

Gender stereotypes and career aspirations in secondary school education

Nemi sztereotípiák és karriertörekvések középiskolások körében

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Abstract

The purpose of this research was to examine gender-based discrimination and gender stereotypes that affect the career aspirations of secondary school students in Hungary. During the research, the experiences and attitudes of 1,073 students were measured along the following dimensions: 1) agreement with gender stereotypes, 2) awareness of gender-based negative discrimination in the field of labour market, 3) experiences of gender-based discrimination at school, 4) educational programs dealing with gender-based discrimination, 5) individual visions of a career in the future, and 6) a possible solution to gender-based discrimination. Young people who agree more with general gender stereotypes and occupational stereotypes tend to feel that their gender has a greater impact on their career choices and are more likely to worry about their future than those who agree less with the stereotypes. Students who experienced unfair treatment during grading or other situations because of their gender also reported that their gender tends to have a greater influence on the profession they choose, and they believe that their gender would have less influence on their professional future abroad. These students are more likely to worry about their future livelihoods than those who have not experienced such treatment. Finally, those who learned about gender-based discrimination in career choices at school and discussed the inequalities show a significantly higher awareness of the disadvantaged position of women in the labour market and less endorsement of general gender stereotypes than those who were not informed about them. In summary, gender-based differentiation of students is associated with more salient stereotypic attitudes and threats, while school programs about gender stereotypes and their eradication are associated with less stereotypes, higher awareness and reporting of discriminatory experiences, and the reduction of distinction and discrimination among peers.

Keywords: gender stereotypes, gender-based discrimination, education, career aspirations, prevention

Absztrakt

Az alábbi kutatás a pályaválasztást befolyásoló nemi alapú diszkrimináció és a nemi sztereotípiák megjelenését vizsgálta magyar középiskolások körében. A kutatás során 1073 diák tapasztalatait és attitűdjét mértük az alábbi dimenziók mentén: 1) nemi sztereotípiákkal való egyetértés mértéke, 2) munkaerőpiaci nemi alapú negatív diszkriminációval kapcsolatos tájékozottság, 3) nemi alapú diszkriminációval kapcsolatos iskolai tapasztalatok, 4) nemi alapú diszkrimináció felszámolásával foglalkozó oktatási programok, 5) egyéni szakmai jövőkép és 6) nemi alapú diszkrimináció felszámolásának lehetséges módjai. Az általános nemi sztereotípiákkal és a foglalkozással kapcsolatos sztereotípiákkal inkább egyetértő fiatalokra jellemzőbb, hogy úgy érzik, nemük hatással van pályaválasztásukra, illetve nagyobb valószínűséggel aggódnak a jövőjük miatt, mint azok, akik kevésbé értenek egyet az említett sztereotípiákkal. Azok a fiatalok, akik tanáraik részéről nemi alapú negatív diszkriminációt tapasztaltak, inkább érzik úgy, hogy nemük jelentősebb befolyással van szakmai választásukra, és inkább gondolják úgy, hogy ez külföldön kevésbé lenne így. Ezenfelül az említett fiatalok inkább aggódnak jövőbeni megélhetésük miatt, mint azok, akik nem tapasztaltak nemi alapú hátrányos megkülönböztetést. Végül azok, akik az iskolában hallottak már a nemi sztereotípiák pályaválasztásra gyakorolt hatásáról és rendelkeznek információkkal az egyenlőtlenségek kapcsán, szignifikánsan nagyobb tudással, tájékozottsággal rendelkeznek a nők munkaerőpiaci hátrányos megkülönböztetésének témájában, és kevésbé fogadják el az általánosságban vett nemi szerepekre vonatkozó sztereotípiákat, mint azok, akik nem rendelkeznek ilyen jellegű ismeretekkel, nem hallottak a problémáról iskolai tanóra keretében. Összefoglalva, a tanulók nemi alapú differenciálása a nemi sztereotípiák magasabb fokú igazolásával, illetve erőteljesebb fenyegetettséggel jár. Ezzel szemben, a nemi sztereotípiákkal és azok felszámolásával foglalkozó iskolai programok a sztereotípiák igazolásának alacsonyabb értékeivel jártak együtt, továbbá az iskolában átért diszkriminációs tapasztalatok esetében nagyobb arányú jelentéssel, valamint iskolai környezetben a kortársak részéről alacsonyabb fokú megkülönböztetéssel.

Kulcsszavak: nemi sztereotípiák, nemi alapú diszkrimináció, oktatás, karrieraspiráció, prevenció programok

Introduction

Gender stereotypes exist universally, but their prevalence differs across countries based on how actively various sectors and actors (such as education, media, policymakers, institutions, public administration, etc.) within a society are addressing their eradication. According to a 2017 survey by Eurobarometer, 78-79% of Hungarians think that women's primary role is taking care of their home and family, while men's is earning money. This figure is significantly higher than the EU average (nearly 43-44%), making Hungary the second highest ranking member of the European Union in terms of gender stereotypes (European Commission, 2017). Despite progress, gender stereotypes continue to confine women predominantly to the private sphere, limiting their access to opportunities in public life, constraining their broader future aspirations, and undermining their financial independence and stability (Csernus, 2022).

Hungary ranks second lowest in the European Union on the Gender Equality Index, with a score of 57.3 out of 100 points (European Institute for Gender Equality, 2023). One of the primary contributors to this gap, as highlighted by the Eurobarometer survey, is the disproportionate amount of time women in Hungary dedicate to unpaid domestic labour. Data from the Hungarian Statistical Office (KSH) indicate that women spend more than twice as much time on housework compared to men (Sebők, 2017). The European Parliament cites the unequal distribution of invisible labour as one of the main causes of the gender pay gap, as

significant extra work in the private domain limits women's paid opportunities in the public sphere. For example, the employment rate for women drops from the total 73.3% to 56.7% after the birth of their third child (compared to 85.6% for men) (Eurostat, 2023).

In the labour market, both horizontal and vertical occupational segregation are present, with a disproportionate representation of women in socially essential but economically undervalued sectors such as healthcare, education, and the social and civil services. For instance, in 2023, women comprised only 15.7% of all ICT professionals (Eurostat, 2024), whereas over 80% of healthcare workers (Eurostat, 2021) and educators (Eurostat, 2020) were women. Additionally, women's representation in decision-making positions remains significantly lower in both the economic and political spheres. In 2023, only 11% of Hungarian board members in the largest quoted companies, and only 7% of ministers and 14% of parliament members were women (European Institute for Gender Equality, 2023). These are the lowest percentages in the EU.

These factors all contribute to a significant (approx. 17.5%) and persistent (almost unchanged over the last 10+ years) gender pay gap (Eurostat, 2022), which leads to an increased risk of poverty and financial vulnerability, as well as a reduced self-esteem and perpetuating power imbalances. To address the problem in the long term, it is essential to change its root causes, including the gender stereotypes that influence professional aspirations and opportunities.

Therefore, the primary objective of this study is to conduct an analysis of the education processes that contribute to the persistence and reinforcement of inequalities. This research seeks to provide a comprehensive understanding of how experiences like school information, discrimination from teachers and peers relate to young people's vision of their future, and their attitude towards gender stereotypes. In addition, the aim of the research is to assess the needs of young people in the field of school trainings and potential coping strategies.

Gender stereotypes and socialization

Stereotypes categorize groups based on specific characteristics, thereby setting behavioural expectations, perceptions of others and establishing norms that delineate desirable and undesirable traits and behaviours; in this way, stereotypes often acquire a prohibitive dimension (Gill, 2004; Sullivan et al., 2018). Gender, as a social construct, encompasses roles and relationships, as well as norms and behaviours that are informally imparted to boys and girls. These social teachings influence how individuals are expected to interact with others, the aspirations they may hold, and the opportunities they can anticipate based on their sex (Council of Europe, 2019). Stereotypes are often articulated within a gendered framework (Prentice & Carranza, 2002), that occurs when “*ascribing certain attributes, characteristics and roles to people based on their gender*” (UNICEF, 2017, p. 5).

Studies measuring gender identity show that children as young as two years of age are able to identify themselves and others by sex, and around the age of three they also acquire a sense of gender constancy, socially and culturally embedded knowledge that increasingly differentiates men and women based on physical attributes, objects and activities, which forms the basis of stereotypes (Jackson, 2007; Ruble et al., 2007; Zosuls et al., 2009; Bian et al., 2017). By the time children reach nursery school age, they can distinguish between genders based on observable activities, characteristics, and occupations and these are further reinforced by various societal influences, including media representation, the toy industry, fairy tales, and the behaviours exhibited by adults (Liben et al., 2002). As gender identity is established, the internalization of cultural expectations they conform to these societal norms and roles. At the

beginning of the primary school girls can already be observed associating some of the more positive traits with boys and the abilities, skills and intellectual capacity attributed to them (Bian et al., 2017). Considering all this, it is understandable that recent studies indicate that girls exhibit a greater interest in toys and activities that are considered “atypical” in relation to gender stereotypes, suggesting that colour preference may sometimes override the gender-stereotypical classification of certain objects (Weisgram et al., 2014). In contrast, boys are more prone to adhere to these stereotypes, a tendency that is further reinforced by peer pressure and social sanctions, such as social ostracism and parental expectations (Banerjee & Lintern, 2000; Ferguson & Eyre, 2000; Skočajić et al., 2020). This creates an asymmetry in the manifestation of stereotypes (Wilbourn & Kee, 2010).

During this period, and even afterwards, the rigidity of stereotypes may be reduced in an egalitarian environment and maintained or reinforced in a highly gender-differentiating environment (Blakemore, 2003; Halim, 2016). It is therefore important that young people grow up in an education system that provides them with a broad spectrum of opportunities rather than the categories and constraints mentioned above.

The Pygmalion effect points to the phenomenon of how the biased teachers' higher expectations affect the higher performance of students in line with these projections (Rosenthal & Jacobson, 1968). Although different results and interpretations have been published in recent years (Gentrup & Rjosk, 2018), several studies have pointed out that teacher expectations can influence student performance (Hattie, 2009; Jussim & Harber, 2005). In addition to all these, the gender of the student can be one of the most influencing factors of expectations. A significant part of gender performance differences is socially constructed, so teachers' stereotypes influence students' gender attitudes (Beilock et al., 2010; Gunderson et al., 2012). Research proves that gender stereotypes still appear in education today, so gender-based polarization is reinforced by rewards and expectations during stereotypical subject association (Gajda et al., 2022; Muntoni & Retelsdorf, 2018). Because the teacher reinforces gender stereotypes in the classroom, the students also adopt them, internalize them and apply them to the other students. For example, in mathematics, girls are negatively stereotyped (Tomasetto et al., 2011), while boy's face with negative stereotypes in the field of verbal domain (Schmenk, 2004), human sciences and reading (Retelsdorf et al., 2014; Wolter et al., 2015). All of these can increase anxiety, tension and avoidance of situations that reinforce stereotypes through the threat of stereotypes.

Stereotypes significantly influence the self-image and future aspirations of young individuals. Teachers' expectations can not only affect individual performance but can also influence whether young people apply stereotypical ideas to others. Educational institutions can reinforce these stereotypes through the perpetuation of gender-based differentiation and the establishment of varying expectations. Conversely, schools also have the potential to dismantle these stereotypes by promoting understanding and representation of disadvantaged groups, thereby enhancing awareness and encouraging perspective-taking (Siegler et al., 2021).

Gender stereotypes in the Hungarian education system

The perpetuation of traditional gender roles within the Hungarian education system has been increasingly pronounced in recent years, significantly influencing young individuals' perceptions of their future opportunities in the field of labour market. Notably, in 2010, the National Core Programme for Early Childhood Education (Annex 2 of Government Decree No.

255/2009, 20.11.2009) saw the removal of a section dedicated to strategies for avoiding gender stereotypes (Bajnai, 2009, pp. 41896–41897).

In 2020, the introduction of a new middle school National Curriculum included the Family Life Education programme (Family Life Education 7.10.1) (Oktatási Hivatal, 2020), which presents a more conservative perspective on family and gender roles than its predecessor from 2013. The current curriculum explicitly “*aims to assist students from a young age in reinforcing their gender identity in alignment with their biological sex, to learn about the basic distinctions between sexes (gender, brain function, communication, etc.)*.” This shift suggests a lack of promotion for a more inclusive and diverse understanding of family and gender roles within the educational framework. Therefore, it is imperative to provide alternative pedagogical resources for primary and secondary educators that promote both opportunities and a more expansive outlook on gender roles.

At the secondary school level, student performance in specific subjects significantly influences young individuals’ perceptions of their future career prospects (Dicke et al., 2019). Research indicates that young girls tend to achieve lower scores than boys in mathematics on PISA test, a discrepancy that correlates with the subjects and expectations assigned to them by the adults in their lives based on gender (Csüllög et al., 2014). Additionally, there appears to be a pervasive lack of support and encouragement for young girls in subjects related to the STEM fields (science, technology, engineering, and mathematics) (Wang & Degol, 2013; Thébaud & Charles, 2018). Consequently, the representation of women in STEM-related university, post gradual and academic programs remains low, despite their higher overall enrolment in higher education institutions, which stood at 54.1% in 2023-2024. Data from the Central Statistical Office indicate that, as of 2023 and 2024, female representation in higher education is notably high in certain fields, with 81.5% of students enrolled in pedagogy and 70% in health and social care being women. In contrast, the percentage of female students in computer science and engineering remains significantly lower, 15% and 26% (KSH, 2024). Upon graduation, young female engineers encounter societal pressures that contribute to heightened dilemmas and risks associated with career advancement and motherhood (Paksi et al., 2016).

In fields heavily dominated by men, average gross salaries are typically double those found in sectors predominantly occupied by women. As highlighted in the European Commission's 2019 report on gender equality, approximately 25% of the overall gender pay gap can be attributed to this horizontal occupational segregation. This underscores the necessity of raising awareness about gender stereotypes and actively working toward their elimination within educational settings, as such efforts can enhance and expand the opportunities available to young people, thereby fostering gender equality (Camussi et al., 2018).

Research aim

To investigate the manifestation of gender stereotypes and their association with gender-based differentiation in education, as well as career aspirations and identity threats, we developed a complex mixed method study, which not only maps the problem but also contributes to the design of educational resources that reduce the harmful consequences of gender stereotypes at different levels of education.

In the case of the nursery and middle school age groups, the experiences of parents and teachers were revealed by focus group interviews. To map the stereotypes affecting the secondary school age group and their consequences focus group interviews were conducted

with teachers and online questionnaire was conducted with students (Amnesty International Hungary, 2023). The aim of the following study is to describe the correlations that appear between the variables during the analyses of the quantitative research with secondary school students.

The primary objective of this study was to map the interconnections among five key dimensions: 1) gender stereotypes, 2) awareness, 3) school experiences, 4) school programs in the topic of gender-based discrimination, 5) individual visions of the future, and to map the educational needs of students.

Within these specified dimensions, we posited three main hypotheses:

- First, we hypothesized that a higher degree of agreement with gender stereotypes correlates with the perceptions of the influence of gender on future career opportunities.
- Second, we hypothesized that students who have heard about gender-based discrimination in class would be less likely to agree with gender stereotypes than those who did not receive this type of education.
- Finally, we theorized that young people who experienced gender-based discrimination at school by their teachers – such as stereotyping in subjects, grade differences, and unfair treatment – are more likely to believe that their gender affects their potential career path, and more concerned about their future financial stability.

During the investigation of the hypotheses, we used the following methodology and variables.

Methodology

Structure of the questionnaire

The surveys were developed by Amnesty International Hungary with the professional support of the Women in Science Association. The collection and processing of the data, the organization of the interviews and the recruitment of the participants were performed by the Median Institute for Public Opinion Polling and Market Research.

The questionnaire for secondary school students is divided into six main parts: (1) attitudes towards gender stereotypes, (2) awareness of students in topic of gender based negative discrimination in the field of labour market (3) occupational outlook, (4) experiences at school, (5) education, and (6) demands.

Following the demographic questions, these six main topics are structured as follows:

1. Attitude toward gender stereotypes

Students' attitude toward gender stereotypes were measured on two blocks of questions with 2-2 items on 7-point Likert scales (1 = Strongly disagree/not at all, 7 = Strongly agree/Certainly). The *general gender stereotypes* were measured by the following statements: a) a man's most important task is to earn money, b) a woman's most important task is to take care of her home and family. – These questions were part of the mentioned Gender Stereotype Index and were implemented based on the 2017 Eurobarometer survey. The Cronbach's alpha showed appropriate reliability .833. The *gender stereotypes related to professions* were measured by the following statements: a) Engineering and IT-related professions are more suited for men, b)

professions like teaching and nursing are more suitable for women. The Cronbach's alpha was: .791.

2. Awareness

We wanted to know how aware young people are of inequalities in the labour market, particularly of the discrimination against women. The *awareness* was measured by the following four statements by 7-point Likert scales (1 = Strongly disagree/not at all, 7 = Strongly agree/Certainly): a) on average, women earn less than men, b) it is harder for women to achieve a management position, c) they are generally disadvantaged in the labour market, d) higher paying professions are predominantly populated by men. The Cronbach's alpha was: .789.

3. Individual experiences based on their occupational outlook

The respondents' *individual experiences based on their occupational outlook* were also measured on 7-point Likert scales (1 = Strongly disagree/not at all, 7 = Strongly agree/Certainly) by the following statements: a) my gender has an impact on what profession I will choose / have chosen, b) my gender would have less impact on my professional future abroad, c) I worry about my future livelihood. All three scales were used separately in the statistical analyses.

4. Negative experiences at school

The gender-based differentiation was mapped through three variables (the stereotypes displayed in certain subjects; unfair treatment by teachers; unfair treatment by classmates). In all three cases the respondents could choose from the following answers to the question: 1: No, 2: Yes, 3: I don't know. All three variables were used separately.

4.1. *The stereotypes displayed in certain subjects* were measured by the following two questions: a) "Have you ever had a teacher suggest that boys are better than girls in some subjects?" b) "Have you ever had a teacher suggest that girls are better than boys in some subjects?". During the statistical analysis, the two items together produce the variable of stereotypes displayed in certain subjects. The responses were classified into three categories: 1. "Yes" (for respondents who answered at least one of the two questions affirmatively), 2. "No" (for those who answered both questions negatively), and 3. "Uncertain" (for respondents who answered "I don't know" to both questions or responded with one "No" and one "I don't know").

4.2. *The unfair treatment by teachers* was measured by the following two questions: 1) *lower grades in certain subjects*: "Have you ever felt that your teacher gives you a worse evaluation of your school performance because of your gender?". 2) *unfair treatment by teachers*: "Have you ever felt that your teacher treated you unfairly because of your gender in a situation other than grading?" Those respondents who have ever experienced any form of gender-based differentiation from their teachers could write some examples. – The responses reflected the normalization of contemporary violence, higher behavioural expectations for girls, devaluation of cognitive abilities, comments related to dress, and instances of shaming (e.g., during physical education classes).

4.3. *The unfair treatment by classmates* was measured by the following questions: "Have you ever felt that your classmates treated you unfairly because of your gender?" Those respondents who have ever experienced any form of gender-based differentiation from their classmates could write some examples. The responses to the open-ended question included

manifestations of verbal and nonverbal violence, such as teasing and subtle insinuations, as well as the underappreciation of physical and cognitive abilities, comments regarding external appearance, sexist “jokes” emphasizing gender stereotypes, and the denial of equal rights for women.

Finally, we asked the respondents if they had *reported their experiences* with gender-based discrimination and differentiation to anyone. The item was measured by multiple-choice question. The respondents could select several answer options from the following ones: headmaster, form master, teacher, school psychologist, classmate, friend, parent, other.

5. Education

The previous educational experiences of the respondents were also examined from the point of view of gender-based discrimination and the importance of creating gender equality.

5.1. In the questionnaire, we asked whether they had ever heard about gender-based discrimination during lessons at school – hereinafter: *gender-based discrimination in general*, and specifically regarding career choice or work – hereinafter: *gender-based discrimination in relation to career choices*. The respondents could choose from the following answers to the question: 1: No, 2: Yes, 3: I don't know.

5.2. *General awareness, obtaining information*: the question was “Have you heard about the importance of creating gender equality?”, if “yes” where did you hear about it? The following answer options were included in the questionnaire: TikTok, Instagram, Facebook, Classmates, Friends, Parent, Teacher, Youtube, News portal, School, Textbook, Other). We divided the answers into the following 5 categories: 1: Social media (SocMed (TikTok, Insta, FB), 2: Contemporaries (classmates, friends), 3: Online interfaces (news portal, YouTube), 4: Parent, 5: Education (school, teacher, textbook).

6. Demands

To identify existing demands, we asked whether participants would like to see a programme at school about the consequences of gender discrimination and its elimination. Then, if they answered “yes”, we asked: a) what topics they would be interested in, b) what they felt could be done to reduce gender bias at school.

Sample description

As the questionnaire was administered online on a voluntary basis, it was mainly completed by young people who were interested in the topic. Responders were recruited through targeted Facebook ads during May 2023. A total of 1,073 secondary school students completed the questionnaire, of which 11% were male, 85% female, 2% identified as “other” and another 2% did not answer the question regarding their gender. The fact that such a significantly higher proportion of women completed the questionnaire indicates that they are more open to share their experiences. In terms of age range, the biggest part of the sample was aged 17-18 (28-23%) (Age: 13–20, $M_{age} = 17.1$; $SD_{age} = 1.51$). Regarding place of residence, respondents from smaller towns (32%) were more likely to complete the questionnaire, with a similar percentage of people living in the capital, county seats and municipalities (21-24%). In terms of the residence of the respondents, the sample is approximately evenly distributed: capital (22%), county seats (24.2%), cities (27.2%) and villages (21.4%).

Data analysis

Descriptive and inferential statistics were generated using Jamovi Version 2.3. Shapiro-Wilk test was used to test whether the distribution was normal, and reliability analysis was performed using Cronbach's alpha coefficient. Kruskal-Wallis tests and Dwass-Steel-Critchlow-Flinger pairwise comparisons were used to compare groups, while Spearman's Rho test and khi square were used to determine association between variables.

Results

Gender Stereotypes and Individual experiences based on occupational outlook

We found significant difference based on the participants' gender both regarding general and occupational stereotypes. Table 1. shows that male respondents are significantly more likely to agree with general stereotypical statements compared to female peers (W= -5.562; p< .001) and to those who did not classify themselves in any binary gender category (W= -4.344; p= .011), while the latter two groups did not differ significantly. Identical results were obtained concerning stereotypes about professions, the results show that male respondents are significantly more likely to agree with stereotypical statements compared to female peers (W= -6.172; p< .001) and to those who did not classify themselves in any binary gender category (W= -4.301; p = .013).

Table 1
Gender differences regarding stereotypes and individual experiences

	Men Md	Women Md	Non-binary Md	Kruskal-Wallis
Stereotypes				
General gender stereotypes	4	3	2	19.8**
Stereotypes about professions	3.5	2	1.5	23.9**
Individual experiences				
Choice of profession	2	2	1	n.s.
Imagined opportunities abroad	2	4	5.5	32.9**
Future livelihood	5	6	6.5	19.24**
**p<0.001				

Regarding individual experiences and concerns, 31% of participants felt that their gender identity had an impact on their career choice, and half of young people felt that their gender would have less impact on their professional future abroad. 66% of respondents expressed concern about their future livelihood. In terms of individual experiences, there was a significant difference based on the participants' gender in terms of imagined opportunities abroad (see Table 1.). We did not find significant differences regarding participants' choice of profession based on their gender, however, male applicants are significantly less likely to think

that their gender would affect their opportunities abroad than female applicants ($W= 6.873$; $p< .001$) and those who did not classify themselves in any binary gender category ($W= 5.472$; $p< .001$), while the latter two groups did not differ significantly. Similarly female participants ($W= 4.871$; $p= .003$) and those individuals who identified themselves as “other” or did not answer the question regarding their gender ($W= 4.486$; $p= .008$) are significantly more concerned about their future livelihood than their male peers.

Important to note that those who agree more with general gender stereotypes ($\rho= .240$; $p< .001$) and stereotypes about professions ($\rho= .270$; $p< .001$) tend to feel that their gender has a greater impact on their career choices. At the same time those who agree less with professional gender stereotypes are more likely to worry about their future ($\rho = -.111$; $p< .001$). However, the interpretation of this result may also be influenced by the level of awareness, which will be elaborated on in further detail below.

School Guidance

Concerning the acquisition of information in the classroom, we wanted to know whether gender discrimination has ever been discussed in class, and if it has been addressed specifically in the context of choosing a career. 57% of all participants had heard about at least one of these topics in class. A smaller proportion (9%) of these discussions pertained to career choice and work than to other topics (22%), and 26% have heard about both.

Table 2
Differences regarding information provided at school

	Informed Md	Not informed Md	Mann Whitney U
Awareness	5.5	5.25	130800
Stereotypes			
General gender stereotypes	3 (M=2.78; SD=1.51)	3 (M=3.1; SD=1.6)	125253**
Stereotypes about professions	2	2	n.s.

* $p<0.05$; ** $p<0.001$

Young people who were informed about gender-based discrimination in relation to career choices and discussed inequalities show significantly more awareness regarding women's position in the labour market and less general gender stereotypes compared to those who were not informed (see Table 2.).

It can be also seen that those who are more aware of women's position in the labour market are more concerned about their future ($\rho =.309$; $p<.001$) and think that their opportunities abroad would be less influenced by their gender ($\rho =.287$; $p<.001$). This result points out that awareness and information play an important role in the development of young people's vision of their future.

We also asked about whether students have heard about the importance of creating equal opportunities for all genders. Nine out of ten respondents have heard about it. We also inquired about the source of the information, revealing that more than one in two participants heard about

it from friends and discussed the topic with them. However, the most common source overall is social media: 67.7% of respondents mentioned either TikTok and/or Instagram or and/or Facebook and peers (friends and /or classmates): 52,9%. On average, participants named 4.4 sources out of the 12 options. School, textbooks and teachers (39.4%) and parents (36.3%) were the least indicated sources.

Peer communities play a primary role in promoting awareness of gender equality and the rejection of gender stereotypes. Those who have heard about the importance of gender equality from their peers are significantly less likely to agree with general gender (Md=2.5; U=116881; p<.001) and professional (Md=2; U=120481; p<.001) stereotypes compared to those who have not (Md_{general} =3; Md_{professional} =2.5).

School Experiences

The main findings that emerged regarding experiences at school show that 69% of young people reported that the “male and female subjects” were mentioned at school (82% mentioned science subjects – e.g. mathematics and physics –, 35% IT class as subjects associated with boys, and 36% mentioned humanities subjects – e.g. literature and grammar – and 42% art as subjects associated with girls). Based on the results 39% of the participants experienced unfair treatment by their teachers because of their gender (35% of boys, 39% of girls and 50% of those who identified themselves as “other” or did not answer the question regarding their gender), 17.4% experienced it in lower grades in certain subjects, 32% perceived it in some other way of unfair treatment (e.g. normalization of the violent expression of classmates, different expectations, stereotypical distribution of tasks between boys and girls, devaluing of mental abilities, humiliation). 36.8% of young people filling out the questionnaire (17% of boys, 38% of girls and 61% of those who identified themselves as “other” or did not answer the question regarding their gender) experienced unfair treatment by their classmates, e.g. evaluation of intellectual abilities, humiliation, sexualization and objectification, sexist remarks disguised as jokes, discrimination due to menstruation, mocking for atypical interests.

Table 3

Differences regarding individual experiences among students who experienced unfair treatment by their teacher and those who did not

	Experienced unfair treatment by teacher Md	Not experienced Md	Not sure/Do not want to answer Md	Kruskal-Wallis
Individual experiences				
Choice of profession	2 (M=2.96; SD=1.85)	2 (M=2.47; SD=2.08)	2 (M=2.49; SD=1.87)	6.067*
Imagined opportunities abroad	4	3	4	12.644*
Future livelihood	6	5	5	14.129**

*p<0.05; **p<0.001

Table 3. shows that those students who experienced unfair treatment in grading or in other situations due to their gender reported that their gender has a tendentially greater impact on what profession they will choose ($W=2.943$; $p=0.094$), their gender would have less impact on their professional future abroad ($W=4.888$; $p=0.002$) and that they worry about their future livelihood ($W=4.8$; $p=0.002$), compared to those who did not experienced such treatment.

Those young people who experienced unfair treatment by their teachers (whether in terms of grading or other aspects) reported this to someone in 66.5% of cases. When they experienced this from their classmates, only 58% talked about it. Students who reported these experiences were most likely to have mentioned them to their friends (82%) and parents (76%). Only 34% of them have reported it to their class teacher, 18% to other teachers and only 8% to the school psychologist. This shows that young people are more likely to report these experiences to people who are not employees of the school.

It is important to note that young people who reported their experiences of gender-based negative discrimination to school staff (teachers, school psychologists, headmaster, homeroom teachers) has more knowledge about workplace equality ($Md= 5.63$) compared to participants who did not ($Md=5.25$; $U=75744$; $p=.003$).

School training is also related to the behaviour of peers in relation to gender stereotypes. It can be seen from the results that those students who spoke in class about the occurrence of gender-based negative discrimination in the field of career choices experience gender-based discrimination less often from their classmates ($\chi^2(4)=29.7$; $p<.001$).

The potential solutions to reduce gender bias

Lastly, we asked secondary school students what would be needed in their schools to mitigate the harmful effects of gender bias. The responses show that young people would like to see more conversations and a more inclusive peer community (32%), they see teachers as the main key to change (29%) and they would like to hear more about the issue in school (29%). At the same time, they also consider it important to increase acceptance and empathy (16%). The role of parents and education as well as role models was also mentioned (8-8%), as well as the desire for legislation that promotes equality (6%). Despite the young age group, there were also mentions of a systemic approach and a desire for change at a societal level (11%) (“the issue should be discussed in the public domain”, “everyone should be treated equally regardless of their gender”) Young people who have experienced negative discrimination from their teachers are more likely to highlight the importance of changes in the educational system as a solution (46.1%) compared to those who have not had similar experiences (27.6%; $\chi^2(2)=12.3$; $p=.002$).

Discussion

To explore the emergence of gender stereotypes and their relationship with gender-based differentiation in education, along with career aspirations and identity threats, we designed a questionnaire that was completed by 1,073 secondary school students. Although the sample size is significant, it is important to emphasize as a limitation of the research that the sample cannot be deemed representative due to the gender distribution. Furthermore, it is characteristic of the measuring instrument that several constructs are measured with a scale consisting of one or two items, so it would be advisable to expand these measuring instruments in future studies.

During the analyzation of the results, we focused on the following dimensions: 1) stereotypes, 2) awareness, 3) school experiences, 4) educational programs addressing gender-based discrimination, and 5) individual visions of the future, and 6) the educational needs of students.

The results of the current research reflect to previous research that indicates significant gender disparities in the endorsement of stereotypes. Boys demonstrating a higher propensity to agree with stereotypical statements compared to girls and those who do not identify within the binary gender categories. Considering this, we can see that boys tend to conform to gender stereotypes (Skočajić et al., 2020), which can even act as a kind of justification for the existing system (Tabassum, & Nayak, 2021; Jost, & Banaji, 1994). However, for a more thorough examination of this, it would be necessary to involve a larger sample of men.

While no notable differences were observed in participants' profession choices based on gender, female respondents were significantly more likely to perceive their gender as a factor that wouldn't influence their opportunities abroad as much as in Hungary. Furthermore, boys exhibited less concern regarding their future livelihoods than female participants and those who identified outside the binary categories. It is noteworthy that individuals who align more closely with traditional professional gender stereotypes tend to believe that their gender exerts a greater influence on their career decisions and are more likely to express anxiety about their prospects. In summary, based on the research results, it is assumed that gender stereotypes are associated with heightened concern, which can trigger responses related to stereotype threat, that may affect their subject preferences, career outlook and performance (Osborne, 2007).

Key findings regarding students' experiences in educational settings reveal that 69% of respondents reported that their teachers addressed "male and female professions", while 39% experienced discriminatory treatment from educators, and over 17% experienced it in lower grades in certain subjects. Additionally, 36.8% of students reported experiencing discrimination from classmates (17% of boys, 38% of girls, and 61% of those who identified themselves as "other" or did not answer the question regarding their gender). Negative experiences in school correlate strongly with students' perceptions of their futures and their related anxieties. Those who reported unfair treatment expressed heightened concerns regarding their future livelihoods and more likely to believe that their gender significantly influences their professional choices, which they felt would be less pronounced if they lived abroad. These results point to the role of teachers in how young people internalize gender stereotypes and how this affects their concerns and futures (Gajda et al., 2022). However, these experiences are rarely communicated to school staff; while 66% of students recognize instances of differentiation, only 18% disclose these experiences to a teacher or school psychologist. The silence of the cases points out that the school space does not necessarily provide a sufficiently safe context for young people to express their experiences.

However, all these phenomena (e.g., the internalization and application of stereotypes, and the frequency of reports) manifest significantly differently among the respondents who received information on the topic in an educational setting. Research demonstrates that young individuals who have been educated about gender-based discrimination in relation to career choices exhibit significantly heightened awareness of women's status in the labour market and show reduced acceptance of general gender role stereotypes compared to those who remain uninformed. In addition, where they could talk about the harmful consequences of gender stereotypes, the students experienced less gender-based negative discrimination by their classmates. All these results support the importance of school programs that aim to provide information and reduce stereotypes (Spinner et al., 2021). At the same time greater awareness

of women's positions in the labour market is indicative of more concern about their futures, and these respondents are also more likely to perceive their opportunities abroad as less affected by gender than those who are less informed. The results show that, in addition to structural disadvantages and injustices, it is essential to draw attention to the importance of collective action, as well as to strengthen young people's sense of agency, efficiency and the perception of the changeable system (Van Zomeren et al., 2008). In addition to educators, peer communities are also instrumental in fostering awareness of gender equality and challenging gender stereotypes. Students who have encountered discussions regarding the importance of gender equality within their peer groups are significantly less likely to endorse general gender and occupational stereotypes than those who have not. All these results underscore the critical role that awareness and information play in shaping young people's future aspirations and their willingness to report their negative experiences at school.

Finally, we requested the opinions of secondary school students regarding the measures needed to mitigate gender bias in their schools. Their responses indicate a desire for increased dialogue and the cultivation of an inclusive peer community, with the students identifying teachers as key actors of change. Concurrently, they emphasize the importance of fostering acceptance and empathy within the school environment. 75% of the young respondents expressed a desire to learn more about the negative consequences of gender stereotypes and potential solutions for reducing them.

The result shows the importance of educational programs in the elimination of gender stereotypes, increase of awareness, reduction of distinction and discrimination among peers, and empowerment through the potential of reporting gender-based discrimination. In addition to all this, the results reflect that young people seek for more knowledge and training about this topic, as well as their teachers' increased role-taking in eradicating stereotypes. However, in addition to raising awareness, educational programs must also contribute to the development of cognitive alternatives, which plays a fundamental role in the initiation of systemic changes, in the transfer of which the leader – in this case the teacher – has an important role (Tajfel et al., 1971; Reicher & Haslam, 2012; Bigazzi & Csertő, 2015). To this end, Amnesty International Hungary with the Women in Science Association and the Power of Humanity Foundation have developed educational programs and tools that help nursery school teachers, teachers, parents and young people break down gender stereotypes and create more equal opportunities.

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