’s education in science, technology, engineering and mathematics (STEM). UNESCO. Retrieved from unesdoc.unesco.org/images/0025/002534/253479e.pdf | *Publication of UNESCO* | / | / |
| 28 | *Under-representation of women in STEM careers* | Cheryan, S., Ziegler, S. A., Montoya, A. K., & Jiang, L. (2017). Why are some STEM fields more gender balanced than others? Psychological Bulletin, 143(1), 1–35. https://doi.org/10.1037/bul0000052 | *Psychological Bulletin* | Q1 | 249 |
| 29 | *Under-representation of women in STEM careers* | How stereotypes impair women's careers in science Ernesto Reuben, Paola Sapienza, Luigi Zingales Proceedings of the National Academy of Sciences Mar 2014, 111 (12) 4403-4408; DOI: 10.1073/pnas.1314788111 | *Proceedings of the National Academy of Science* | Q1 | 237 |
| 30 | *Under-representation of women in STEM careers* | Wynn AT, Correll SJ. Puncturing the pipeline: Do technology companies alienate women in recruiting sessions? Social Studies of Science. 2018;48(1):149-164. doi:10.1177/0306312718756766 | *Social Studies of Science* | Q1 | 9 |
| 31 | *Under-representation of women in STEM careers* | Checchi D, Cicognani S, Kulic N. Gender Quotas or Girls’ Networks? Evidence from an Italian Research Selection. Work, Employment and Society. 2019;33(3):462-482. doi:10.1177/0950017018813071 | *Work, Employment and Society* | Q1 | 2 |
| 32 | *Under-representation of women in STEM careers* | Liza Howe-Walsh & Sarah Turnbull (2016) Barriers to women leaders in academia: tales from science and technology, Studies in Higher Education, 41:3, 415-428, DOI: 10.1080/03075079.2014.929102 | *Studies in Higher Education* | Q2 | 79 |
| 33 | *Under-representation of women in STEM careers* | Tarja Tiainen & Eleni Berki (2019) The re-production process of gender bias: a case of ICT professors through recruitment in a gender-neutral country, Studies in Higher Education, 44:1, 170-184, DOI: 10.1080/03075079.2017.1351428 | *Studies in Higher Education* | Q2 | 6 |
| 34 | *Under-representation of women in STEM careers* | Eaton, A.A., Saunders, J.F., Jacobson, R.K. et al. How Gender and Race Stereotypes Impact the Advancement of Scholars in STEM: Professors’ Biased Evaluations of Physics and Biology Post-Doctoral Candidates. Sex Roles 82, 127–141 (2020). https://doi.org/10.1007/s11199-019-01052-w | *Sex Roles* | Q1/Q2 | 21 |
| 35 | *Under-representation of women in STEM careers* | Hardcastle, V.G., Furst-Holloway, S., Kallen, R. and Jacquez, F. (2019), "It’s complicated: a multi-method approach to broadening participation in STEM", Equality, Diversity and Inclusion, Vol. 38 No. 3, pp. 349-361. https://doi.org/10.1108/EDI-09-2017-0200 | *Equality, Diversity and Inclusion* | Q1/Q2 | 3 |
| 36 | *Under-representation of women in STEM careers* | Faculty's subtle gender biases favor male students Corinne A. Moss-Racusin, John F. Dovidio, Victoria L. Brescoll, Mark J. Graham, Jo Handelsman. Proceedings of the National Academy of Sciences Oct 2012, 109 (41) 16474-16479; DOI: 10.1073/pnas.1211286109 | *Proceedings of the National Academy of Science* | Q1 | 1254 |
| 37 | *Under-representation of women in STEM careers* | Gender in academic STEM: A focus on men faculty, Gender Work Organ. 2019;26:158–179. | *Gender, Work and Organisation* | Q1 | 8 |
| 38 | *Under-representation of women in STEM careers* | Hirsu, L., Quezada-Reyes, Z. & Hashemi, L. Moving SDG5 forward: women’s public engagement activities in higher education. High Educ 81, 51–67 (2021). https://doi.org/10.1007/s10734-020-00597-0 | *Studies in Higher Education* | Q2 | 0 |
| 39 | *Under-representation of women in STEM careers* | Nicole R. Thomas, Daniel J. Poole, Joan M. Herbers Gender in Science and Engineering Faculties: Demographic Inertia Revisited, PLOSone. Published: October 21, 2015https://doi.org/10.1371/journal.pone.0139767 | *PlosOne* | Q2 | 15 |
| 40 | *Under-representation of women in STEM careers* | Understanding current causes of women's underrepresentation in science Stephen J. Ceci, Wendy M. Williams Proceedings of the National Academy of Sciences Feb 2011, 108 (8) 3157-3162; DOI: 10.1073/pnas.1014871108 | *Proceedings of the National Academy of Science* | Q1 | 479 |
| 41 | *Under-representation of women in STEM careers* | Laura Fogg-Rogers and Laura Hobbs, Catch 22 — improving visibility of women in science and engineering for both recruitment and retention DOI:  https://doi.org/10.22323/2.18040305 Published: 30 September 2019 | *Journal of Science Communication* | Q2 (Scimago) | 1 |
| 42 | *Under-representation of women in STEM careers* | Clem Herman Suzan Lewis Anne Laure Humbert, Women Scientists and Engineers in European Companies: Putting Motherhood under the Microscope, Gender, Work and Organization, 27 March 2012 https://doi.org/10.1111/j.1468-0432.2012.00596.x | *Gender, Work and Organisation* | Q1 | 26 |
| 43 | *Under-representation of women in STEM careers* | Cheryan, S., Ziegler, S. A., Montoya, A. K., & Jiang, L. (2017). Why are some STEM fields more gender balanced than others? Psychological Bulletin, 143(1), 1–35. https://doi.org/10.1037/bul0000052 | *Psychological Bulletin* | Q1 | 249 |
| 44 | *Under-representation of women in STEM careers* | Bevan V, Learmonth M. ‘I wouldn’t say it’s sexism, except that … It’s all these little subtle things’: Healthcare scientists’ accounts of gender in healthcare science laboratories. Social Studies of Science. 2013;43(1):136-158. doi:10.1177/0306312712460606 | *Social Studies of Science* | Q1 | 20 |
| 45 | *Under-representation of women in STEM careers* | Valentina Tartari, Ammon Salter, The engagement gap: Exploring gender differences in University – Industry collaboration activities, Research Policy, Volume 44, Issue 6, 2015, Pages 1176-1191, https://doi.org/10.1016/j.respol.2015.01.014. | *Research Policy* | Q1 | 32 |
| 46 | *Under-representation of women in STEM careers* | McKinnon, M., O’Connell, C. Perceptions of stereotypes applied to women who publicly communicate their STEM work. Humanit Soc Sci Commun 7, 160 (2020). https://doi.org/10.1057/s41599-020-00654-0 | *Humanities and Social Science Communications (Nature)* | Q2 (Scimago) | 0 |
| 47 | *Under-representation of women in STEM careers* | Xu, Y.J., Martin, C.L. Gender Differences in STEM Disciplines: From the Aspects of Informal Professional Networking and Faculty Career Development. Gend. Issues 28, 134 (2011). https://doi.org/10.1007/s12147-011-9104-5 | *Gender Issues* | Q2 (Scimago) | 27 |
| 48 | *Under-representation of women in STEM careers* | Miller, D. I., Eagly, A. H., & Linn, M. C. (2015). Women’s representation in science predicts national gender-science stereotypes: Evidence from 66 nations. Journal of Educational Psychology, 107(3), 631–644. https://doi.org/10.1037/edu0000005 | *Journal of Educational Psychology* | Q1 | 146 |
| 49 | *Under-representation of women in STEM careers* | STEM faculty prefer hiring women professors 2:1 Wendy M. Williams, Stephen J. Ceci Proceedings of the National Academy of Sciences Apr 2015, 112 (17) 5360-5365; DOI: 10.1073/pnas.1418878112 | *Proceedings of the National Academy of Science* | Q1 | 169 |
| 50 | *Under-representation of women in STEM careers* | Carli LL, Alawa L, Lee Y, Zhao B, Kim E. Stereotypes About Gender and Science: Women ≠ Scientists. *Psychology of Women Quarterly*. 2016;40(2):244-260. | *Psychology of Women Quarterly* | Q1 | 98 |
| 51 | *Under-representation of women in STEM careers* | Eric V. Patridge, Ramon Barthelemy , Susan R. Rankin (2013) FACTORS IMPACTING THE ACADEMIC CLIMATE FOR LGBQ STEM FACULTY, Journal of Women and Minorities in Science and Engineering, pages 75-98 DOI: 10.1615/JWomenMinorScienEng.2014007429 | *Journal of Women and Minorities in Science and Engineering* | Q2 (Scimago) | 54 |
| 52 | *Gender, innovation, and the feminist perspective* | The Diversity–Innovation Paradox in Science Bas Hofstra, Vivek V. Kulkarni, Sebastian Munoz-Najar Galvez, Bryan He, Dan Jurafsky, Daniel A. McFarland Proceedings of the National Academy of Sciences Apr 2020, 117 (17) 9284-9291; DOI: 10.1073/pnas.1915378117 | *Proceedings of the National Academy of Science* | Q1 | 63 |
| 53 | *Gender, innovation, and the feminist perspective* | GENDERED INNOVATIONS 2: How Inclusive Analysis Contributes to Research and Innovation. Policy Review. Luxembourg: Publications Office of the European Union, 2020 | *Publications Office of the European Union* | / | 0 |
| 54 | *Gender, innovation, and the feminist perspective* | Anna Jabloner, Sandra Soo-Jin Lee (2020) Who Is the Right Fit? Doing Diversity in Translational Research, Catalyst, Feminism, Theory and Technoscience, Vol 6 No 1 (2020): Special Section on Chemical Entanglements: Gender and Exposure | *Catalyst, Feminism, Theory and Technoscience* | not present in JCR and Scimago but categorised as top journal in STS Studies | 0 |
| 55 | *Gender, innovation, and the feminist perspective* | Miller VM, Rice M, Schiebinger L, et al. Embedding concepts of sex and gender health differences into medical curricula. J Womens Health. 2013;22(3):194-202. doi:10.1089/jwh.2012.4193 | *Journal of Women's Health* | Q1 | 45 |

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| **TOPIC E - GENDER** | | | | | | | |
| JCR + SCOPUS |  |  | Discarted JCR + Scopus | | | |  |
| Keyword combination | Total Obtained JCR/Scopus | Non-availble JCR/Scopus | Date range | Article Impact | Social impact of Findings | Out of scope | Final sample JCR/Scopus |
| Polic\* AND awareness AND science AND technology AND gender | 15 |  |  |  |  | 15 | 0 |
| Polic\* AND awareness AND engagement AND science AND gender | 6 |  |  |  |  | 6 | 0 |
| Polic\* AND awareness AND involvement AND science AND gender | 2 |  |  |  |  | 2 | 0 |
| Polic\* AND awareness AND citizen science AND science AND gender | 3 |  |  |  |  | 3 | 0 |
| Polic\* AND awareness AND open science AND science AND gender | 5 |  |  |  |  | 5 | 0 |
| Polic\* AND awareness AND open access AND science AND gender | 4 |  |  |  |  | 4 | 0 |
| Searching bibliographies | 5 |  |  |  |  | 5 | 0 |
| TOTAL | 40 |  |  |  |  | 40 | 0 |

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| **TOPIC A -EDUCATION** | | | | | | | |
| JCR + SCOPUS |  |  | Discarted JCR + Scopus | | | |  |
| Keyword combination | Total Obtained JCR/Scopus | Non-availble JCR/Scopus | Date range | Article Impact | Social impact of Findings | Out of scope | Final sample JCR/Scopus |
| Societal impact of research AND education | 29 | 2 |  |  |  | 19 | 8 |
| "Social benefits" of science AND education | 3 |  |  |  |  | 1 | 2 |
| Science social impact on / AND inequalities | 12 | 1 |  |  |  | 8 | 3 |
| Science social impact on / AND education | 24 | 1 |  |  |  | 15 | 8 |
| "political impact" AND education | 37 | 0 | 0 | 2 | 0 | 35 | 0 |
| evidence-based AND education\* AND social impact | 26 | 1 | 1 | 1 | 0 | 22 | 1 |
| successful AND eductaional AND vulnerable | 151 | 2 | 0 | 6 | 0 | 135 | 8 |
| successful AND educational AND impact | 109 | 1 | 2 | 2 | 1 | 99 | 4 |
| "social impact"nAND education AND inequlaities | 37 | 0 |  | 2 |  | 35 | 0 |
| "societal impact" AND Education | 213 | 4 |  | 36 | 30 | 143 | 0 |
| "social impact" AND education AND school | 143 | 1 | 1 | 5 | 1 | 129 | 6 |
| TOTAL | 852 |  |  |  |  | 619 | 40 |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  | Discarted | | | |  |  |
| Keywords | Authors | Title | Journal | Repeated | Date range | Article Impact | Social impact of Findings | Out of scope | Included /excluded |  |
| Societal impact of research AND education | Bhatti, F., & Jeffery, R. | Girls' schooling and transition to marriage and motherhood: Exploring the pathways to young women's reproductive agency in pakistan. | Comparative Education, 48(2) |  |  |  |  |  | NO |  |
| Brown, Z., & Manktelow, K | Perspectives on the standards agenda: Exploring the agenda's impact on primary teachers' professional identities. | Education 3-13, 44(1) |  |  |  |  |  | YES |  |
| Canning, C., & Buchanan, S. | The information behaviours of maximum security prisoners: Insights into self-protective behaviours and unmet needs. | Journal of Documentation, 75(2) |  |  |  |  |  | no - not related to education |  |
| Davis-Delano, L. R., Gone, J. P., & Fryberg, S. A. | The psychosocial effects of native american mascots: A comprehensive review of empirical research findings. | Race Ethnicity and Education, 23(5) |  |  |  |  |  | no |  |
| Gatt, S., & Armeni, L. S. | Educating practices at primary school level and new forms of positive welfare for families. | Social Policy and Society, 12(4) |  |  |  |  |  | YES |  |
| Givati, A., & Hatton, K. | Traditional acupuncturists and higher education in britain: The dual, paradoxical impact of biomedical alignment on the holistic view. | Social Science and Medicine, 131 |  |  |  |  |  | NO |  |
| Hadjar, A., & Beck, M. | Who does not participate in elections in europe and why is this?: A multilevel analysis of social mechanisms behind non-voting. | European Societies, 12(4) |  |  |  |  |  | no - not related to education |  |
| Maji, K., & Sarkar, S. | Comparative analysis of educational attainment among different social groups in some selected mouzas of saltora C.D. block of bankura district, west bengal, india: An empirical study. | Space and Culture, India, 6(1) |  |  |  |  |  | NO |  |
| Merry, J. J., Condron, D. J., & Torres, N. | A comparative analysis of early childhood socioeconomic conditions and educational achievement 15 years later. | International Journal of Comparative Sociology |  |  |  |  |  | YES |  |
| Netshakhuma, N. S. | Analysis of the alliance of archives, libraries, and museums of south africa national parks: Kruger national park. | IFLA Journal |  |  |  |  |  | YES |  |
| Nnebedum, C. | The value of integrating 21st century skills into the enterprise of teaching sociology. | Academic Journal of Interdisciplinary Studies, 8(1) |  |  |  |  |  | YES | non available |
| Nölting, B., Molitor, H., Reimann, J., Skroblin, J. -., & Dembski, N | Transfer for sustainable development at higher education institutions-untapped potential for education for sustainable development and for societal transformation. | Sustainability (Switzerland), 12(7) |  |  |  |  |  | YES |  |
| Pan, L., & Ye, J. | “Children of great development”: Difficulties in the education and development of rural left-behind children. | Chinese Education and Society, 50(4) |  |  |  |  |  | no |  |
| Papp, L. J., & Erchull, M. J. | Objectification and system justification impact rape avoidance behaviors. | Sex Roles, 76(1-2) |  |  |  |  |  | NO |  |
| Ramirez, F. O. | The world society perspective: Concepts, assumptions, and strategies. | Comparative Education, 48(4) |  |  |  |  |  | no - not empirical |  |
| Reid, G. | A fairytale narrative for community sport? exploring the politics of sport social enterprise. | International Journal of Sport Policy, 9(4) |  |  |  |  |  | no - not related to education |  |
| Rosenbloom, J. L., & Ginther, D. K. | The effectiveness of social science research in addressing societal problems: Broadening participation in computing. | Science and Public Policy, 44(2) | 2 |  |  |  |  | no - not empirical |  |
| Rulifson, G., & Bielefeldt, A. | Motivations to leave engineering: Through a lens of social responsibility. | Engineering Studies, 9(3) |  |  |  |  |  | YES | non available |
| Šarotar Žižek, S., Mulej, M., & Veingerl Čič, Ž | Results of socially responsible transformational leadership: Increased holism and success. | Kybernetes, 46(3) |  |  |  |  |  | no |  |
| Schubert, C. | Situating technological and societal futures: Pragmatist engagements with computer simulations and social dynamics. | Technology in Society, 40 |  |  |  |  |  | no - not empirical |  |
| Schweitzer-Krah, E., & Engartner, T. | Students’ perception of the pluralism debate in economics: Evidence from a quantitative survey among german universities. | International Review of Economics Education, 30 |  |  |  |  |  | no - focus is on economics |  |
| Smetschka, B., & Gaube, V. | Co-creating formalized models: Participatory modelling as method and process in transdisciplinary research and its impact potentials. | Environmental Science and Policy, 103 |  |  |  |  |  | no - not empirical |  |
| Song, C., Park, K. M., & Kim, Y. | Socio-cultural factors explaining technology-based entrepreneurial activity: Direct and indirect role of social security. | Technology in Society, 61 |  |  |  |  |  | YES |  |
| Sperlich, S., & Geyer, S. | The mediating effect of effort-reward imbalance in household and family work on the relationship between education and women's health. | Social Science and Medicine, 131 |  |  |  |  |  | no |  |
| Svendsen, B. A. | The dynamics of citizen sociolinguistics. | Journal of Sociolinguistics, 22(2) |  |  |  |  |  | no - not empirical |  |
| Tamburri, D. A., & Casale, G. | Cognitive distance and research output in computing education: A case-study. | IEEE Transactions on Education, 62(2) |  |  |  |  |  | YES |  |
| Tatnall, A. | Computer education and societal change: History of early courses in computing in universities and schools in victoria. | Information Technology and People, 28(4) |  |  |  |  |  | no - outside of Europe |  |
| Zegzulková, V. M., & Špiláčková, M. | Reflection of the impacts of the society transformation in relation to education in social work. | Socialni Prace, 20(4) |  |  |  |  |  | no - not empirical |  |
| Zwanikken, P. A. C., Alexander, L., & Scherpbier, A. | Impact of MPH programs: Contributing to health system strengthening in low- and middle-income countries? | Human Resources for Health, 14(1) |  |  |  |  |  | YES |  |
| "Social benefits" of science AND education | Donald, K. J., & Kovac, J. | The scientist's education and a civic conscience. | . Science and Engineering Ethics, 19(3) |  |  |  |  |  | no - not empirical |  |
| Henderson, R. I., Williams, K., & Crowshoe, L. L. | Mini-med school for aboriginal youth: Experiential science outreach to tackle systemic barriers. | Medical Education Online, 20 |  |  |  |  |  | YES |  |
| Sánchez Tapia, I., Krajcik, J., & Reiser, B. | “We do not know what is the real story anymore”: Curricular contextualization principles that support indigenous students in understanding natural selection. | Journal of Research in Science Teaching, 55(3) |  |  |  |  |  | YES |  |
| Science social impact on / AND inequalities | Anderson, G., Hao, T., & Pittau, M. G. | More unequal yet more alike, the changing patterns of family formation, generational mobility and household income inequality in china: A counter-factual analysis. | Journal of Economic Inequality, 17(3) |  |  |  |  |  | no |  |
| Bezerra, M. | At that edge: Archaeology, heritage education, and human rights in the brazilian amazon. | International Journal of Historical Archaeology, 19(4) |  |  |  |  |  | no |  |
| Freeman, K. J., & Steidl, C. R. | Distribution, composition and exclusion: How school segregation impacts racist disciplinary patterns. | Race and Social Problems, 8(2) |  |  |  |  |  | YES |  |
| Gomez-Baya, D., Salinas-Perez, J. A., Rodero-Cosano, M. L., & Alvarez-Galvez, J. | Socioeconomic inequalities in health through lifestyles: Analysing gender and age differences in andalusia, spain. | Journal of Community Health, 45(4) |  |  |  |  |  | YES |  |
| Hughes, N. R. | How does organisational literacy impact access to health care for homeless individuals? | Health Care Analysis, 25(1) |  |  |  |  |  | no - not related to education |  |
| Karoui, K., & Feki, R | The impacts of gender inequality in education on economic growth in tunisia: An empirical analysis. | Quality and Quantity, 52(3) |  |  |  |  |  | no |  |
| McDonald, N., & Pan, S. | Intersectional AI: A study of how information science students think about ethics and their impact. | Proceedings of the ACM on Human-Computer Interaction, 4(CSCW2 |  |  |  |  |  | YES |  |
| Oberti, M., & Voisin, A. | The high school students and sciences po: Between the meritocracy and the perception of inequality. | Dados, 56(1) |  |  |  |  |  | YES | non available in English |
| Pelletier, E., & Manna, P. | Learning in Harm’s way: Neighborhood violence, inequality, and american schools. | Annals of the American Academy of Political and Social Science, 674(1) |  |  |  |  |  | no |  |
| Shariff-Marco, S., Yang, J., John, E. M., Kurian, A. W., Cheng, I., Leung, R., . . . Gomez, S. L. | Intersection of Race/Ethnicity and socioeconomic status in mortality after breast cancer. | Journal of Community Health, 40(6) |  |  |  |  |  | no |  |
| Sweet, A., Harris, R., & Manley, D. | Better to stay or go? A longitudinal study of mobility over the compulsory educational life course. | Applied Spatial Analysis and Policy, 12(3) |  |  |  |  |  | YES |  |
| Tshabangu, I. | The intersectionality of educational inequalities and child poverty in africa: A deconstruction. | Educational Research for Policy and Practice, 17(1) |  |  |  |  |  | no |  |
| Science social impact on / AND education | Ahmed, V., & Zeshan, M. | An analysis of the social impact of the stipend program for secondary school girls of khyber pakhtunkhwa. | Educational Research for Policy and Practice, 13(2) |  |  |  |  |  | no |  |
| Chaviano-Moran, R., Chuck, E., & Perez, H. | Unintended demographic bias in GPA/DAT-based pre-admission screening: An argument for holistic admissions in dental schools. | Journal of Dental Education, 83(11) |  |  |  |  |  | no - not related to education |  |
| Chow, H. P. H. | Growing old in canada: Physical and psychological well-being among elderly chinese immigrants. | Ethnicity and Health, 15(1) |  |  |  |  |  | no |  |
| Claridge, H., Stone, K., & Ussher, M. | The ethnicity attainment gap among medical and biomedical science students: A qualitative study. | BMC Medical Education, 18(1) |  |  |  |  |  | YES |  |
| Eddy, S. L., Brownell, S. E., Thummaphan, P., Lan, M. -., & Wenderoth, M. P. | Caution, student experience may vary: Social identities impact a student’s experience in peer discussions. | CBE Life Sciences Education, 14(4) |  |  |  |  |  | YES |  |
| Ghee, M., Keels, M., Collins, D., Neal-Spence, C., & Baker, E. | Fine-tuning summer research programs to promote underrepresented students’ persistence in the STEM pathway. | CBE Life Sciences Education, 15(3) |  |  |  |  |  | YES |  |
| Gibau, G. S. | Considering student voices: Examining the experiences of underrepresented students in intervention programs. | CBE Life Sciences Education, 14(3) |  |  |  |  |  | YES |  |
| Hannah, S. D., & Carpenter-Song, E. | Patrolling your blind spots: Introspection and public catharsis in a medical school faculty development course to reduce unconscious bias in medicine. | Culture, Medicine and Psychiatry, 37(2) |  |  |  |  |  | no - not related to education |  |
| Krige, K. A. M., Hawarden, V., & Cohen, R. | From NPO to social enterprise: The story of schwab awardee, sharanjeet shan. | Emerald Emerging Markets Case Studies, 9(4) |  |  |  |  |  | NO |  |
| Lacy, E. S., McCann, A. L., Miller, B. H., Solomon, E., & Reuben, J. S. | Achieving student diversity in dental schools: A model that works. | Journal of Dental Education, 76(5) |  |  |  |  |  | no - not empirical |  |
| Lange, M. | Social welfare and ethnic warfare: Exploring the impact of education on ethnic violence. | Studies in Comparative International Development, 46(4) |  |  |  |  |  | YES |  |
| Laszlo, A., Luksha, P., & Karabeg, D | Systemic innovation, education and the social impact of the systems sciences. | Systems Research and Behavioral Science, 34(5) |  |  |  |  |  | no - not empirical |  |
| Nnakwe, N. | Using poverty simulation to help nutrition students develop sensitivity toward low-income individuals. | Journal of Poverty |  |  |  |  |  | YES |  |
| Nyandoro, M. | Citizen engagement circumvented: An analysis of liquid waste information/knowledge, control and environmental policy perspectives in harare, zimbabwe. | Environment and History, 25(4) |  |  |  |  |  | no - not empirical |  |
| O'Brien, L. T., Garcia, D. M., Blodorn, A., Adams, G., Hammer, E., & Gravelin, C. | An educational intervention to improve women's academic STEM outcomes: Divergent effects on well- represented vs. underrepresented minority women | Cultural Diversity and Ethnic Minority Psychology |  |  |  |  |  | YES | non available |
| Payne, C. M., & Ortiz, C. M. | Doing the impossible: The limits of schooling, the power of poverty. | Annals of the American Academy of Political and Social Science, 673(1) |  |  |  |  |  | no - not empirical |  |
| Qamar, M. A. J., Masood, S., & Nasir, M. | Impact of microfinance on the non-monetary aspects of poverty: Evidence from pakistan. | . Quality and Quantity, 51(2) |  |  |  |  |  | no |  |
| Robles, V. F., & Oropesa, R. S. | International migration and the education of children: Evidence from lima, peru. | Population Research and Policy Review, 30(4) |  |  |  |  |  | no |  |
| Rosenbloom, J. L., & Ginther, D. K. | The effectiveness of social science research in addressing societal problems: Broadening participation in computing. | . Science and Public Policy, 44(2) | 2 |  |  |  |  | no - not empirical |  |
| Sekhobo, J. P., Peck, S. R., Byun, Y., Allsopp, M. A. K., Holbrook, M. K., Edmunds, L. S., & Yu, C. | Use of a mixed-method approach to evaluate the implementation of retention promotion strategies in the new york state WIC program. | Evaluation and Program Planning, 63 |  |  |  |  |  | no - not related to education |  |
| Serbin, L. A., Stack, D. M., & Kingdon, D. | Academic success across the transition from primary to secondary schooling among lower-income adolescents: Understanding the effects of family resources and gender. | Journal of Youth and Adolescence, 42(9) |  |  |  |  |  | YES |  |
| Strauss, R. P., Stein, M. B., Edwards, J., & Nies, K. C. | The impact of community-based dental education on students. | Journal of Dental Education, 74(10 SUPPL.) |  |  |  |  |  | no - not empirical |  |
| Tumiel-Berhalter, L. M., Kahn, L., Watkins, R., Goehle, M., & Meyer, C. | The implementation of good for the neighborhood: A participatory community health program model in four minority underserved communities. | Journal of Community Health, 36(4) |  |  |  |  |  | YES |  |
| Whiteford, G. | Participation in higher education as social inclusion: An occupational perspective. | Journal of Occupational Science, 24(1) |  |  |  |  |  | no - not empirical |  |

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| **TOPIC B -EDUCATION** | | | | | | | |
| JCR + SCOPUS |  |  | Discarted JCR + Scopus | | | |  |
| Keyword combination | Total Obtained JCR/Scopus | Non-availble JCR/Scopus | Date range | Article Impact | Social impact of Findings | Out of scope | Final sample JCR/Scopus |
| Social awareness of scientific research AND education | 17 | 3 |  |  |  | 13 | 1 |
| Social awareness of scientific research and youth AND education | 1 |  |  |  |  | 0 | 1 |
| Social awareness of scientific research AND education | 1 | 1 |  |  |  |  | 0 |
| Social awareness of scientific research and social inequalities AND education | 8 | 2 |  |  |  | 5 | 1 |
| Science impact in reflective societies AND education | 9 |  |  |  |  | 7 | 2 |
| Knowledge transfer education impact OR Knowledge transfer and education impact | 67 | 6 |  |  |  | 56 | 5 |
| Knowledge transfer and social inequalities AND education | 1 |  |  |  |  | 1 | 0 |
| TOTAL | 104 |  |  |  |  | 82 | 10 |

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|  |  |  |  |  | Discarted | | | |  |  |
| KEYWORDS | Authors | Title | Journal | Repeated (xtimes) | Date range | Article Impact | Social impact of Findings | Out of scope | Included /excluded |  |
| Social awareness of scientific research AND education | Akhmetov, A. S., Zhamuldinov, V. N., & Komarov, O. E. | Legal culture and its role in civil society formation. | Journal of Advanced Research in Law and Economics, 9(5) |  |  |  |  |  | not related to education |  |
| Bascopé, M., Perasso, P., & Reiss, K. | Systematic review of education for sustainable development at an early stage: Cornerstones and pedagogical approaches for teacher professional development. |  |  |  |  |  |  | yes |  |
| Bezuidenhout, L. | Data sharing and dual-use issues. | Science and Engineering Ethics, 19(1) |  |  |  |  |  | not related to education |  |
| Butzer, B., Bury, D., Telles, S., & Khalsa, S. B. S. | Implementing yoga within the school curriculum: A scientific rationale for improving social-emotional learning and positive student outcomes. | . Journal of Children's Services, 11(1) |  |  |  |  |  | not related to education |  |
| Camarero, E., & Varona, D. | Life story as a research technique for evaluating formation processes in media literacy for social change. approaching a case of success of the educational project "training, education and innovation in audiovisual media to raise awareness of hunger in nicaragua". | International Journal of Media and Information Literacy, 1(1) |  |  |  |  |  | yes | non available |
| Capstick, S., Hemstock, S., & Senikula, R. | Perspectives of artist–practitioners on the communication of climate change in the pacific. | International Journal of Climate Change Strategies and Management, 10(2) |  |  |  |  |  | not related to education |  |
| Cock, J. C. A. N., Antunes, A. L., Rodrigues, R. P., Santos, D. S. L., & de Araujo, J. P. F. T. | Operating with bourdieu's concepts: Research productivity and academic hierarchies in education. | Educacao e Pesquisa, 44 |  |  |  |  |  | yes | non available |
| Escobar, A. L., López, R. R., Guerrero, J. E. G., & Cuadrado, E. S. | Design of strategies for the implementation and management of a complementary monetary system using the SWOT-AHP methodology. | Sustainability (Switzerland), 12(17 |  |  |  |  |  | not related to education |  |
| Kardos, M., Gabor, M. R., & Cristache, N. | Green marketing's roles in sustainability and ecopreneurship. case study: Green packaging's impact on romanian young consumers' environmental responsibility. | Sustainability (Switzerland), 11(3) |  |  |  |  |  | not related to education |  |
| Kuo, G., Bacci, J. L., Chui, M. A., Farley, J., Gannett, P. M., Holstad, S. G., . . . Farrell, D. | Implementation science to advance practice and curricular transformation: Report of the 2019-2020 AACP research and graduate affairs committee. | American Journal of Pharmaceutical Education, 84(10) |  |  |  |  |  | no - not empirical |  |
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| --- | --- | --- | --- | --- | --- | --- | --- |
| **TOPIC C -EDUCATION** | | | | | | | |
| SCOPUS |  |  | Discarted Scopus | | | |  |
| Keyword combination | Total Obtained Scopus | Non-availble Scopus | Date range | Article Impact | Social impact of Findings | Out of scope | Final sample Scopus |
| Science or technology and education and under-representation | 4 | 3 |  |  |  | 1 | 3 |
| Science or technology and education and “vulnerable groups” | 6 |  |  |  |  | 5 | 1 |
| Science or technology and education and “citizen engagement” or “public engagement” | 33 |  |  |  |  | 20 | 13 |
| Science or technology and education and "learning design" or "learning engagement" | 137 |  |  |  |  | 122 | 15 |
| TOTAL | 180 |  |  |  |  | 148 | 32 |

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| --- | --- | --- | --- | --- | --- | --- | --- |
| **TOPIC D -EDUCATION** | | | | | | | |
| SCOPUS |  |  | Discarted Scopus | | | |  |
| Keyword combination | Total Obtained Scopus | Non-availble Scopus | Date range | Article Impact | Social impact of Findings | Out of scope | Final sample Scopus |
| Science or technology and education and under-representation and recruitment | 13 | 3 |  |  |  | 4 | 9 |
| Science or technology and education and “vulnerable groups” and recruitment | 0 |  |  |  |  | 0 | 0 |
| Science or technology and under-representation and recruitment | 21 |  |  |  |  | 8 | 13 |
| Science or technology and "vulnerable groups" and recruitment | 3 |  |  |  |  | 2 | 1 |
| Science or technology and education and diversity and "business case" | 1 |  |  |  |  | 1 | 0 |
| Science or technology and education and careers and success | 11 |  |  |  |  | 9 | 2 |
| Science or technology and education and teaching and diversity | 29 |  |  |  |  | 22 | 7 |
| Science or technology and education and “smart cities” | 69 |  |  |  |  | 58 | 11 |
| TOTAL | 147 |  |  |  |  | 104 | 43 |

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| --- | --- | --- | --- | --- | --- | --- | --- |
| **TOPIC E - EDUCATION** | | | | | | | |
|  |  |  | Discarted JCR | | | |  |
| Keyword combination | Total Obtained JCR | Non-availble JCR | Date range | Article Impact | Social impact of Findings | Out of scope | Final sample JCR |
| Polic\* AND awareness AND science AND education | 153 |  |  |  |  | 153 | 0 |
| Polic\* AND science AND education | 3.329 | 3 |  |  |  | 3.208 | 118 |
|  |  |  | Discarted Scopus | | | |  |
| Keyword combination | Total Obtained | Non-availble | Date range | Article Impact | Social impact of Findings | Out of scope | Final sample |
| Polic\* AND awareness AND science AND education | 459 | 1 |  |  |  | 440 | 18 |
| Polic\* AND science AND education | 8.897 | 3 |  |  |  | 1810 | 7.084 |

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| --- | --- | --- | --- | --- | --- | --- | --- |
| E. Policies that promote awareness-raising actions and citizen engagement in science. | | |  | Discarted Reports | | |  |
| Title | Year | Insitution | Context | Date range | Social impact of Findings | Out of scope | Included /excluded |
| Citizen Engagement in Science and Policy-Making. Reflections and recommendations across the European Commision. | 2016 | European Commission |  |  |  |  | Included |
| Citizen Science and Citizen Engagement - Achievements in Horizon 2020 and recommendations on the way forward | 2020 | European Commission |  |  |  |  | Included |
| Eu-citizen.science. Deliverable 4.2: Report on Policy Maker Engagement and Awareness-Raising | 2020 | European Commission |  |  |  |  | Included |
| Community Citizen Science. From Promise to Action | 2019 | RAND Corporation |  |  |  |  | Included |
| Citizen Engagement in Pakistan | 2019 | South Asia Research Hub, Department for International Development, Government of UK |  |  |  |  | Included |
| Charter for Public Participation – a guide to assist agencies and promote citizen engagement | 2018 | IPC. Information and Privacy Commission |  |  |  |  | Included |
| Socientize. Citizen Engagement with Local Government | 2014 | European Commission |  |  |  |  | Included |
| Making space: how public participation shapes environmental decision-making | 2019 | Stockholm Environment Intitute |  |  |  |  | Included |
| Understanding Citizen Science and Environmental Monitoring | 2012 | UK Environmental Observation Framework |  |  |  |  | Included |
| Citizen Science Policies in the European Commission: Research agendas towards issues of concern to citizens | 2017 | European Commission | Horizon 2020 |  |  | Is a policy brief providing definitions, recomendations and implications on citizen science. | Excluded |
| GRACE Project Document 2 – Collection of experiences on Citizen Engagement | 2019 | European Commission | Horizon 2020 |  |  | Document 2/7 GRACE Project. Provides examples of action among the topics ( | Excluded |
| Promoting transparency and citizen engagement (chapter 2) | 2012 | OECD |  |  |  | Not form the topic, too general. Focuses on citizen's access to information and transparency | Excluded |
| Planning guide for public engagement and outreach in nanotechnology. Key points for consideration when planning public engagement activities in nanotechnology. | 2012 | OECD |  |  |  | Not from the topic. Focuses on citizen engagement in nanotechnology | Excluded |
| BioSTEP. Promoting stakeholder engagement and public awareness for a participative governance of the European Bioeconomy | 2016 | European Commission | Horizon 2020 |  |  | Report not found | Excluded |
| Towards Smart Zero CO2 Cities across Europe | 2018 | European Commission | Horizon 2020 |  |  | Focuses on CO2 emissions in 3 cities. | Excluded |
| Citizen Engagement with Local Government | 2014 | Department of the Environment, Community & Local Government |  |  |  | Recomendations and guides for public participation and citizen engagement | Excluded |
| Action for Climate Empowerment. Guidelines for accelerating solutions through education, training and awareness-raising | 2016 | United Nations Educational, Scientific and Cultural Organization | Convention for Climate Change (UNFCCC) |  |  |  | Excluded |
| Citizen Engagement in Public Service Delivery. The Critical Role of Public Officials. | 2016 | UNDP Global Centre for Public Service Excellence |  |  |  | Out of Scope | Excluded |

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