Deliverable D3.4.1

Working Paper:

The Development and Testing of the RE-WIRING Navigation Tool

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Version 5 August 2025	Final version with revisions made by Alexandra Lux to respond to comments from Colette van Laar and Grzegorz Małek.

Contributor statement

Alexandra Lux acts as first author in close collaboration with Jara Cabes, Jenny Veldman, Ruth van Veelen, Alba Jasini, Grzegorz Małek, and Colette Van Laar. The empirical testing part of this deliverable is based on the research that Jara Cabes conducted within her master thesis research that was written within this project.

Table of contents

1. Executive Summary

The present document constitutes **Deliverable 3.4.1 / Working paper: The Development and Testing of the RE-WIRING Navigation Tool**. It is the fourth deliverable of Work Package 3 on De-biasing Education, which is part of the larger RE-WIRING (**Re**alising girls' and **w**omen's **i**nclusion, **r**epresentation, and **e**mpowerment) project that aims to identify the structural root causes of gendered power hierarchies and create sustainable change to prevent and reverse existing gender inequalities.

The term *gendered choices in education* covers education-related choices that are in line with gender stereotypes and gender-based expectations of how girls and boys should feel, think, and act (Brownhill et al., 2015; Eagly & Wood, 2012; Ellemers, 2018; Eccles & Wigfield, 2020). This work package aims to identify key leverages to change gendered norms and decisions in education and to map and develop tools that can help reduce students' gendered educational choices. The first step towards this aim was Deliverable 3.1, a review of agents involved in gendered norms and choices. The second step towards this aim was Deliverable 3.2, a review of existing interventional approaches that aim to reduce gendered educational choices. Deliverable 3.3, the White Paper "How Can We Reduce Gendered Educational Choices? Four Stepping Stones for Future Interventions" summarized the key insights gained from Deliverable 3.1 and 3.2 into actionable recommendations for teachers, career counselors, policy-makers and researchers. Inspired by Deliverable 3.1, 3.2, and 3.3, we developed a social-psychological intervention to reduce students' gendered educational choices. It is currently being tested in three different languages. Its development, testing, and preliminary findings are described in *Deliverable 3.4.2 / Working paper: The Development and Testing of the RE-WIRING Role Model Intervention*. The work package will be finished with two practical toolkits for students and parents that give practical advice on de-biasing educational choices.

The current working paper is a continuation of Deliverable 3.2 (a review of existing interventional approaches that aim to reduce gendered educational choices). It describes the development and testing of an interactive navigation tool that helps practitioners explore

common causes of gendered educational choices around the world and guides them towards an interventional approach that suits their specific context.

The target audience of this review paper consists of:

- Researchers at (applied) universities and other knowledge institutes with an interest in debiasing education, including – but explicitly not limited to – people involved in the RE-WIRING project.
- Social agents and institutions related to students' education (e.g., schools, teachers, or counselors) with an interest in debiasing education.
- Policy makers and other societal stakeholders (e.g., NGOs, educational institutions) around the world with an interest in debiasing education.

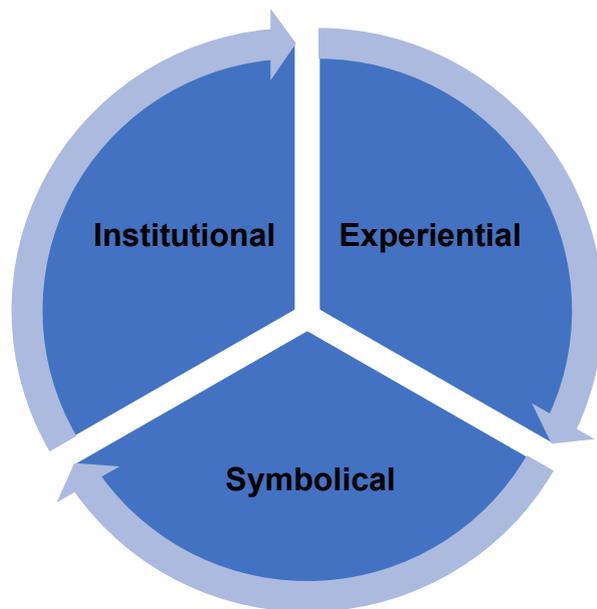The structure of this working paper is as follows:

- **Section 2** provides a broader introduction to the entire RE-WIRING project and framework.
- **Section 3** describes the development and testing of the RE-WIRING Navigation Tool.
- **Section 4** lists all used references.

2. Introduction to the Project and Framework

The first section of this working paper provides a general introduction to the RE-WIRING project. The name "RE-WIRING" stems from the goal to "re-wire" institutions in order to achieve gender equality. Given the urgency for a shift from being gendered (or gender-blind/gender-neutral) institutions to gender-sensitive and transformative ones, this project focuses on the fundamental rethinking and "**re-wiring**" of existing institutional approaches and systems. In our definition, "Institutions" include not only governments and other public bodies, but also companies, banks, social partners, health institutions, schools and academia, and other private social constellations, including, for instance, women's organizations and religious groups. The RE-WIRING project goes beyond existing doctrinal and policy transformative equality approaches (e.g., EIGE, 2015; Fredman et al., 2016; OECD, 2021) by taking a holistic, multidisciplinary approach. This approach is based on the groundwork laid within the Utrecht University interdisciplinary research platform for Gender, Diversity & Global Justice.

RE-WIRING, therefore, presents a three-dimensional framework that builds upon the premise that effective transformation and women's empowerment can only come about when simultaneous action is taken on institutional, experiential, and symbolical levels, as outlined in Figure 1.

Figure 1. Illustration of the Three Analytical Levels.

Institutional:
What are responses to inequality and exclusion on the institutional level, including in laws and policies?

Experiential:
How do women and girls experience the many forms of inequality in the context of social institutions such as the workplace, educational settings, the family, etc.? And how do they experience institutional measures aimed at correcting these inequalities?

Symbolical:
How are women and girls and their societal roles represented in the linguistic, narrative, and visual structures that shape society?

This novel, three-dimensional approach (see Fig. 1) takes three highly relevant factors into account: intersectionality, culture, and crises. This combined approach enables more in-depth identification of the root causes of gender-based and intersectional social inequalities in differing contexts and the resulting gaps in the political, socio-economic, and cultural domains. It enables the development and validation of concrete policy responses and practical tools targeted at particular cultural contexts, sectors, and intersectional realities that impact an individual's experience. It will also allow for examining the validity of used concepts and developed tools to explain the impact of various crises (financial, climate, health, and future of work) on gender equality.

RE-WIRING's ambition is to:

- **Advance scientific theorization and knowledge** of the gendered power relations across the political, social, economic, and cultural spheres, and the key underlying intersectional dynamics and causal mechanisms that shape them.

- **Develop innovative tools and practical solutions** by empirically evaluating sets of actions that not only target women and girls but also engage relevant actors and stakeholders to improve political, social, economic, and cultural empowerment and increase sustainability and social resilience.

The RE-WIRING project consists of 10 work packages in total. This deliverable is a part of Work Package 3 (WP3) that focuses on debiasing education. This work package contributes to the development of concrete tools and policies for debiasing education, focusing specifically on advanced educational contexts (students between 12-20 years of age). All deliverables forthcoming from this work package can be read and understood as stand-alone products. This implies that the introducing sections of the deliverables from this work package may contain some overlap in writing given the shared context and aim across deliverables.

3. A Tool to De-Gender Educational Choices: The Development of the RE-WIRING Navigation Tool

3.1 Gender Shapes Educational and Career Choices

Cultural expectations and stereotypes of gender feed into educational and occupational **gender segregation** by shaping young people's **educational and future career choices**. These choices can be therefore *gendered* – boys and girls tend to choose education tracks and jobs that match the cultural expectations of how boys and girls should feel, think, and act (Brownhill et al., 2015; Eagly & Wood, 2012; Eccles & Wigfield, 2020; Ellemers, 2018).

The phenomenon of gender segregation can be manifested in two ways that are often known as **vertical gender segregation** and **horizontal gender segregation** (Bettio & Verashchagina, 2009; Charles & Bradley, 2002; Charles & Bradley, 2009). See Figure 2 on p.11 that depicts vertical and horizontal gender segregation across different educational domains.
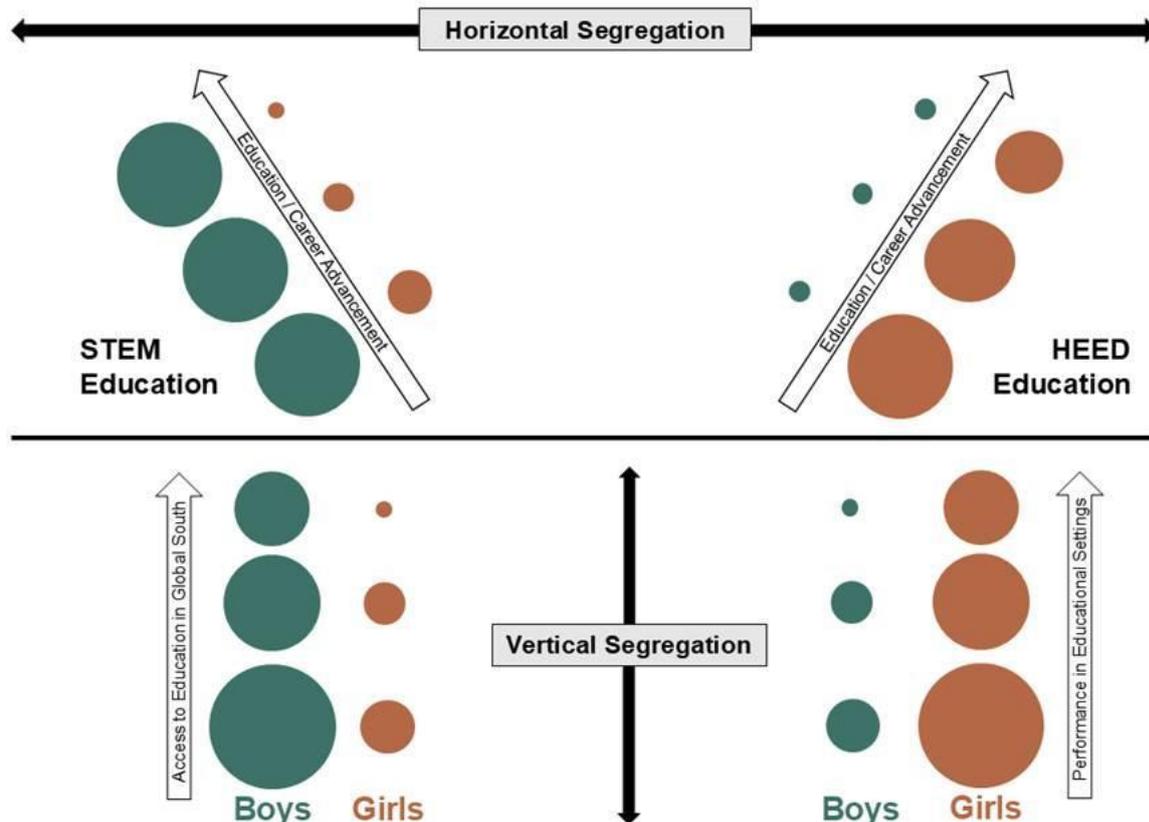
Vertical gender segregation occurs when girls or boys have unequal access to (good-quality) education as well as unequal chances for promotions in high-level positions in their organizations**.** For example, vertical gender segregation can often be found in the Global South and non-WEIRD[1] cultural contexts where girls tend to have fewer opportunities and access to education than boys (Shabaya & Konadu-Agyemang, 2004). In other examples, vertical gender segregation is hinted at by cases where boys underperform in educational contexts (Buchmann & DiPrete, 2006; DiPrete & Buchmann, 2006; Morris, 2011), or where men are disproportionately offered more opportunities to climb the career ladder than women are (Butter et al., 1987; Kauhanen & Napari, 2015).

Horizontal gender segregation is seen in contexts that direct girls and boys towards the educational and occupational domains that are culturally promoted and typical for their gender. Specifically, this is the case when girls are predominantly directed towards typically feminine occupational fields, such as the **HEED** fields (healthcare, early education, domestic work; Croft et al., 2015; Meeussen et al., 2020) and boys are predominantly directed towards typically masculine occupational fields, such as the **STEM** fields (science, technology, engineering, mathematics; Belanger et al., 2020). Such trends can produce a gender gap in these fields: whereas there is underrepresentation of girls/women in STEM fields, there is underrepresentation of boys/men in HEED fields.

One important consequence of both aspects of gender segregation is that men and women end up being employed in different types of jobs, or at different levels of the organizational hierarchy, with women often being clustered at the lower levels.

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[1] *WEIRD stands for Western, Educated, Industrialized, Rich, and Democratic (Henrich et al., 2010)*

Figure 2. Vertical and Horizontal Gender Segregation in Educational Contexts.

Note: STEM refers to the fields of science, technology, engineering, and mathematics. HEED refers to the fields of healthcare, early education, and domestic work. The size of the circles represents the numerical representation of girls (in orange) and boys (in green).

3.2 The Need for a Navigation Tool

3.2.1 Gendered Educational Choices as a Problem

There are many reasons to strive for a reduction of the influence that gender has on educational and career choices.

At the individual level, gendered educational choices can hinder students from fulfilling their full potential and following their true passions (DiDonato & Strough, 2013). At the societal level, gendered educational choices result in an underrepresentation of women in domains of STEM (science, technology, engineering, mathematics) and an underrepresentation of men in domains of HEED (healthcare, early education, domestic work; Belanger et al., 2020; Croft et al., 2015), as illustrated in Figure 2. STEM and HEED fields are both characterized by labor shortages that could be improved if educational and occupational choices were less influenced by gender (Iammartino et al., 2016; McKenna et al., 2016; Menches et al., 2007; Quigley et al., 2024). Moreover, at the organizational level, a more diverse gender representation brings a broader range of knowledge together and thereby drives innovation and growth, and can also help create more sustainable labor markets for the future (Ain et al., 2021; Nielsen et al., 2018; Ruiz-Jiménez et al., 2014). In addition, it might also help improve women's financial prospects which are more precarious as compared to men's, as gender differences in representation in occupations and industries now constitute the largest measured factor accounting for global socio-economic gender gaps (Blau & Kahn, 2017).

3.2.2 Educators as Key Figures to Reduce Gendered Educational Choices

Teachers are a cause for gendered educational choices as well as potential key social agents towards debiasing such choices. It can thus help to train teachers to be aware of their own gender biases in order to reduce their gendering impact on students' educational choices (OECD, 2015). Many teachers are even actually aware of the gender stereotypes they hold but still struggle to treat their students in an unbiased manner (Gajda et al., 2022). Regardless of whether teachers are aware of their own beliefs and biases regarding gender roles, they transmit these to their students (Gajda et al., 2022; Kollmayer et al., 2018). These gender stereotypes and teacher expectations shape students' educational and career choices. Boys are more often than girls discouraged from choosing educational paths that are seen as atypical of their gender (Reisel & Seehus, 2023). Therefore, addressing teachers' stereotypes and expectations is essential. Gender stereotypes influence not only students' educational choices, but also perceptions that teachers have of their students. Teachers tend to associate educational underachievement with boys and high educational achievement with girls (Jones & Myhill, 2004). They often believe that girls are more diligent, independent, communicative and organized, whereas boys are seen as less motivated and

less committed to their schoolwork (Åhslund & Boström, 2018). These biased perceptions can negatively affect student performance when teachers have low expectations, and conversely, positively impact student trajectories when expectations are high (De Boer et al., 2018).

Besides teachers, study and career counselors also play a vital role. Individualized career guidance can reduce the influence of gendered expectations on adolescents. Erdmann and colleagues (2023) showed that students who received such guidance were more likely to pursue careers atypical of their gender, and less likely to abandon their educational path under social pressure.

Many existing interventional approaches aim to harness teachers' influential role when it comes to debiasing students' educational self-concept and choices. For example, interventions can:

- Target teachers' *understanding of intelligence* by helping them understand that intelligence is malleable and can increase with training (Bettinger et al., 2018).
- Ensure that teachers *give instructions without eliciting stereotype threat*, e.g., by framing exams as part of the learning process and an opportunity to improve skills rather than a tool to compare students, or by mentioning in the instructions that an exam usually does not yield gender differences (Good et al., 2008; Smeding et al., 2013).
- *Change expectations of teachers* through so-called teacher expectancy interventions (De Boer et al., 2018; Raudenbush, 1984; Rosenthal & Jacobsen, 1968; Rubie-Davies et al., 2015). These interventions improve students' performance through first raising the expectations that teachers have of them. Teachers learn about the effects that their expectations can have on their students and address the beliefs underlying teachers' expectations.

Teachers also play an important role in the success of educational interventions in a more general sense. Even if interventions target students directly, if the teachers do not support or believe in the intervention, it is more likely to fail and not lead to a change in students (De Boer et al., 2018; Yeager et al., 2022). Additionally, in order to support meaningful change, teachers first have to become aware of their own biases and be equipped with strategies to counteract them (De Boer et al., 2018; OECD, 2015). Moreover, interventions that are

carried out early and in a consistent way can be more effective in reducing gender inequality in education (Wang & Degol, 2016).

3.2.2.1 Interventions Need to be Chosen Wisely

One of our main conclusions from Deliverable WP3.D2 (review of interventions to reduce gendered norms and choices in education; Lux et al., 2024) was that the pool of existing interventions is generally quite diverse and spans a lot of potential changing agents and mechanisms. However, not all interventions are equally helpful to all students and in all contexts (for a similar argument regarding interventions that target students directly, see Easterbrook & Hadden, 2021). Many interventions show great heterogeneity in their effectiveness across different contexts and groups (Chao et al., 2017; Easterbrook et al., 2021; Kost-Smith et al., 2012; Kizilcec & Cohen, 2017; Yeager & Walton, 2011). A prerequisite for the success of an intervention thus seems to be that it is chosen carefully, for example, by first considering whether the issue of constraint is caused by vertical or horizontal gender segregation, and second by analyzing whether the specific context calls for an intervention targeting, for example, the school system, socializing agents, students' perceptions of the field, or a combination of targets. Moreover, the success of an intervention also depends on the characteristics and beliefs of the agents implementing it (Bettinger et al., 2018; De Boer et al., 2018; Kost-Smith et al., 2012; Yeager et al., 2022). Ideally, interventions are thus chosen with careful consideration, making them as tailored to the context and problem as possible.

3.2.2.2 Educators' Access and Resources are Limited

Interventional approaches to reduce the impact of gender on students' educational choices are numerous but they have to be chosen wisely (Lux et al., 2024). Educators have most agency over choosing and implementing interventions, but they are often already overburdened by other tasks and demands of their profession. Informing themselves on different interventional approaches and identifying approaches that fit their context best demands time and energy they simply do not have (Brownell & Tanner, 2017; Teig et al., 2019). On top of that, scientific literature on interventions and their success is often hard to access through both paywalls and scientific jargon (Baram-Tsabari et al., 2020; Cook et al., 2024; Gair et al., 2021; Shulman et al., 2020).

In summary, more interventions are needed to reduce the still prevalent role that gender plays when making educational and career choices. While it is crucial to choose interventions carefully to maximize their success, the key agents to choose and implement intervention approaches, namely educators, lack the time to navigate interventional approaches and also face limited access when it comes to research that assesses the success of different approaches.

3.3 The Development of the RE-WIRING Navigation Tool

To help solve this dilemma and help enable teachers to take action, we developed the RE-WIRING Navigation Tool that helps users navigate different interventional approaches to tackle gendered educational choices. Through answering simple questions, the tool guides users through different interventional approaches, helps them to choose the most fitting approach, and provides practical as well as scientific information around the implementation and previous success around the approach. Our mapping can help practitioners and policymakers to first locate themselves on the wide spectrum of potential options and causes for current gender inequalities in education. They can next set concrete, timely, and realistic goals for how current disparities are in need of closing, and then choose a set of most promising approaches to intervene, ideally taking a systematic approach to address different levels of intervention (i.e., funding, institutional communication, educational materials, teachers, students). We use this section to outline the process of developing the tool and the different stages of testing after we made adjustments and improvements.
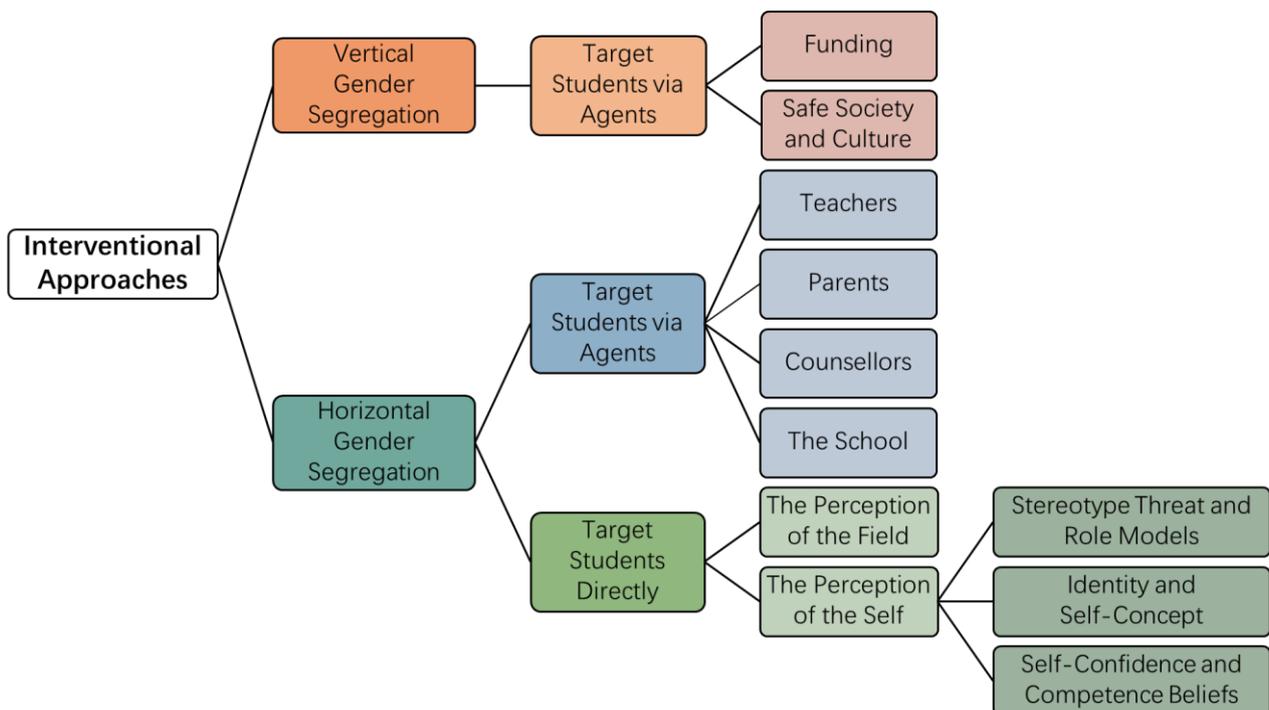
3.3.1 Stage 1: Testing the First Prototype With Stakeholders

3.3.1.1 The First Prototype

We created the first mapping of interventional approaches based on Deliverable WP3.D2. This deliverable consisted of a review of existing interventional approaches to reduce gendered norms and choices in education (Lux et al., 2024). In the first step, this mapping (see Figure 3) distinguished vertical from horizontal gender segregation. The approaches that tackle vertical gender segregation all target students indirectly via agents, namely through funding or other means that help create a safer society and culture that allows especially girls to have equal access to education compared to boys. Approaches to reduce horizontal segregation were further distinguished into approaches that tackle students

directly and approaches that create change through social agents who are in the vicinity of students making educational choices. Such agents included teachers, parents, counselors, and schools in general. Approaches that target students directly could either do so through changing students' perception of professional fields, or through changing students' self-perception. When it comes to approaches that change students' self-perception, they were further classified into those focusing on stereotype threat and role models, those focusing on identity and self-concept, and those focusing on self-confidence and competence beliefs. For all details on different approaches and specific, empirically-tested examples, please see Deliverable WP3.D2.

Figure 3. Mapping of Interventional Approaches Created in February 2024.

Based on this mapping and the details laid out in Deliverable WP3.D2, we created an interactive tool using Qualtrics, a cloud-based platform generally used for creating and managing online surveys, collecting data, and analyzing customer, employee, product, and brand experiences. Through its survey flow and branch logic features, it allowed us to direct users down different paths based on their answers, allowing for a decision tree structure

that helps users navigate different interventional approaches that are helpful in different contexts. The first fully programmed prototype included information about different approaches, including example applications that were described in non-academic language, accompanied by academic references to inspire further readings.

3.3.1.2 Stakeholder Roundtable Meetings and Lessons Learned

In autumn 2024, our initial prototype faced its first "reality check" through stakeholder roundtable meetings.

These meetings held in October and November 2024 allowed us to hear from actual practitioners, policy makers, and education experts. We would like to thank all stakeholders and team members that took the time to learn about the tool, tested it, and shared their

feedback with us. From left to right, starting from the top: Eva van der Boom (FME), Jolien Geerlings (Movisie), Maike Stemmler (Detox Identity), Bas Zwiers (Emancipator & Alliance Worden Wie Je Bent), Peter Hahn (MNV - Mannen Netwerk Verpleegkunde), Nina Le Compte (KU Leuven), Laura Washington (Project Empower), Indigo Deijmann (Ghent University), Ruth van Veelen (TNO), Paula Thijs (Atria), Colette van Laar (KU Leuven), Maarten Bettens (KU Leuven), Alexandra Lux (KU Leuven), Jenny Veldman (Utrecht University), Gifty Obeng (Good Governance Africa – West Africa), Christina Haaf (Kompetenzz), Pia Wagner (Federal Institute for Vocational Education and Training – BIBB), Julia Stekla (University of Gdańsk), Evelien Vanhelmont (Ghent University), Myriam Halimi (RoSa vzw), Roos Lourier (Alliander).

During these meetings, we learned about features of the tool that were already very valuable to stakeholders and potential users, but also about blind spots we had missed and ways we could further improve the tool.

We gained four key insights that seemed particularly relevant for the further development of the tool:

1. **We can boost girls' access to education by engaging parents and holding schools accountable.**

   Stakeholders recommended addressing economic and social barriers to girls' education by engaging parents and holding schools accountable for gender equity. They suggested the use of parental engagement platforms to raise awareness of career options and challenge gender biases, and proposed accountability measures in schools—such as teacher training and regular assessments—to promote equitable access to academic and career opportunities.

   → We addressed this feedback by ensuring that we have schools and parents as social agent options that can be selected in the tool to learn more about concrete steps that can be taken. Independent of the tool, we are also currently developing a practical toolkit for parents that explain the problem of gendered educational choices in an accessible way and provide links, exercises, and practical resources that can help create awareness and reduce the impact of gender on educational choices through parents.

2. **To create equitable learning environments, we must account for how gender bias intersects with other biases.**

Stakeholders highlighted the importance of addressing gender bias through an intersectional lens, recognizing that gender stereotypes often intersect with biases related to race, class, and ethnicity. They advised that efforts to create equitable learning environments must account for the complex identities of students, as overlapping forms of bias can intensify educational disadvantages—particularly for marginalized groups. This includes acknowledging how traditional notions of masculinity may affect boys and how multiple forms of discrimination influence both teacher expectations and student experiences.

→ We very much valued this point, and it is very much in line with the general project goal to take intersectionality into account as much as possible. We tried to incorporate this as much as possible into the advice we give for each interventional approach we present in the tool. We also showcase some example projects that draw on the intersection of gender and ethnicity, for instance by showcasing the Manhood Development Program that tries to tackle boys' underperformance by redefining black masculinities.

3. **Boys' underachievement at school is a form of vertical gender segregation in education that requires attention.**

Stakeholders stressed the urgent need to address the growing underperformance of boys in education, both academically and behaviorally. They noted that boys appear to be increasingly falling behind in school—scoring lower grades, exhibiting more behavioral issues, repeating classes more often, ending school with lower degrees and not entering higher education as often as girls or showing less readiness for university. Consultations with teachers increasingly revolve around boys being framed as a challenge in the classroom, underscoring the need to shift the narrative and provide targeted support. Stakeholders also recommended highlighting strategies in our tool that actively engage and support boys in learning, recognizing their needs without reinforcing harmful stereotypes.

→ We appreciated this point as it really brought a blind spot to light as to boys' potential underperformance. Inspired by this feedback, we added a new section to

the tool that focuses on this. It consists of three new subsections that can help explain boys' underperformance and suggest ways to address this, namely *masculinity norms and precarious manhood beliefs*, *school climate and teacher expectations*, and *family dynamics*. This also led to an updated mapping of interventional approaches to address this (see Figure 4 below).

4. **We need to provide educators with clear, practical, and time-efficient resources for immediate use.**
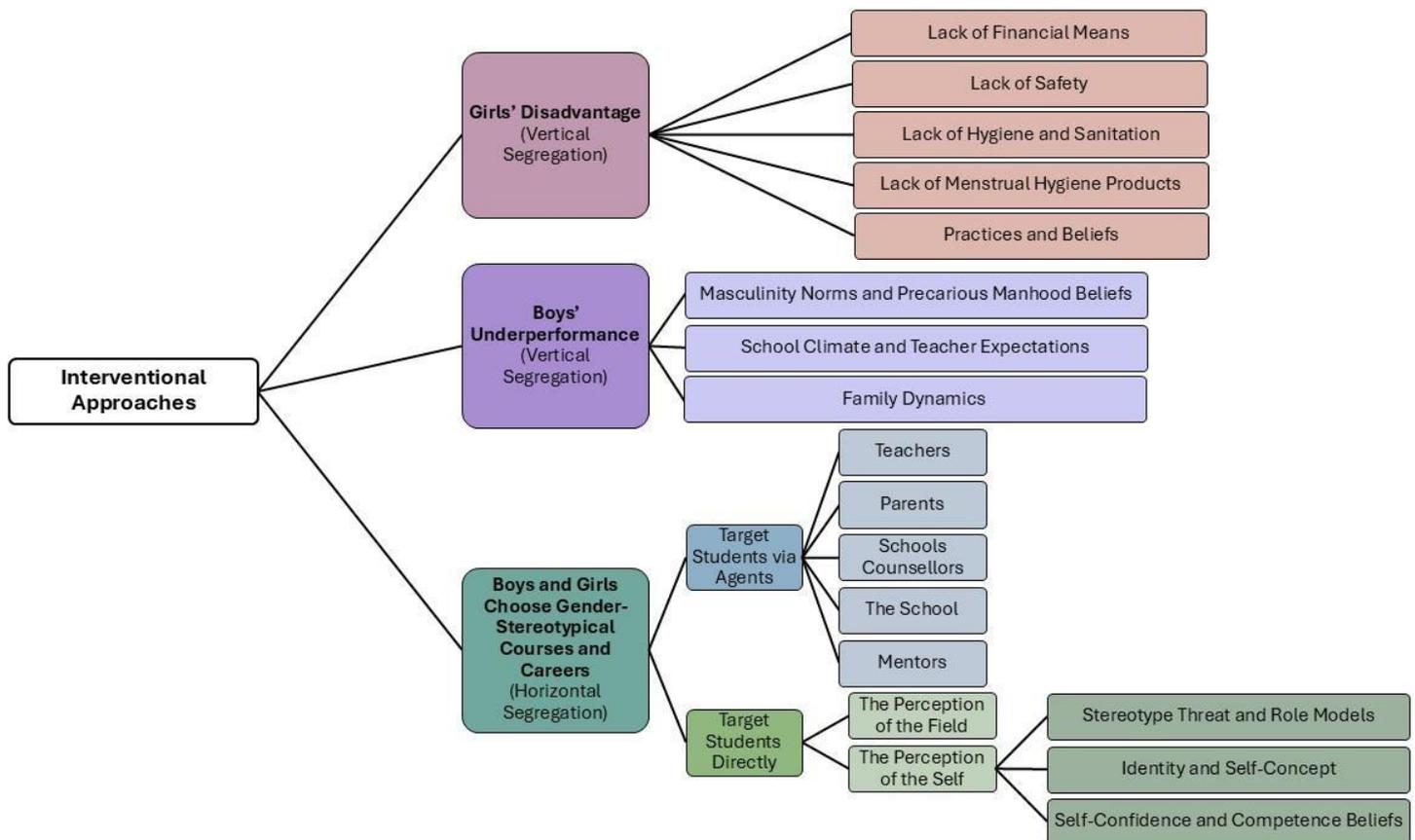
Stakeholders emphasized the need for clear, actionable steps that users (such as educators) can implement immediately. While scientific references and theory are valuable and increase trust in the suggestions made by the tool, stakeholders stressed that practitioners often lack the time, access, and resources to engage with academic materials. What is needed instead are practical tools—such as ready-to-use classroom strategies, short checklists, clickable links to activities or resources, quick self-assessment tools, and examples of small, evidence-informed changes teachers can apply directly in their daily practice.

→ We are very grateful for this remark and revised all sections of the tool on this basis. For each end page that showcases an interventional approach (14 in total), we added a section called *Which practical steps can you already take today?* that suggest actionable steps described in 2-3 sentences.

Independent of the stakeholder feedback, we also updated the landing page by adding:

- License information: "This work is licensed under a Creative Commons Attribution-NonCommercial-NoDerivatives 4.0 International License"
- A reference suggestion: Please cite as: Lux, A., Veldman, J., Van Veelen, R., & Van Laar, C. (2025). *Tool to Navigate Interventional Approaches To Reduce Gendered Educational Choices.* The RE-WIRING Project. https://tinyurl.com/re-wiring-tool
- A timestamp to inform users about the last time the tool was updated: "You are currently using the newest version of the RE-WIRING Navigation Tool that was last updated in [month] [year]."
- A copyright remark: © The RE-WIRING Project, 2025

Figure 4. Updated Mapping of Interventional Approaches Updated Following Stakeholder Roundtable Meetings in Autumn 2024.

3.3.2 Stage 2: The RE-WIRING Navigation Tool 2.0

After applying all suggested changes outlined in the previous section, we had a new version of the prototype that we wanted to test with actual practitioners through qualitative interviews that gave them room to openly share their experiences with the tool and ways in which they think it could further improve. The latest version of the tool can be accessed by clicking on the following link: https://tinyurl.com/re-wiring-tool.

This subsection gives an introduction to the tested tool by explaining in greater detail how the tool works and feels. The tool is available in English and starts with a landing page that can be seen in Figure 5.

Figure 5. Landing Page of the RE-WIRING Navigation Tool.

Welcome to the RE-WIRING Navigation Tool!

This tool is designed to support a wide range of users—educators, counsellors, school leaders, parents, policymakers, researchers, social workers, youth organizations, mentors, employers, curriculum developers, advocacy groups, government officials, DEI consultants, and more. It helps you explore both the causes of gendered educational choices and practical ways to address them. By answering a few simple questions, you'll receive tailored recommendations and valuable information that can support your efforts to create a more inclusive, equitable educational environment.

What does this tool offer you? It can help you...

- **Understand where and why education is gendered,** such as why girls may face disadvantages or why boys may underperform
- **Learn about the factors** influencing why boys and girls choose different career paths, from societal expectations to school practices
- **Access scientific research** that explains these issues in-depth, summarized by experts from the RE-WIRING project
- **Discover practical examples** of successful projects that have tackled these challenges
- **Get actionable steps** you can take right away to create change in your context
- **Explore additional readings** for those who want to dive deeper into the topic

With a global perspective, this tool not only provides background knowledge but also offers practical solutions to help you foster a fairer and more empowering educational experience for every student. Whether you're an educator, researcher, DEI consultant, employer, policymaker, or parent, this tool will help guide you toward effective, evidence-based strategies for creating gender-inclusive education.

About the RE-WIRING Project

The **RE-WIRING project**, funded by the European Union under Horizon Europe 2020, is working to uncover and address the hidden causes of gender inequality in education and beyond. Its mission is to identify how traditional gender roles and power structures limit opportunities and to "rewire" institutions to create fairer systems that work for everyone.

By focusing on the root causes of inequality, RE-WIRING aims to spark real change that goes beyond surface-level fixes. The project actively involves experts, educators, community leaders, and other stakeholders to develop practical, research-based solutions that challenge gender norms and promote equality.

This tool is one of the ways RE-WIRING shares its findings, offering you valuable insights into the factors shaping gendered educational choices and providing actionable strategies to break down barriers and empower students everywhere.

What else do you need to know?

- You stay anonymous while using this tool. We do not record your IP Address, location data, or contact information.

- This does not mean that we do not want to hear from you! This tool is a work in progress and not exhaustive. This means that we are constantly collecting more information and examples. Feel free to contact Dr. Alexandra Lux (alexandra.lux@kuleuven.be) or Prof. Colette Van Laar (colette.vanlaar@kuleuven.be) if you want to suggest content or a project to be included in this tool.

This tool has been developed by

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Prof. Colette van Laar
Dr. Ruth van Veelen
Dr. Jenny Veldman
Julia Stekla
Anisha de Vries
Indigo Deijmann
And the larger RE-WIRING consortium

Please cite as:

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RE-WIRING is a project funded by the European Union. This project has received funding from the European Union's Horizon Europe research and innovation program under Grant Agreement n° 101094497.

You are currently using the newest version of the RE-WIRING Navigation Tool that was last updated in *April 2025*.

Note. Landing page retrieved on July 9, 2025.

The landing page provides users with the following information:

- A short information text about the purpose of the tool,
- Examples for ways in which it can be helpful to users,
- A brief overview of the RE-WIRING project,
- Information about user privacy and contact information
- Information on the people who developed the tool
- Copyright and license information
- A recommended citation
- Funding information
- The logos of involved collaboration partners on this project
- Information on when the tool has last been updated

After clicking on the purple arrow, users face the first question of the decision tree structure behind the tool. On the following pages of this deliverable, we will showcase the logic and content of the tool, but we highly recommend exploring the tool (https://tinyurl.com/re-wiring-tool) to get a more immersive experience of the logic, flow, and content. If you have the possibility to explore the tool, we recommend you to do so and then continue on p. 34.

Figure 6. Initial Choice Between Girls' Disadvantage (Vertical Segregation), Boys' Underperformance (Vertical Segregation), and Boys and Girls Choosing Courses and Careers Stereotypically Associated With Their Gender (Horizontal Gender Segregation).

Please choose the explanation that describes your problem best.

Girls are disadvantaged at school.

This can mean different things, for example:
- Girls are not able or allowed to attend school
- Girls are not able or allowed to attend school as often as boys
- Girls drop out of the educational system earlier, leaving them without or with lower degrees than boys.

Boys underperform at school.

This can mean different things, for example:
- Boys tend to earn low grades
- Boys tend to miss more classes
- Boys tend to drop out of school more often, leaving them without a degree
- Boys tend to not make it into higher education (such as college or university) given their underperformance at school
- Boys have more problems following lessons at school

Boys and girls choose courses and careers that are stereotypically associated with their gender.

This can mean different things, for example:
- Boys stay away from or underperform in stereotypically feminine school subjects such as languages, educational sciences, or arts
- Girls stay away from or underperform in stereotypically masculine school subjects such as physics, computer sciences, or mathematics
- Boys tend to stay away from HEED career fields (Healthcare, Elementary Education, Domestic work)
- Girls tend to stay away from STEM career fields (Science, Technology, Engineering, Mathematics)

Users can continue by choosing one of the three explanations. As an example, the options that followed the choice of girls' disadvantages in education can be seen in Figure 7.

Figure 7. Example: Choice Set Following the Selection of "Girls' are disadvantaged at school"

Please see some potential reasons for girls' disadvantage below.
You can click on them to explore interventional approaches that exist to tackle them.

Lack of Financial Means
The cost of schooling is too high for all children to attend, often leading families to prioritize boys' education, given their traditional roles as future breadwinners.

Lack of Safety
Students' access to education is significantly limited by safety concerns, particularly for girls. The threat of gender-based violence can create unsafe environments.

Lack of Hygiene and Sanitation at School
The lack of clean water and sanitary facilities at school compromises girls' ability to attend school consistently, especially during menstruation.

Lack of Menstrual Hygiene Products
Girls are not able to attend school during menstruation because they lack menstrual hygiene products.

Practices and Beliefs that Exclude Girls from Education
Practices like child marriage or early marriages as well as (teenage) pregnancies or early responsibility for domestic work can hinder girls from attending school and obtaining a degree.

An example for an end page with detailed information on an interventional approach can be seen in Figure 8.

Figure 8. Example of an End Page "Lack of Menstrual Hygiene Products"

How can a lack of menstrual hygiene products be targeted with interventions?

For many girls, especially those from low-income or marginalized communities, the lack of access to menstrual hygiene products creates significant barriers to their education. Research highlights that period poverty often forces girls to miss school, leading to decreased academic performance and higher dropout rates (Sommer et al., 2015; Kuhlmann et al., 2017). This issue is prevalent in many countries, where cultural stigma and inadequate sanitation facilities further amplify the challenges girls face during menstruation (Women Deliver, 2017; CARE International, 2022). For example, in Zimbabwe, girls without proper menstrual supplies frequently miss school, jeopardizing their chances of long-term educational success (CARE International, 2022).

Menstrual poverty is not limited to low-income countries; it also affects individuals in wealthier nations where socio-economic inequality persists. In many high-income countries, marginalized communities, such as those living in poverty, homeless individuals, and even students from low-income families, struggle to afford menstrual products. A 2021 survey in the United States revealed that one in four teenagers had difficulty accessing period supplies, leading to missed school and other opportunities (Thinx & PERIOD., 2021). Similarly, in the United Kingdom, research has shown that period poverty disproportionately impacts minority and migrant communities (Plan International UK, 2017). This global issue underscores the need for comprehensive policies and interventions—regardless of a country's wealth—to ensure menstrual health is treated as a fundamental right, not a privilege.

Some strategies to address this issue have been implemented:

- **Addressing Menstrual Hygiene Barriers**:
  Programs that combine the provision of free menstrual products with water, sanitation, and hygiene (WASH) interventions have shown promising results. In Zimbabwe, a pilot initiative led by **CARE International** reduced absenteeism among adolescent girls by addressing menstrual hygiene needs alongside broader social protection measures (CARE International, 2022). These programs not only help girls stay in school but also empower them to participate fully in academic and social activities, breaking the cycle of stigma and exclusion.

  Providing free menstrual products in schools is a crucial step toward ensuring equal educational opportunities, as it helps prevent school absences, reduces stigma, and supports students' well-being, allowing them to focus on learning without the added stress of period poverty. Scotland has set a global precedent by being the first country to provide free menstrual products in all schools, colleges, and universities, following the **Period Products (Free Provision)**

(Scotland) Act, which came into effect in 2022. Under this law, local authorities are legally required to ensure that free period products are accessible to anyone who needs them, helping to eliminate period poverty and promote menstrual equity. This initiative has been widely praised for recognizing menstrual hygiene as a basic necessity and integrating it into public health and education policies.

Efforts to provide free menstrual products in schools have gained momentum. In August 2024, the Polish Ministry of Education launched the **Equipping Schools with Menstrual Hygiene Products program** to improve access to menstrual products and combat period poverty in schools. The initiative aims to supply schools with free menstrual hygiene products, provide educational resources, and reduce stigma around menstruation. The program is implemented with the support of NGOs like **Akcja Menstruacja**, **Różowa Skrzyneczka** and the **Kulczyk Foundation** and more, ensuring that students have access to essential hygiene products. By integrating menstrual health into schools, Poland is taking steps toward promoting equality in education and supporting students' well-being.

- **Creating Inclusive School Environments**:
  Schools can take proactive steps to address period poverty by providing gender-sensitive sanitation facilities, integrating menstrual health education into curricula, and creating supportive spaces where girls can manage their menstrual needs without fear or shame. Additionally, initiatives like those highlighted by Women Deliver (2017) show that engaging communities and policymakers in destigmatizing menstruation can foster long-term systemic change, ensuring that girls from all backgrounds have equal access to education.

Which practical steps can you already take today?

- Share information on social media about the importance of hygiene and sanitation for girls' education, encouraging others to take action. You can use the hashtag #femininehygiene.
- Approach local businesses or pharmacies to donate hygiene products in exchange for advertisement.
- If possible, provide Free Menstrual Products: Work with local organizations, businesses, or governments to supply free menstrual products in schools. Setting up accessible distribution points in restrooms or classrooms can ensure menstruating students have what they need to stay in school.
- Integrate Menstrual Health into Curriculum: Advocate for schools to include menstrual health education in their curriculums. This step normalizes the topic and provides essential knowledge to all students, reducing stigma and shame.

In case you'd like to keep reading:

- Sommer, M., Hirsch, J. S., Nathanson, C., & Parker, R. G. (2015). Comfortably, safely, and without shame: Defining menstrual hygiene management as a public health issue. American Journal of Public Health, 105(7), 1302–1311. https://doi.org/10.2105/AJPH.2014.302525

- Kuhlmann, A. S., Henry, K., & Wall, L. L. (2017). Menstrual hygiene management in resource-poor countries. Obstetrical & Gynecological Survey, 72(6), 356–376. https://doi.org/10.1097/OGX.0000000000000443

- CARE International. (2022). Piloting social protection and WASH interventions to keep adolescent girls in school in Zimbabwe. Retrieved from https://www.care-international.org/resources/piloting-social-protection-and-wash-interventions-keep-adolescent-girls-school-zimbabwe

- Women Deliver. (2017). Deliver for Good brief: Education. Retrieved from https://womendeliver.org/wp-content/uploads/2017/09/2019-6-D4G_Brief_Education.pdf

- Thinx & PERIOD. (2021). State of the Period 2021: The widespread impact of period poverty on U.S. students. Retrieved from https://www.period.org/uploads/1/0/0/7/100763304/state_of_the_period_2021.pdf

- Plan International UK. (2017). Break the barriers: Girls' experiences of menstruation in the UK. Retrieved from https://plan-uk.org/file/plan-uk-break-the-barriers-report-032017pdf/download?token=7C0tYwOU

If users choose boys' underperformance, they get the choice set that can be seen in Figure 9 below.

Figure 9. Example: Choice Set Following the Selection of "Boys' underperform at school"

Please see some potential reasons for boys' underperformance below.
You can click on them to explore interventional approaches that exist to tackle them.

Masculinity Norms and Precarious Manhood Beliefs
The pressure to "prove" manhood can lead boys to focus on fitting in with peers instead of schoolwork.

School Climate and Teacher Expectations
School climate and teacher biases can lower boys' engagement and academic performance.

Family Dynamics
Economic pressures can force boys to balance school and work, impacting their grades and social standing.

If users choose "boys and girls choosing courses and careers stereotypically associated with their gender", they first learn about the fact that students can be targeted directly or indirectly (see Figure 10 below) before they get to make a selection between focusing on students directly or engaging socializing agents (which implies that students will be targeted indirectly).

Figure 10. Example: Choice Set to Distinguish Between Targeting Students Directly or Indirectly

When boys and girls choose career paths that align with traditional gender stereotypes, it's important to understand and address the many factors shaping these decisions. There are several angles to explore:

- **Focusing on students directly**: By looking at students directly, we can examine how their feelings, beliefs, and experiences influence their educational and career choices. Interventions at this level might build confidence, challenge stereotypes, and show students they can thrive in nontraditional fields.
- **Engaging socializing agents around students**: Students don't make choices in isolation. Their decisions are deeply influenced by key socializing agents—schools, teachers, parents, peers, and the broader cultural environment. Addressing these influences means working with educators to challenge bias, equipping parents with tools to encourage broader possibilities, and fostering a supportive network that helps students feel empowered to explore all options.

Ideally, we use a combination of approaches to help students envision and pursue futures free from the limitations of stereotypes.

Please choose which of the two approaches you would like to learn more about.
You can click on one option to learn more.

Focus on Students Directly
Alter students perceptions of different working fields or the perception of themselves - their self-concept, confidence, and the stereotypes they hold.

Engage Socializing Agents
Learn how relevant others such as parents, teachers, counsellors, or the school itself impact students' choices and how this impact can be addressed.

If users choose to focus on students directly, they get to choose between approaches that target students' self-perception versus students' perception of a professional field (see Figure 11).

Figure 11. Example: Choice Set to Distinguish Between Targeting Students' Perception of the Self versus of the Field.

Let's look at students directly - after all, they are the ones making the decisions!
There are again several angles to explore here:

- **The Perception of the Self**: How can we reduce the influence of stereotypes? How can we change how students see themselves and their strengths? How can we enhance their self-confidence?
- **The Perception of the Field**: How can we change the (often biased) ideas that students have about certain professions and domains? How can we show them that they might actually fit in - just the way they are?

You can click on one option to learn more.

The Perception of the Self
What does it mean to be a man or a woman? Who am I? Can I do this?

The Perception of the Field
What is it like to work in a profession? What skills are needed? Would I fit in?

If users choose to focus on the perception of the field, they end on a detailed information page that explains different ways through which students' perception of the field can be altered. If users choose to focus on the self, however, they can narrow down the final interventional approach they will receive more information about once more by choosing between three angles of targeting students' self-perception (see Figure 12).

Figure 12. Example: Choice Set to Distinguish Between Different Ways to Alter Students' Self-Perception.

Please choose the angle you want to learn more about.

What does it mean to be a man or woman?
Reducing the influence of gender stereotypes

Who am I?
Changing self-concept and identity beliefs

Can I do this?
Enhancing self-confidence and compentence beliefs

If users had chosen to focus on targeting students indirectly through socializing agents (instead of targeting students directly), they get to make a final selection regarding the social agents they want to focus on (see Figure 13).

Figure 13. Example: Choice Set to Distinguish Between Different Socializing Agents That Can be Targeted by Interventional Approaches.

There are different social agents we can look at.
How do you want to continue?

Teachers

Parents

School Counsellors

The School

Mentors

For a more detailed impression of the end pages with all information, examples, suggested actionable steps, and relevant academic references, we recommend exploring the latest version of the tool (https://tinyurl.com/re-wiring-tool).

3.4 The Testing of the RE-WIRING Navigation Tool

3.4.1 Stage 3: Putting the Tool to the Test with Education Professionals

3.4.1.1 Method

To learn about users' experiences with the RE-WIRING Navigation Tool in more depth, we conducted a qualitative study with educators. Using a qualitative research approach, namely semi-structured interviews, enabled us to explore and understand users' experiences more

thoroughly, including the option to ask additional questions to ensure that we understand their experience and context-specific interpretations as well as possible (Agius, 2013; Lim, 2024). In semi-structured interviews, researchers use a mix of prepared questions that can be posed in a variable order and flexible, open-ended prompts to explore upcoming topics in greater depth. Semi-structured interviews allow users to describe their activities, experiences and perspectives in their own words, providing a deeper understanding of their lived experiences (Kvale, 2007). In addition to that, semi-structured interviews offered us, as researchers, the flexibility to deviate from predetermined questions during the interview, allowing us to further explore relevant information that emerged unexpectedly during the conversation (Adams, 2015). We were thus able to have similar conversations with different users while also leaving sufficient space for unexpected topics to emerge and for spontaneous discussion.

3.4.1.2 The Professional Educators Who Tested the Tool

We held these semi-structured interviews between March 15, 2025 and April 1, 2025 with nine educational professionals working in Flemish secondary education. All interviews were taken in Dutch and were conducted, transcribed, and analyzed by Jara Cabes. We recruited a diverse professional spread of educators, namely three teachers, three career guidance counsellors and three school principals. This professional variety of educators we interviewed allowed us to capture a broad range of experiences and perspectives on the tool's utility. The inclusion criteria to participate in this qualitative study were as follows: employment within Flemish secondary education, holding one of the specified functions (teacher, career guidance counsellor or school principal), and possessing a basic knowledge of English, since the tool was provided in English. The nine educators we talked to were recruited from three different secondary schools in Flanders. They were between 30 and 60 years old, with an average age of 44 years. Three educators identified as male and six as female. The participating educators had between 5 and 25 years of experience, with an average of 19 years. Only one educator had also worked outside the education sector, while the other educators had professional experience exclusively within secondary education. We recruited the educators that participated through convenience sampling and snowball sampling. Convenience sampling involves selecting participants who are easily accessible to the researcher (Rahi, 2017). This approach was chosen due to Jara Cabes' existing connections within the education sector and her geographic proximity to participants.

Snowball sampling means that initially recruited participants referred additional participants, facilitating access to a wider yet relevant sample within the target population (Rahi, 2017).

3.4.1.3 Procedure

This study was approved by the Social and Societal Ethics Committee of KU Leuven (G-2025-9462). Educators who agreed to take part in the study signed an informed consent form prior to their involvement. Afterwards, they were given access to the RE-WIRING Navigation Tool and explored it for at least 15 minutes before the interview took place. During the interviews, the participating educators were asked about their general experiences with gender segregation in education, their experience of using the tool, and their motivation to engage with the tool in practice. We also asked them about potential strengths and weaknesses of the tool. See Figure 14 for an example of an interview guide used in this study. The interviews had an average duration of 26 minutes, with the shortest lasting 20 minutes and the longest 35 minutes.

Figure 14. Interview Guide Used With Teachers.

Introduction
In what situation(s) have you noticed the influence of gender on study choice and/or performance?
Is attention given at your school or by your colleagues to the influence of gender on study choices or performance? If so, in what way?

Strengths and User-Friendliness of the Tool
What did you find valuable about the tool?
What was the most interesting information you came across?

Challenges and Areas for Improvement
Which parts of the tool did you find less useful or unclear?
What obstacles or challenges did you experience when using the tool?
What do you think could be improved?

Practical Applicability
Did you find anything in the tool that you can use in your own work, for example in lessons or school activities?

Motivation
Did the tool give you more confidence in addressing gender-related study choices? If yes, in what way did the tool contribute to this?
Did the tool give you more confidence in dealing with the underperformance of boys? If yes, in what way did the tool contribute to this?

Final Questions and Appreciation
Do you have any additional thoughts or information you would like to share?
Do you have any further questions?

Note. The interview guides were tailored to the specific type of educational professional. This means that the interview guides for career guidance counsellors and school principals were variations of the example given.

3.4.1.4 Analyses

The data collected during the interviews were analyzed using a combination of thematic analysis and SWOT analysis (Strengths, Weaknesses, Opportunities, Threats; Leigh, 2009). This approach allowed for the identification of patterns in the experiences that educators shared with us, as well as the extraction of concrete strengths, weaknesses, opportunities and threats to the tool. The combination of these two analytical approaches enabled the identification of both subjective user experiences and more concrete points of improvement, which are essential for the tool's continued refinement and implementation. Thematic analysis is a qualitative method used to identify and report patterns of themes within data, providing insights into participants' experiences, meanings and perceptions of reality (Braun & Clarke, 2006). It is particularly suitable for uncovering meanings and interpretations from the perspective of the participants. The data analysis followed the six-phase framework outlined by Braun and Clarke (2006): familiarization with the data (Step 1), generation of initial codes (Step 2), searching for themes (Step 3), reviewing themes (Step 4), defining and naming themes (Step 5) and producing the report (Step 6).

Table 1. The Six Phases of Thematic Analysis Following Braun & Clarke (2006).

Thematic Analysis - Schematic Overview of Braun and Clarke's Phases (2006)		
Phases		**Description of the Process Phase**
1	**Familiarization with the data**	Transcribing the data, reading and re-reading the material and noting down initial ideas.
2	**Generating initial codes**	Systematically coding interesting features of the data and collecting relevant data for each code.
3	**Searching for themes**	Grouping codes from phase two into potential themes and gathering relevant data for each theme.
4	**Reviewing themes**	Checking whether the themes work in relation to the coded extracts and the entire dataset.
5	**Defining and meaning themes**	Ongoing analysis to refine each theme and develop a clear narrative. Assigning names and clear definitions to the themes.
6	**Producing the report**	Relating the analysis back to the research question and literature, and producing a report. This includes selecting compelling examples and conducting the final analysis of selected extracts.

The SWOT analysis (Strengths, Weaknesses, Opportunities, Threats) was integrated within the thematic analysis to evaluate the practical applicability and perceived value of the tool (Leigh, 2009). A SWOT analysis is commonly used to map out internal (strengths and weaknesses) and external (opportunities and threats) factors relevant to the functioning of projects or interventions. In the context of this study, the analysis primarily focused on internal elements, resulting in an emphasis on strengths, weaknesses, opportunities and threats directly related to the tool itself, rather than external conditions or contextual limitations. The SWOT analysis provided an additional lens to structure the thematic findings, with the aim of formulating targeted recommendations and insights for further development of the tool. As we aimed to test and improve the practicability of the tool, we were especially interested in the internal strengths and weaknesses that users might identify. For that reason, we decided to complete both a SWOT and thematic analysis, allowing us to gain concrete insights on strengths and opportunities to improve the tool as

well as broader insights and themes that we might not have expected before speaking to users of the tool.

3.4.1.5 Findings

We thank the educational professionals who took the time to test our tool and participate in an interview for their time and willingness to help improve this tool. The findings provide an in-depth understanding of the experiences of educational professionals in Flemish secondary education regarding gender segregation and the use of the RE-WIRING Navigation Tool. The findings are presented based on the used analytical methods: a thematic analysis combined with a SWOT analysis. The thematic analysis focuses on the general experiences with the influence of gender on educational choices and academic performance that educators shared with us, as well as their perceived motivation to take action in relation to gendered study choices and underachievement of boys. The SWOT analysis, on the other hand, highlights the specific experiences regarding the use of the tool. The presented findings related to the SWOT analysis are structured around four core themes: strengths, weaknesses, opportunities and threats, as perceived by the participating educational professionals.

3.4.1.5.1 General Insights from the Thematic Analysis

We explored the experiences of educational professionals concerning gender segregation in education based on thematic analysis. We summarize some key insights below.

- **Perceived Gender Influences on Students' Study Choices**
  The participating educational professionals indicated that gender has a noticeable influence on students' study choices. Most educators we interviewed described a clear gender-based division across fields of study: technical, scientific, sports-related and IT-oriented programs were mainly chosen by male students, whereas female students more often opted for care, welfare and humanities tracks. One participant highlighted the influence of the home environment, where parents sometimes discourage educational choices that deviate from traditional gender roles. Another participant pointed out that students' social perception can also play a role, such as the gender composition of classes (mainly boys or girls), which may affect students' decision-making processes.

- **Gender Differences in Learning Attitudes and Academic Behavior**

  In terms of academic performance, gender was less frequently mentioned as a direct influencing factor. While educators we interviewed did not spontaneously refer to the underperformance of boys, several acknowledged differences between boys and girls in terms of motivation, learning attitudes and behavior. Girls were more often perceived as goal-oriented, independent, and perfectionistic, whereas boys were described as less motivated, more likely to experience school fatigue, behavioral issues, and more changes in study paths or by repeating a school year.

- **Lack of Gender-Specific Policies and Interventions in Schools**

  When asked whether any gender-related policies or interventions were currently in place in their schools, none of the participating schools were reported to have an explicit policy addressing the influence of gender on study choices or academic outcomes. Some educators we interviewed indicated that the topic was rarely, if ever, discussed within their institutions. Gender-conscious interventions were reported to be absent. Most educators stated that they do not explicitly consider gender in their educational approach, but instead they focus on individual students' talents and interests. According to them, gender is not systematically incorporated into processes such as guidance, counseling or behavioral interventions.

- **Diverging Views on the Need for Gender-Focused Policies**

  Regarding their perceived needs related to policies or interventions, the opinions of the educators we interviewed varied. While most of them acknowledged the influence of gender on study choices, opinions on the necessity of policies or interventions were divided. Some advocated for more structural attention to gender-related issues, whereas others considered it a lower priority compared to other policy concerns. One participant mentioned the high workload and over-demand placed on teachers as a reason for not perceiving a need for gender-focused policies. Another participant argued that addressing gender segregation requires a broader societal commitment and cannot be achieved by schools alone.

- **Motivation Shaped by Role and Perceived Relevance**

  Motivation among the participating educational professionals following the use of the tool varied according to their role and the extent to which they considered the topic relevant or a priority. Among teachers, the motivation ranged from limited (due to time constraints) to increased, with some reporting that the tool encouraged them to reflect more critically on their own practices. For these teachers, the tool served as a reflective instrument. Student counsellors generally reported increased motivation. They saw the tool as a prompt for reflection on their own actions and counselling strategies, indicating that it helped raise awareness about how their approach might be influenced by implicit gender assumptions. Among school principals, motivation was linked to their level of engagement with policy development. One participant expressed motivation because the tool provides an opportunity to address the impact of gender on study choices and performance at a policy level. Others found the tool less activating in terms of policy changes.

3.4.1.5.2 Insights from the SWOT Analysis

Based on the SWOT analysis, the perceived strengths, weaknesses, opportunities and threats associated with the use of the tool were identified. An overview of identified points can be seen in Figure 15.

Strengths

One of the most commonly mentioned strengths by the educators we interviewed is the tool's clear and logical structure. The decision-tree format was described as intuitive, allowing users to be guided towards information that is relevant to their specific need and context. This structure was generally perceived as user-friendly, as it enables users to find information quickly and efficiently. In addition to its structure, the educators we talked to highlighted the tool's practical usability as a major strength. Both teachers and student counsellors valued the concrete guidelines provided. Finally, the tool's scientific foundation was considered an additional strength by most educators. According to them, this supporting evidence increased their trust in the content and, according to school principals, served as a valuable justification for developing school policies.

Weaknesses

However, several weaknesses were also identified by the participating educational professionals. The most frequently mentioned weakness was the tool's textual density. Both the introductory page and the following informational sections were experienced as overly text-heavy. In addition to that, some educators mentioned that a lack of visual elements such as diagrams and icons made the tool feel less engaging. One participant also mentioned a lack of concrete, real-life examples.

Opportunities

The SWOT analysis also revealed several opportunities. A significant opportunity identified by the educators we interviewed lies in the awareness and reflective capacity that the tool stimulates. Many users indicated that, by working with the tool, they felt encouraged to think critically and reflectively about their own practices and broader school culture. In particular, the theme of underachievement among boys was described by several educators we talked to as thought-provoking and as a motivation to further explore the tool. Another opportunity mentioned was the potential for the tool to foster collaboration within the school. Educators expressed the intention to use the tool in team meetings. School principals also saw the tool as a useful instrument to inform and align school policies.

Threats

The educators we interviewed also noted several threats. Some reported a limited willingness or ability to implement the tool, giving reasons such as high workload in education, lack of policy-level involvement or a perceived lack of urgency. Furthermore, language was identified as a major threat by all educators we talked to. The English version of the tool, particularly in combination with academic jargon and complex sentence structures, was perceived as challenging for the Flemish educational professionals who participated. We also realized that educators who considered gendered educational choices as less of a general problem were also less motivated to use the tool.

Figure 15. Summary of the Findings of the SWOT Analysis.

Strengths

- Clear and Logical Structure
- Practical Usability
- Scientific Foundation

Weaknesses

- Textual Density
- Lack of Visual Elements
- Insufficient Real-Life Examples

Opportunities

- Stimulating Awareness and Reflection
- Addressing Underachievement Among Boys
- Fostering Collaboration Within Teams
- Supporting Policy Development

Threats

- Limited Willingness or Ability to Implement
- Language Barrier
- Lack of Awareness

3.4.1.6 Conclusions and Future Directions

Based on the feedback we received from the Flemish education professionals that participated in the qualitative study, we learned what potential users might find particularly valuable, which suggests which features of the tool we might keep or further expand, and which could use further work. In the following section, we reflect on the current strengths of the tool and limitations of this study, and present potential steps to further improve the experience and usefulness of the tool.

Strengths of the Tool that We Should Keep or Expand:

- The decision tree structure
- The tool's foundation in empirical work and academic publications
- The suggested actionable steps that can be taken immediately
- The information texts that first introduce the different aspects of gendered educational choices, including information on boys' underperformance

Potential Limitations of our Study:

- **The number of user experiences taken into account was relatively small**, as we interviewed a total of nine professional educators representing three groups: teachers, career guidance counsellors, and school principals. A larger number could further contribute to the quality of our data, especially considering that educational professionals were recruited through convenience sampling, which is burdened with a risk of selection bias.
- **We only spoke to professionals that work at schools.** Testing the tool with other education experts could help make the tool accessible for a broader audience and increase its impact. While the current group allowed for feedback from professionals working on different levels of the education system, going a step further to also test the tool with employees of education-related governmental institutions or NGOs, pedagogy specialists, policy makers, or social workers could lead to further improving the tool and gaining new types of helpful insights.
- **The educators we interviewed evaluated a tool that they could not access in their first language**. The tool is currently only available in English, which is likely not used on a daily basis by the educators we interviewed. This, compounded with the use of academic jargon and complex sentences, may have had a significant impact on their ability to critically assess the tool and its contents. Not being able to test the tool in their first language might have caused unnecessary frustrations and difficulties.
- **We exclusively interviewed educators from Flanders** who are heavily embedded in the Western and Global North social and cultural context. While the feedback we received is extremely valuable, it represents insights filtered through this specific cultural lens. It is possible that we would uncover additional themes by testing the tool among professionals from different cultures, particularly non-WEIRD (Western, Educated, Industrialized, Rich, Democratic; Henrich et al., 2010) or Global South countries.

Potential Steps to Further Improve the Tool:

- **Implement drop down headings** that allow users to explore content piece by piece, depending on the focus they would like to set themselves. This would avoid a situation in which users face an end page with long text blocks that can feel overwhelming.

- **The end pages in particular could be made more visually appealing** through icons and images related to the content of the page. We could also **produce brief (max. 2 minute long) explanatory videos** to summarize key insights and approaches. This could be accompanied by supportive links underneath and would allow users to gain knowledge without having to read a lot.

- Another way to improve the tool based on the educators' input would be to **add more real-life examples that help users envision the presented approaches** in a more realistic way.

- As we have seen how existing awareness regarding the problem of gendered educational choices acts as a precursor to motivation to engage with the tool and apply it at work, it might be particularly fruitful to **introduce the tool after an initial campaign or introductory presentation that first establishes the necessity to reduce gendered educational choices**. Such an introduction could first explain what gendered educational choices are and in which ways they can limit individual career paths and create problems on a societal level.

- **Translate the tool into different languages** so that practitioners around the world can access it without facing language barriers. These could also be further reduced by avoiding academic jargon and complex language.

- **Design and test "Reflection Workshops"** that could be conducted before and after educators have interacted with the tool for the first time. Paired with introductory presentations, this could potentially create space for a more in-depth reflection regarding themes mentioned in the tool, and how they translate into educators' own practice. A space for sharing personal experiences and views with peers could further facilitate the reflection process and strengthen the overall impact of the tool. Embedding the tool in a workshop context with a proposed scenario could also provide an accessible script to be used by institutions willing to implement gender-sensitive policies.

- **Having this tool programmed as an interactive website or app** could be a great technical next step. We used Qualtrics to create and assess a first prototype, but using a website or tool programmed for this tool would allow for additional useful features such as a backwards button. This would make the exploration of different interventional approaches more dynamic and flexible.

Closing Remarks

We created the REWIRING Navigation Tool to debias educational choices to collect and map out knowledge. Given their key role in guiding students educational paths, teachers and educational professionals are potential users of this tool that easily come to mind. However, we do not want to convey the message that debiasing educational choices is an individual responsibility of educators. Inspired also by educators' remarks regarding their limited time and energy and many priorities to juggle, we want to close this section by highlighting that more structural change is needed. This is also in line with the ideas at the core of RE-WIRING, namely a transformative approach to re-thinking institutions and fixing systems instead of individuals. As a project, we plead for structural changes that include requirements for entire educational sectors and institutions so that they can deal with the topic of gender more effectively and install measures to reduce gendered educational choices in more sustainable manners.

We have learned from the educators that took the time to participate in our study that most schools do not have measures to reduce gendered educational choices in place, and also do not grant teachers time to engage with such topics. The RE-WIRING Navigation Tool is one example of how reducing gendered educational choices can be addressed, as it provides valuable science-based resources which can be used by teaching professionals to gain knowledge about how gender impacts educational and occupational choices. With the option to access this tool, practitioners are less burdened with having to individually look for trustworthy information. Moreover, our tool can serve as a starting point for discussions on what structural measures can be developed and implemented by the relevant institutions. By testing and critically analyzing the RE-WIRING Navigation Tool, we have also identified some potential challenges and shortcomings (e.g. visual accessibility, lack of real-life examples to contextualize the information we provide, etc.), which can already be accounted for in developing other such measures.
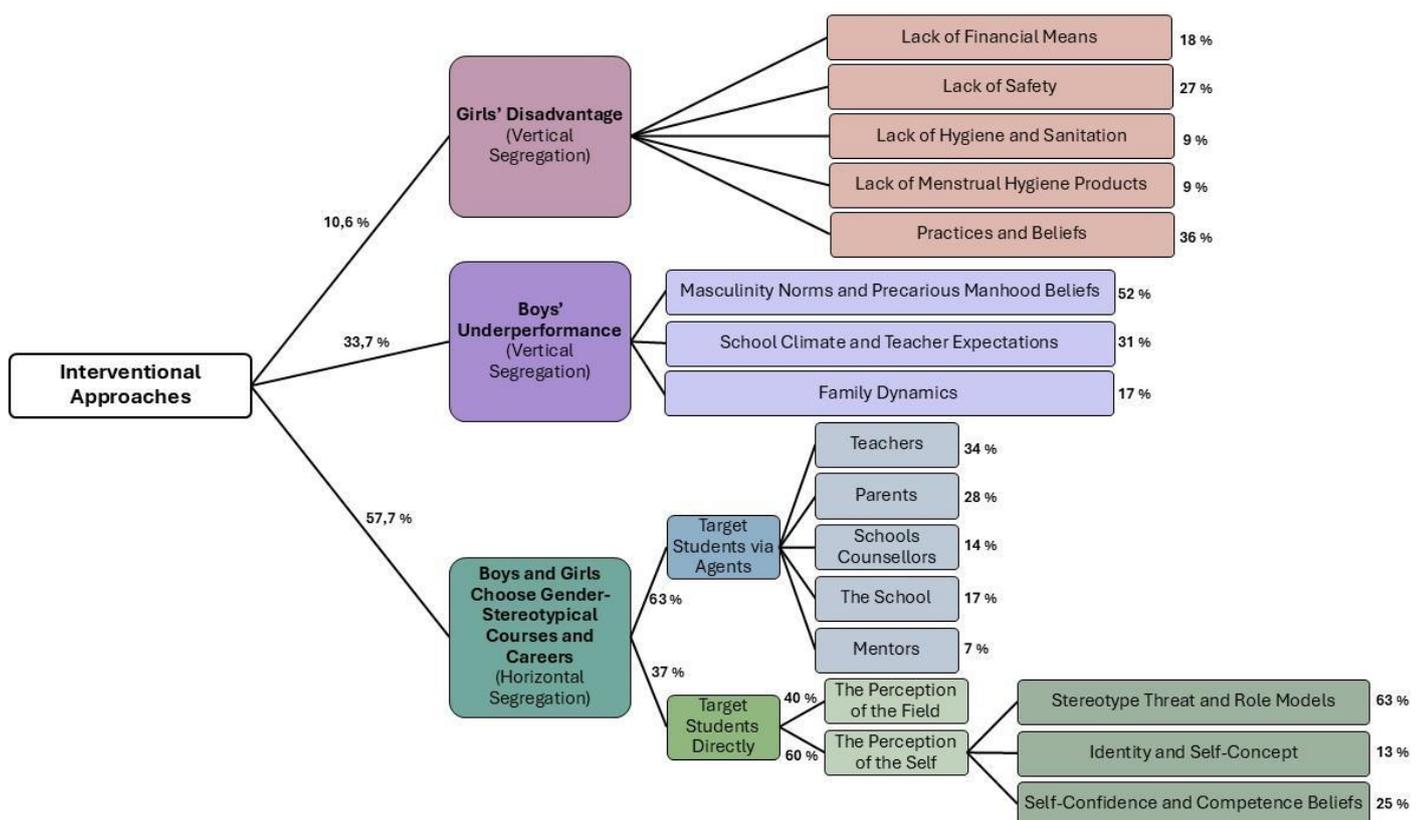
Ideally, efforts to debias educational choices would be anchored into the entire educational system, and hopefully this tool can also inspire policymakers and governmental officials to invest the resources necessary to create more sustainable change. Nevertheless, the RE-WIRING Navigation Tool constitutes a valuable science-based resource which can be used by teaching professionals and education experts to gain knowledge about how gender

impacts students' educational and occupational choices and how this influence can be reduced in a way that best fits their specific application context.

3.5 The RE-WIRING Navigation Tool Today

We officially launched the tool to the public at the end of April 2025 and its decision tree structure has to date [July 10, 2025] guided users towards an end page (a recommendation of an interventional approach) 104 times. Hereby, 58% of the users focused on horizontal segregation, 32% focused on boys' underperformance, and 11% focused on girls' disadvantage in education. For more information about the users spread across the decision tree structure, please see Figure 16.

Figure 16. Decisions Taken by Users of the RE-WIRING Navigation Tool.

The RE-WIRING Navigation Tool is a work in progress. This means that we are constantly collecting more information and examples. Users are welcome to contact us to suggest content or a project to be included in this tool.

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