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STUDENT LEARNING, CHILDHOOD & VOICES | RESEARCH ARTICLE

Gendered representations in Jordanian textbooks: A combined quantitative and qualitative analysis based on UNESCO guidelines for the promotion of gender equality

Nijmi Edres^{1*}

Abstract: Recent studies describe Jordan as a context where the encounter between modernity and tradition in the framework of neo-liberal transformations in the labour market have brought about paradoxes affecting women's lives. Despite several policies to implement gender equality introduced by the government, the rapid reduction of the gender gap in education experienced in the last decades is slow to be carried over into areas of social and economic life. Stemming from this backdrop, this article aims at contributing to the scholarly discussion about the influence of patriarchal constructs in Jordanian educational and labour market. The article considers textbooks as tools for social change and focuses on qualitative and quantitative analysis of a sample of most recent student books addressing the entry, middle and final stages of primary education in mathematics. By providing a detailed analysis of gendered representations in the sample, the article highlights the implementation of relevant strategies to safeguard gender inclusion and equity. At the same time, it points at the underrepresentation of female role models and at

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PUBLIC INTEREST STATEMENT

"This study builds on previous research on textbooks as tools for socio-economic change in the Jordanian context and aims at showing how gender (in)equality is still constructed in textbooks. Through the analysis of a sample of volumes for the teaching of mathematics, the article argues that despite relevant efforts carried by the Jordanian institutional actors in recent years to promote gender equality in textbooks (and beyond), Jordanian textbooks are still dominated by male characters, presenting few female role models and reproducing specific gender stereotypes that, in the long run, may obstruct the equal participation of females at the socio-economic level".

the reiteration of some stereotypical social constructs, especially representing women as alienated from specific working sectors as the vocational one.

Subjects: Middle East Society; Middle East Culture; Middle East Gender; Primary/Elementary Education; Sustainability Education, Training & Leadership; Teaching & Learning; Education Policy

Keywords: Jordan; gender representations; gender stereotypes; textbooks; mathematics; glass ceiling; role models

1. Introduction

Since the 1960s important processes of urbanization, industrialization, proletarianization and mass schooling have affected social structures and gender relations in the Middle East. As noted by Mernissi, the expansion of schooling for girls in particular, have had an “immediate, tremendous impact on women’s perception of themselves, their reproductive and sex roles, and their social mobility expectations”.¹ Nevertheless, such a rapid reduction of the gender gap in education is still slow to be carried over into areas of social and economic life.² In Jordan, females account for 49.3% of the total population.³ While several studies have demonstrated the existence of a “reverse gender gap”, with Jordanian female students achieving better educational results than their male counterparts in both literary and scientific subjects, women in Jordan are still suffering from discrimination in the labour market. As Chamlou, Muzi and Ahmed note, Jordan represents a prominent example in the MENA region of a paradox involving two divergent strains, i.e., modernization and traditional gender roles, involving women’s education and employment. Indeed, they highlight, “nowhere is the mismatch between women’s education and economic integration more prevalent than in the Middle East and North Africa (MENA)”.⁴ Within this framework, scholars as Shteiwi analysed the Jordanian case, showing a surprising drop in the level of egalitarian attitudes at the MA level and above in comparison with the preparatory/basic level.⁵ Such a paradox has caught the attention of scholars interested in Jordanian women’s rights and in the way patriarchal structures and values are reflected through educational material in the specific context of Jordan.

Scholars as Sharabi and Moghadam have used the term “neopatriarchal state” to describe the various types of political regimes in the Middle East, including the Jordanian Hashemite monarchy.⁶ This term has been conceived as a useful umbrella to define the “product of the encounter between modernity and tradition in the context of dependent capitalism”.⁷ In this context, “whatever the outward (modern) forms of the contemporary neopatriarchal family, society, or state, their internal structures remain rooted in the patriarchal values and social relations of kinship, clan, and religious and ethnic groups”, a central feature of this system being the dominance of the father within the household and at the level of the state.⁸ While patriarchal structures and values are certainly not exclusive domain of Middle Eastern societies,⁹ specific factors affecting the persistence of neo-patriarchal social systems in Middle Eastern countries have been identified. With growing emphasis in the last decades, we have assisted in making changes in the experiences of Arab-Muslim women and families and in a transformation of Muslim family laws applied in the MENA region. Such changes have been fostered by feminists (both secular and religious) seeking a shift towards more egalitarian gender dynamics. While this process has mostly involved women living in cities, especially large metropolises, in rural areas of the Middle East practices like endogamy (marrying within the lineage) have continued to provide fertile ground for men’s control over women.¹⁰

Gender as a social construct needs to be understood as part of a broader cultural context. Without any doubt, Islam, as a discursive practice, is one of the key factors shaping the Jordanian cultural context and gender representations within it. Such a discussion goes beyond the scopes of this article. Nonetheless, as previously highlighted by Tillion, it is

worth noticing that Islam came into being in societies that were already patriarchal.¹¹ In this regard, in her analysis of the changes in patriarchal attitudes in the Middle East, Valentine Moghadam highlights that while Quranic reforms provided a shelter to protect women from some injustices characterizing pre-Islamic Arab societies, the Arab-Muslim family kept resting on what she calls “a patriarchal gender contract”. In the framework of such a contract, patrilineal bonds were privileged and men took the responsibility of supporting women, who were expected to maintain the home, care for children and obey their husband.¹² Despite the changes mentioned, according to Moghadam, this gender contract remains in place, still affecting Muslim family laws and socio-political attitudes towards women in the Middle East.¹³

Islam has also been at the core of international discussions by various political and developmental institutions, describing Muslim women as oppressed and powerless.¹⁴ As noted by Fida Adely, such representations often fail to recognize the agency of Muslim women in the region, echoing the discourse historically framed by colonialism to justify political interference in the region with the supposed necessity to educate women and save them from extremism and cultural backwardness.¹⁵ The intellectual work of Muslim feminists rather proves that Muslim women are active in shaping Islam as a discourse through interpretative efforts and in everyday practice.¹⁶

Local institutions also claimed a role in shaping Islam. Recent policies vis-à-vis religious discourse and education in Jordan were driven by concerns about episodes of religious extremism in the region, namely the Al-Qā’ida hotel bombings in Amman in 2005, and in the following years the cases of several Jordanian citizens joining the ranks of Isis.¹⁷ Such policies, driven by local interests as well as by the external pressure from international donors and institutions, also addressed changes in the representation of women through a process of textbook revision.¹⁸

It is also worth noticing here that education has been at the heart of national building processes in Jordan since early on, contributing to the creation and sustainment of a Jordanian tradition and a shared history.¹⁹ As pointed out by Adely, “the ideal of the Jordanian woman and the state policies that shape women’s lives have also been central to both of these processes—the process of modernizing and moving forward, as well as the efforts of the regime, and its critics, to claim authenticity through shared history and traditions”.²⁰ As such, women have been and continue to be a focal point of competing imperatives.²¹ Accordingly, women have also been at the core of the previously mentioned process of textbook revision started in 2016 and still going on. Such a comprehensive process of revision, aimed at promoting “religious neutrality”²² and emphasizing Islam’s core values of compassion and tolerance, has been fostered by the critics of relevant actors in the Jordanian educational sector (such as Dūqān ‘Obīdāt, supervisor of Jordanian curricula at the Congress on education from 1991 to 1998), who lamented the textbooks’ tendency to ignore non-Muslim communities in the country and female actors.²³

Today there is a sizeable consensus about the commitment of Jordanian governments (especially in the figures of prominent women of the royal family such as Queen Rania, the wife of the current King Abdullah II, and Princess Basma, his aunt) towards the issuing of policies to implement Jordanian women’s rights. Such policies include laws like the Jordanian Labour Law (1996), emphasizing non-discrimination between men and women, and the creation in 2010 of a Gender Department to implement a National Strategy for Gender Inclusion.²⁴ Yet, in light of the paradoxes mentioned concerning Jordanian female education and socio-economic participation, scholars continue to question the real effects of such governmental policies on Jordanian women.²⁵

Stemming from this complex background, this article aims at contributing to the debate on the construction of gender representations and gender paradoxes in the contemporary Jordanian context. As such, and while acknowledging the relevance of complementary ethnographic research investigating how textbooks are effectively used and also resisted by scholars and teachers, this article aims at contributing to the scholarly discussion about the influence of patriarchal constructs in Jordanian educational and labour market by providing an analysis of how gendered representations and gender systems are shaped in the narrative forwarded by Jordanian textbooks.

2. Insights into the Jordanian educational context: gender gaps and government policies

Before having a closer look at the materials and methods and at the results of the analysis, it is useful to present some information to help understand the importance of the reforms recently developed by the Jordanian government better, so as to contextualize this research.

As previously mentioned, several studies in recent years have pointed to a substantial gap in learning outcomes in favour of girls in the Jordanian education system. Such a “reverse gender gap”, with female overtaking male students, was first highlighted in the context of the 1999 international TIMSS (Trends in Mathematics and Science Study) science assessment. Data relating to the 2015 PISA (Programme for International Study Assessment) assessments also showed that Jordan had the largest reverse gender gap in science among all participating countries, and the second largest reverse gender gap in mathematics. This trend was shared by the other Arab countries participating in PISA, especially the UAE and Qatar.²⁶ Gaps equivalent to half a grade level were also found in the TIMSS 2015 science and math assessments for 8th graders.²⁷ This led several institutions, such as the Queen Rania Foundation, to focus on strategies to improve learning outcomes for boys.²⁸ In mathematics, data relating to PISA 2018 showed a decrease in the outlined reverse gender gap, despite Jordanian female students continued to perform better than their male counterparts (by six score points).²⁹ Nevertheless, the higher educational achievement obtained by female students in the Jordanian system didn’t translate to the labour market. According to data published in 2020 by the World Bank, the percentage of working-age women continues to be very low when compared to the percentage of the working-age male population.³⁰ Gender gap and income tables also display income inequalities between male and female workers (with Jordan included among bottom performers among the upper-middle-income group of countries considered by Global Gender Gap 2016).³¹ As highlighted by the World Economic Forum’s 2018 Global Gender Gap Index, Jordan has one of the lowest employment rates for women worldwide, and female workers face more obstacles than their male counterparts when entering the workforce.³² According to the Jordanian Department of Statistics, females are at a greater disadvantage when compared to their male counterparts even when having high educational achievements. The data highlight, for instance, that unemployment for males who have a bachelor’s degree and higher is 23%, while the same indicator is 78.2% for females.³³ This paradox has been explained by scholars such as Abbott as being a result of the neo-liberal policies pursued by MENA governments in the 1980s in the previously mentioned neo-patriarchal cultural framework. In Jordan in particular, women’s exclusion and withdrawal from the labour market has been connected with the difficulties of working in the growing private sector, considered to provide unsuitable working conditions for young women. Indeed, in the private sector, high scores for complaints by women of harassment have been reported, in addition to the reluctance of employers to hire women.³⁴ Scholars such as Banihani and Syed have also demonstrated the persistence in Jordan of a gender-biased notion of work engagement, revealing the persistence of discriminatory treatment of women workers based on social stereotypes in the private sector.³⁵ Their research showed that social stereotypes, accepted not only by male but also by female employees, influence the type of job opportunities available. In more detail, according to their findings, more meaningful jobs with higher salaries and status are usually given to men because they are perceived as the main providers for their families, while female employees are perceived as

less valuable and knowledgeable. Women are also usually excluded from informal and social networks taking place outside the organization and are monitored more than male employees because of the social restrictions on their behaviour. This results in an unfair distribution of workload, pay, job evaluations and promotions.³⁶

Nonetheless, different laws in Jordan, such as the Jordanian Labour Law, emphasize non-discrimination between men and women, and various policies and reforms to alleviate gender inequality have been implemented in recent years. These policies affected the educational level as well. In 2010 the Jordanian Ministry of Education established a Gender Department to implement a National Strategy for Gender Inclusion, aiming at promoting gender equity by working on related policies, plans, projects and programs.³⁷ In recent years this initiative has succeeded in bringing gender issues to the forefront of the educational agenda, following several objectives. On the one hand, the strategy envisioned by the government clearly referred to the desire to reduce the “reverse gender gap”, focusing on attempts to increase male achievements. As such, it aimed at ensuring “that the roles of males and females complement each other in a way that achieves the desired positive change”.³⁸ On the other hand, the National Strategy for Gender Inclusion did not fail to recognize discrimination against females at the educational level and beyond, stressing the necessity to “unleash the human potential and equal rights to both males and females” on a broad level.³⁹ The government strategy included a plan for textbook revision that is still in operation and that involved mathematics education as well. PISA results from 2016 and 2018 show a decrease in the “reverse gender gap” between male and female students of maths in Jordan, allowing us to speculate positively on the success of the first point of the national strategy (namely, boosting male students to achieve better educational achievements). At the same time if we look at gender equality in a broader framework, and in particular at data regarding female inclusion in the labour market, we notice that the reforms did not succeed in “unleashing the female human potential” as envisioned by the plan. Indeed, despite a slight increase in the percentage of working women in Jordan between 2014 and 2019, the general trend shows a decrease of the female working population compared with data for the period before 2009.⁴⁰ These data suggest that, while various policies and reforms to alleviate gender discrimination have been put in effect, improvements in this regard are still marginal.

Studies on female discrimination around the world have demonstrated that top-down reforms aiming at improving female participation in the labour market have a limited impact when not accompanied by changing societal views and gender stereotypical constructs that represent female actors as families’ caregivers while diminishing their role on the labour market.⁴¹ Such stereotypical constructs associated with masculinity and femininity are parts of “gender systems” conceived as “the set of norms, beliefs, practices and knowledge that organizes relations between men and women”.⁴² Against this background, textbooks⁴³ play a relevant role as they transmit models of social behaviour, norms and values, contributing to the construction of gender systems and to the reproduction of gender bias.⁴⁴ The transmission of stereotypical constructs through textbooks often happens indirectly. In fact, gender bias in textbooks worldwide remains an almost invisible and “hidden” obstacle to female equality.⁴⁵ The scope of this article stems from this framework, considering textbooks not only as teaching aids but also as relevant vehicles of socialization and tools of social change, having economic and ideological implications while contributing to the development of gendered representations. Indeed, in the Jordanian context, while the “reverse gender gap” suggests that gendered representations have not negatively affected female educational achievements, the enduring discrimination against women in the labour market raises questions about the effects of textbooks as tools for social change.

The chasm between women and economic equality in Jordan and the role of textbooks in this context are not new to researchers. Although Jordanian women are mostly represented as being worthy of equal rights, stereotypical and biased images and perceptions of gender

inequity have been consistently reported in several studies on Jordanian textbooks in different subjects.⁴⁶ In particular, a 2014 study by Mayyada Abu Jaber mapped 38 Jordanian textbooks from grades 4 to 10 in four subjects (social studies, civic education, geography and vocational education) to evaluate specifically the direct and indirect gender messages about women and economics and to offer recommendations for ways to promote women in the Jordanian workforce. Abu Jaber highlighted that gender-sensitive policies brought into effect by the Jordanian Ministry of Education (MoE) have not been translated into gender-sensitizing textbook content. By grade 10, she stressed that “the female student has been subjected to three main messages. The first message is that there are no suitable vocational jobs for her and that there are a limited number of acceptable professional jobs; the second is that her leaving the household to work would have a negative impact on the family’s cohesion; and the third is that she is unable to manage finances or make decisions”.⁴⁷ Jordanian textbooks, Abu Jaber concluded, “portray females as confined in glass houses, where they can see economic futures that they cannot pursue. For those who manage to shatter their glass doors, they are soon faced with a glass ceiling in institutions where they are not given the opportunity to lead”.⁴⁸

This study builds on previous research on textbooks as tools for socio-economic change in the Jordanian context and aims at showing how gender (in)equality is still constructed in textbooks. The article argues that despite the relevant efforts carried by the Jordanian Ministry of Education in recent years to promote gender equality through textbooks, Jordanian textbooks are still dominated by male characters, presenting few female role models and reproducing specific gender stereotypes that, in the long run, may obstruct the equal participation of females even at the socio-economic level.

The study looks at the last experimental edition of textbooks for mathematics education at three relevant stages of the curriculum for primary education (samples from classes 1, 5 and 10), through a combined qualitative and quantitative analyses of the characters presented in three selected volumes, according to the criteria presented in the following methodological section.

3. Materials and methods

Since the 1960s there have been a number of studies on racial discrimination, xenophobia and sexism transmitted through textbooks’ content. While succeeding in exposing gender stereotypes, they presented several methodological weaknesses. As noted by Brugeilles and Cromer, applying pre-defined categories such as “traditional/non-traditional role” or “high-status/low-status role” of men and women in the society and family they hardly fitted the task of registering omissions leading to sexism or discrimination on account of missing information. Moreover, as the applied categories depended on the cultural context and the sensitivity of the person collecting the information, they were perceived as too subjective and not rigorous enough from the methodological point of view. Finally, they applied qualitative or quantitative analysis, therefore portraying stereotypes only to a limited extent.⁴⁹ To tackle such methodological weaknesses, the UNESCO International Network for Research into Gendered Representations in Textbooks proposed a new approach, combining qualitative and quantitative analysis, on the basis of two principles: “a) gendered representations are embodied in characters, and it is therefore through these that gender equality must be promoted; b) the inclusion of a character in a teaching aid—in this case a textbook—contributes to the development of gendered representations; the internal structure and purpose of the aid should therefore be considered”.⁵⁰ Despite the publication of several other guidelines regarding gender equality in the following years, this methodological guide titled ‘Promoting Gender through Textbooks’⁵¹, remains a fundamental reference for those scholars interested in the transmission of gender stereotypes specifically through textbooks.

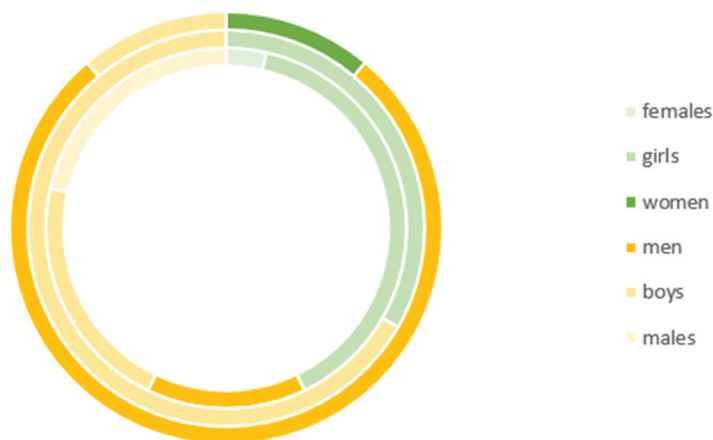
This study adapts the method developed by the UNESCO methodological guide to the analysis of gendered identities and gendered social roles in Jordanian textbooks, focusing on mathematics education. Indeed, while several studies in the last years have focused on gender representations in Jordanian textbooks for languages (being Arabic or English), civics education and history,⁵² little attention has been paid to mathematics and science. The importance of analysing mathematics textbooks has furthermore been stressed by the UNESCO guideline, which underlined the necessity to pay specific attention to the educational tools appropriate to this subject, usually particularly discriminatory against women. In this perspective, representations of society in mathematics textbooks worldwide have been considered more pernicious in the way they unconsciously register and convey examples of a gendered attribution of intellectual skills.⁵³ Indeed, while not directly imparting social values or historical and political concepts, textbooks for mathematics use examples and connections to the real lives of the students to facilitate the understanding of abstract concepts and to demonstrate the relevance of the material thought. These “real life connections” implicitly transmit messages developed by the society they intend to reflect. Through these examples, they legitimise (or delegitimise) specific discourses. In fact, as recently noted by the UNESCO’s Mahatma Gandhi Institute of Education for Peace and Sustainable Development, mathematics textbooks could promote a “double-purpose learning”: the learning of a certain subject knowledge and skills and the learning of the principles of sustainable development, including principles of gender equality, simultaneously.⁵⁴

The sample analysed includes three volumes of three student books (*kitāb al-tālib*), written in Arabic, addressing the beginning, middle and last stages of the primary education cycle in mathematics education (samples from classes 1, 5 and 10, here referred to as MA.01, MA.05 and MA.10)⁵⁵ and including a total of 427 pages. The volumes analysed were developed by the National Center for Curriculum Development in cooperation with the Jordanian Ministry of Education. Published in 2020 to be used in the academic year 2020/2021, they appeared in pdf version on the MoE’s website in August 2020 and represent (as highlighted in the introduction of the textbooks themselves) a first, experimental, edition. The applied methodological approach combines quantitative and qualitative analysis. As pointed out by the UNESCO *Guideline for the Promotion of Gender Equality through Textbooks*, the combination of quantitative and qualitative analysis is used to study and compare large amounts of material with a view to studying gendered identities and gendered social roles as a whole (versus simply identifying sexism or discrimination against one sex), aiming at revealing a textbook’s gender system and understanding how representations of male and female are developed in that system.⁵⁶ In the present study, quantitative and qualitative analysis focused on the creation of an exhaustive inventory of characters from the sample textbooks. The analysis extended to every element of the textbooks, including text, pictures, lessons and exercises. Special attention has been paid to illustrations because of their higher profile (being few in number and taking up more space on the page). Illustrations were monitored together with texts. In the sample analysed, lessons and exercises were closely intertwined. Units were always divided into two lesson-exercise parts, defined as “I learn” and “I train”. Yet lessons were always framed as a guided resolution of exercises and included questions in the form of mathematics tasks to check the students’ understanding while, similarly, training sessions extended to exercises and supplementary in-depth information boxes. For this reason, the variable of the appearance of a character in a lesson or in an exercise section (which is usually meaningful, characters in lessons having a higher profile than those in exercise sections) has been left out here.

Following the previously mentioned UNESCO guideline, characters were first divided and counted according to sex and age (men, women; boys, girls; males, females, when characters were not defined by age; and ungendered characters, including a list of terms appearing in male plural). Such an inventory aimed at answering a first set of questions:

Figure 1. Graphic representation of gendered characters in images by age and sex

Gendered characters by age and sex: Illustrations
 (MA.01: inner circle; MA.05: middle circle; MA.10: external circle)



- is gendered language used? Are there ungendered designations?
- Are some gendered characters overrepresented in comparison to others?
- Which gender is preferred?
- Is there a lack of some type of characters?
- Are female role models rare or abundant?

Aiming at qualitative analysis, the study also considered if and how the description of characters changed depending on sex and age, contributing to the development of gendered representations. To reach this goal, characters pertaining to each of the mentioned categories (men, women; boy, girls; males, females) were divided considering the following features (designed on the basis on UNESCO guidelines and extended to better represent the findings in the sample):

Figure 2. Graphic representation of gendered characters in images by type of activity.

Gendered characters by type of activity: Illustrations

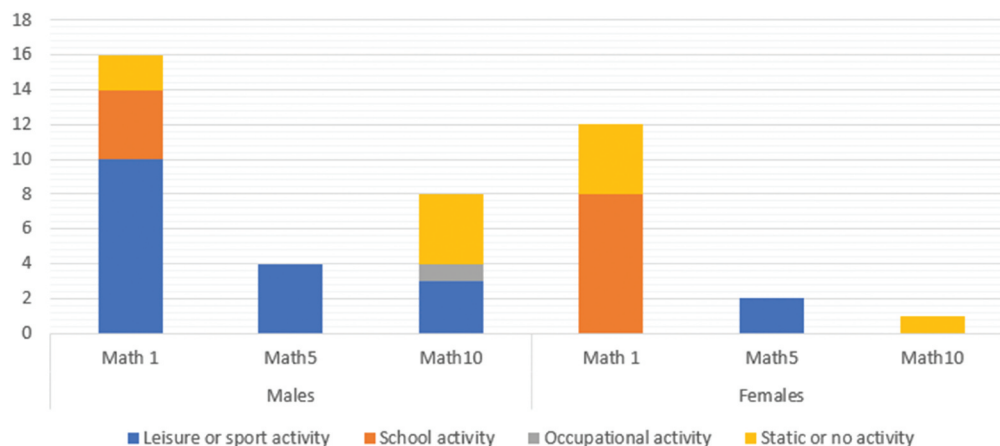
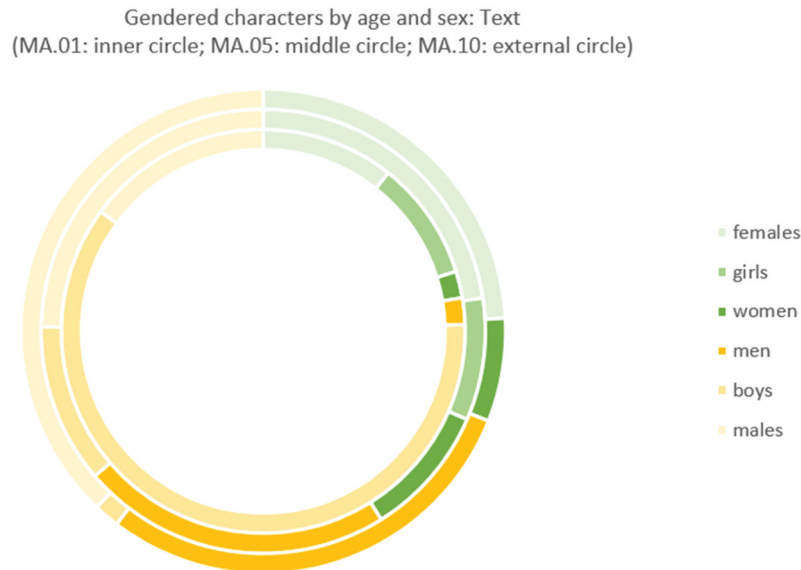


Figure 3. Graphic representation of gendered characters in texts by age and sex



- type of designation (first name/surname, family relationship, other relationship, occupational status, other status, including title);
- type of activity (school activity; occupational activity, formal or non-formal, domestic activity; buying activity; care or caring activity; being taken care of, passive activity; leisure, recreational or sports activity; social activity; routine personal activity; negative activity; successful activity; other activity);
- the attributes related to each character (school materials; occupational equipment or item; domestic item; money; food; house/garden; plot of land; leisure, recreational or sports equipment or item; physical characteristic; psychological characteristic);
- type of interaction with other characters (occupational interaction; school interaction; cooperative interaction, such as acting together or helping each other; affective interaction, such as expressing affection or cuddling; social interaction, such as talking, celebrating, inviting, sharing; violent interaction).

Drawing from the methodology implemented by Mayyada Abu Jaber in the above mentioned study on “womenomics” in Jordan (on the basis of Alexander and Welzel’s suggestion that in order to achieve the economic empowerment of women, society would need to view women’s economic empowerment as being both “desirable” and “legitimate”⁵⁷), the inventory was supplemented by two further questions specifically related to Jordanian female participation in the labour force:

- Is vocational work presented as desirable for women?
- Are mobility and financial control depicted as acceptable for women?

Such an inventory of characters and features was repeated for each of the volumes considered in the sample, allowing comparison of gendered representations at different stages of the curriculum (at grades 1, 5 and 10). By including textbooks for different educational stages (at the beginning, middle and last stages of the primary education cycle), the sample also allowed a preliminary analysis (to be possibly integrated by future studies addressing the entire set of textbooks in the curriculum) of how gender equality is constructed through the curriculum considering how the proportions (males/females/ungendered) change through the

curriculum itself; how the trend of boys/girls and the trend of men/women changes through the curriculum and how the gender system changes as the curriculum progresses.

4. Results

The mentioned UNESCO guidelines suggest that in order to avoid the construction of stereotypes, textbooks should possibly avoid gendered representations by recurring to “ungendered” characters. Recourse to “ungendered” characters is considered positive in terms of gender inclusion strategies as they “emphasize the universality of characteristics and behaviour patterns, by regarding them as neither male nor female”. It is important to notice, when dealing with the findings of this study, that all the volumes analysed show relevant elements that reflect a significant attitude of avoiding gendered representations by using ungendered characters and designations. In the textbook for the first class, for instance, the important function of guiding the pupils through the entire volume and learning process is attributed to a completely ungendered character, in the shape of an ant. The character of the ant in MA.01 lacks any reference to gender attributions and is reproduced several times in the textbook, significantly overcoming the number of all other images of gendered characters. It is relevant to note that ungendered characters have a relevant share in Arabic text designations as well. In the sample analysed, students are always directly referred to (in instructions and guidelines) by using first person pronouns which, in Arabic grammar, are ungendered. Textbooks consistently avoid the use of the second person (being in imperative or present tenses), something that in the Arabic language usually implies a gendered choice (favouring the male form over the female). As such, instructions are always provided in the form “I/We + verb”, as in the examples in the exercises below:

"أَتَحَدَّثُ: كَيْفَ أَقْرَأُ الْعَدَدَيْنِ: 4,5?"

“I talk: how do I read the numbers: 4, 5?”. Quotation from MA.01. Student book, p.10. Personal translation.

"أُكْمِلُ الْجُمْلَةَ الْآتِيَةَ"

“I complete the following sentences”. Quotation from MA.05. Student book, p.13. Personal translation.

"أَتَدْرِبُ"

أَحُلُّ كُلَّ نِظَامٍ مُعَادَلَاتٍ مِمَّا يَأْتِي بِيَانِيًّا بِاسْتِعْمَالِ بَرْمَجِيَّةِ جِيوجيبرا:"

“I practice. I solve each system of equations from the following, graphically using GeoGebra software.” Quotation from MA.10 Student book, p.9. Personal translation.

This reference to students always in the first person is consistent through the curricula in the sample analysed. It is noteworthy that this strategy is also extended in MA.01 to the designations that address the student’s caregivers in the textbook, as illustrated in the example below:

"نَشَاطٌ مَنْزَلِي: أَكُونُ ثَلَاثَ مَجْمُوعَاتٍ يَحْتَوِي ثَلَاثُ مَلَاعِقَ، وَالثَّانِيَةُ شَوْكَتَيْنِ، وَالثَّلَاثَةُ سَكِينًا، ثُمَّ أَطْلُبُ إِلَى طِفْلِي عَدَّ كُلِّ مَجْمُوعَةٍ، ثُمَّ كِتَابَةً عِنْدَهَا، ثُمَّ قِرَاءَتَهُ."

”Home activity: I form three groups, with the first one containing three spoons, the second two forks and the third a knife. Then I ask my child to count [the objects in] each group, then to write their number, then to read it”. Quotation from MA.01. Student book, exercise p.9. Personal translation.

Such a use of ungendered characters and designations throughout the curriculum is even more interesting as it addresses the student's caregivers as well. Indeed, this linguistic strategy allows the textbook (MA.01, in the case of the example above) to address male and female caregivers indiscriminately, avoiding the reproduction of stereotypes according to which one of the caregivers (usually the mother) is assumed to be better suited to taking care of the fulfilment of homework and home activities assigned to the students. At the same time, referring to a parental figure in an ungendered way allows the discursive inclusion of families that (because of the death of one of the spouses or for any other reason) are not built on the "conventional" mother-father binary relationship. These macro-elements stand out as clear evidence of the authors' attention to gender equality and inclusion. Nevertheless, it should be highlighted that ungendered language is used only in those situations where students and parents/caregivers are addressed directly (in instructions, for instance, as showed in the above examples or "home activity" boxes) and ungendered characters are limited to that of the guiding "ant". Therefore, ungendered language and images affect the analysed textbooks only to a limited extent.

Indeed, the sample textbooks are populated by a large number of gendered characters as well. An analysis of gendered characters following the above-mentioned methodology unveils the reproduction of some unbalanced representations, discriminative patterns and stereotyped gendered constructs.

In the sample analysed, illustrations of male characters (of all ages, including men, boys, and males of unknown age) significantly outnumber the female characters (of all ages, including women, girls, and females of unknown age). Moreover, as illustrated in Figure 1, the number of female figures (all ages) in images decreases as the curriculum progresses: in MA.01 male characters (all ages) represent the 57% out of the total of gendered illustrations, while female characters (all ages) 43%; in MA.05, the percentage of male characters (all ages) increases to 67%, while female (all ages) characters occupy 33% of all illustrations of gendered characters; in MA.10, male characters (all ages) comprise 89%, while female figures (all ages) almost disappear from illustrations, decreasing to 11% of all illustrated gendered characters. Adult women appear only in MA.10 illustrations (while men already appear in MA.01). Moreover, the number of illustrations representing women is significantly fewer than the number of girls portrayed (in the three volumes, the author of this study notes the presence of only one illustration of a woman, representing less than 7% out of the total of female, of all ages, illustrated characters in the sample).

The activities illustrated also demonstrate an unbalanced gender representation. While most male characters are portrayed while being involved in sport, leisure or recreational activities, female figures are more often occupied with school activities, or represented as static (see Figure 2). In this regard, the most interesting example probably concerns the only adult woman represented in the sample's illustrations: the scientist, mathematician and astronomer, Maryam Al-Ja'ili. While she appears in a static posture, almost "posing" for the illustrator, her colleague Muhammad ibn Jābir al-Battānī (appearing some pages before al-Ja'ili), is represented as much older and focused on his occupational item (see MA.10, p. 84; 114).

The analysis of textual elements complements these findings. As illustrated in Figure 3, the total number of masculine characters in texts (considering the entire sample analysed) significantly exceeds the number of feminine characters, almost doubling that of feminine ones.⁵⁸ Masculine characters outnumber feminine ones in all of the three educational stages analysed (in MA.01, masculine characters represent 77% of total characters in texts while feminine ones, 23%; in MA.05 masculine characters count for 59%, while feminine ones for 41%; in MA.10 the percentage of masculine characters grows to 69% while that of feminine ones decreases to 31%). Regarding the age of the characters, textual elements portray a greater variety than illustrations. Nevertheless, the number of adult feminine characters remains significantly smaller than the

Figure 4. Graphic representation of gendered characters in texts by age, sex and type of designation

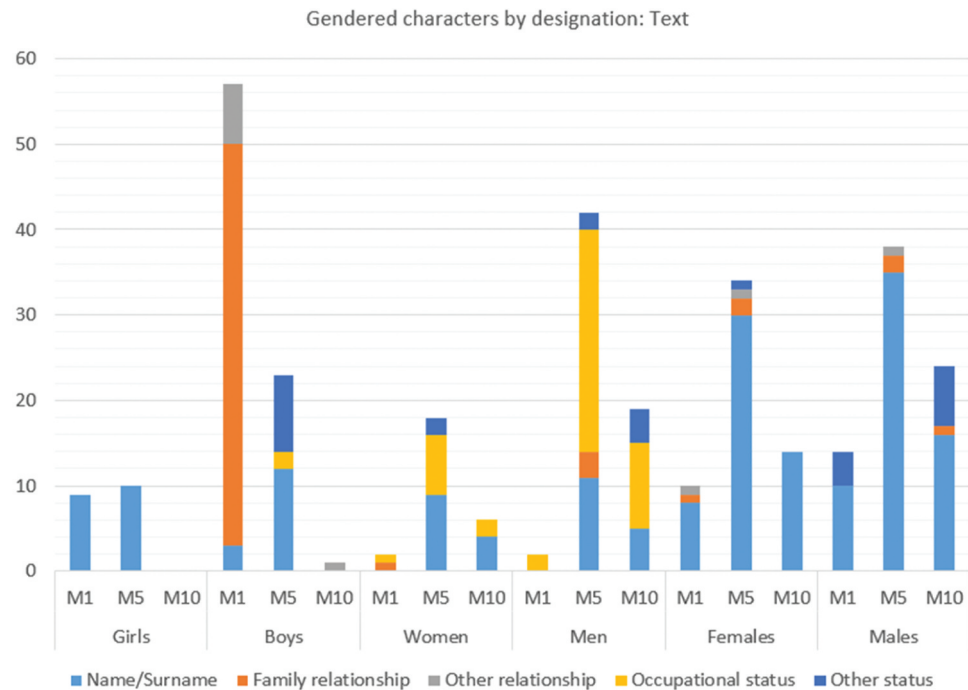
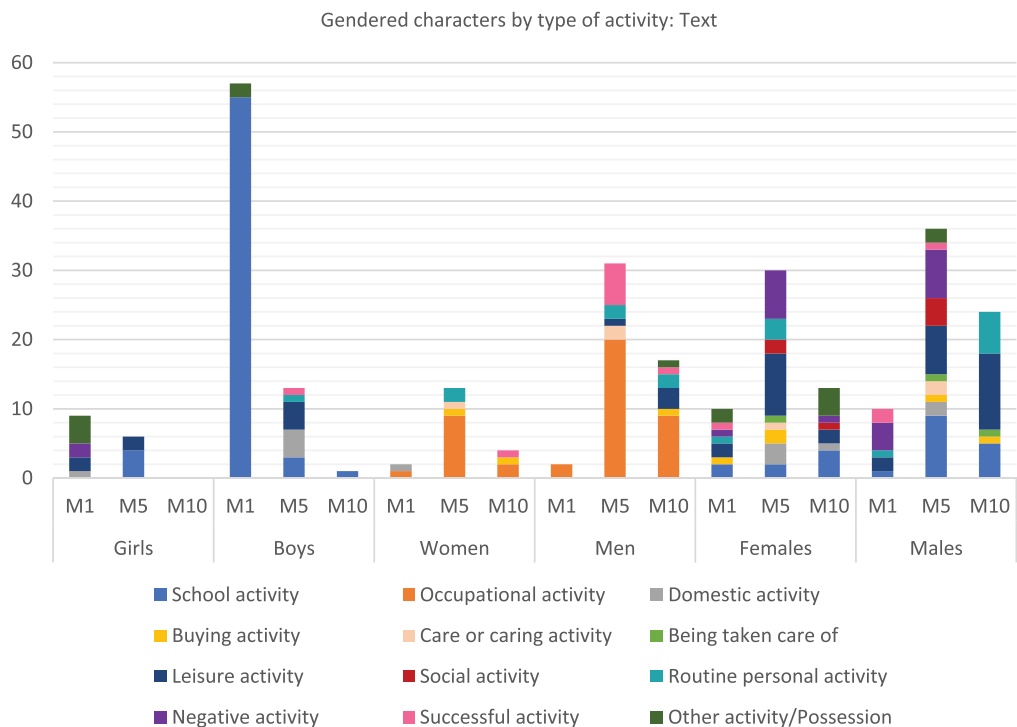


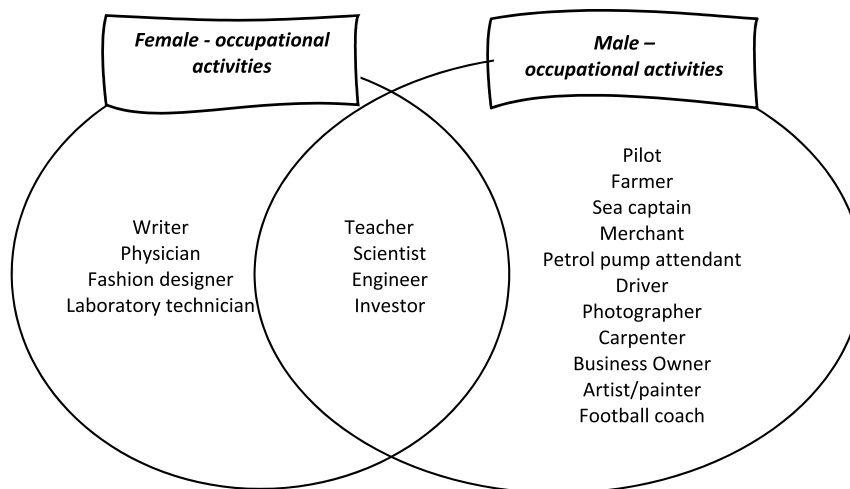
Figure 5. Graphic representation of gendered characters in texts by age, sex and type of activity



number of masculine adults. Moreover, the percentage of women compared to men decreases as the level of education increases.

In texts, feminine characters are mostly designated by their first name, while masculine characters are introduced by different designation types of references and appear therefore

Figure 6. Graphic representation of gendered characters in text by sex and type of occupational activity



as integrated into wider social networks, including family, occupational and other kinds of relationships. The main difference affects girls and boys. While girls are always introduced by their first names only, boys are depicted in texts as part of a universe of relationships, being at school or in a family context. In this regard, the high number of family relationship designations are introduced in the texts through the already mentioned “home activity” boxes. These boxes always present the relationship between an ungendered parent and a male child (*tifl*). As far as the occupational status is concerned, reference to characters through their occupational status has been considered by the author of this study as an indication of age when no other indicators of age were specified in the text. Therefore, this kind of designation is mainly related to adult characters, being masculine or feminine, as a

Figure 7. Graphic representation of gendered characters in texts by age, sex and attributes

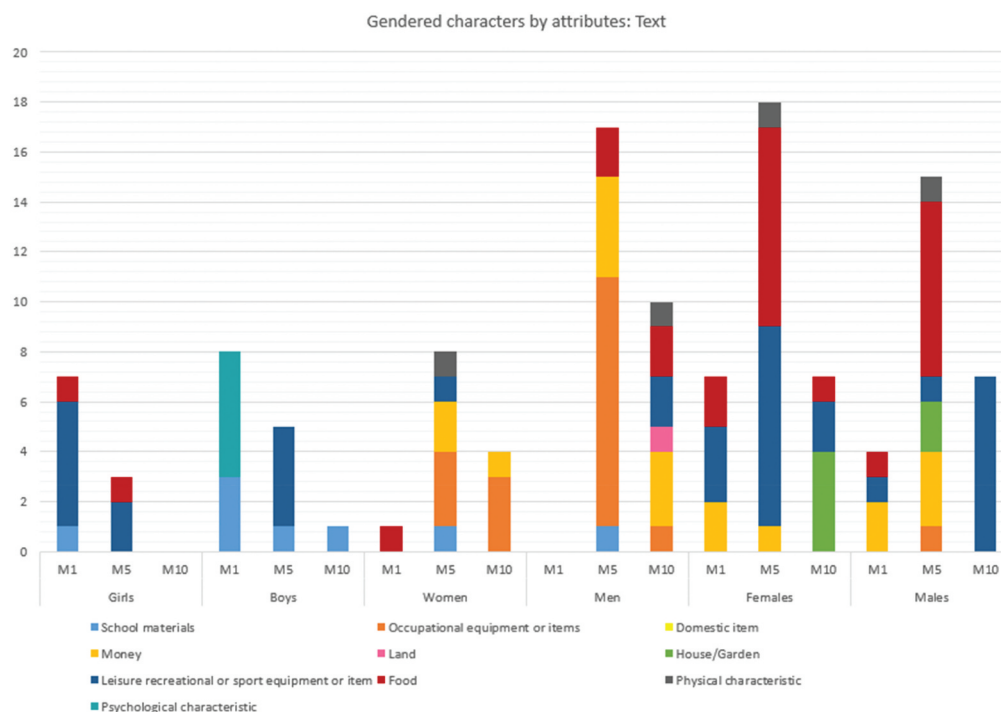
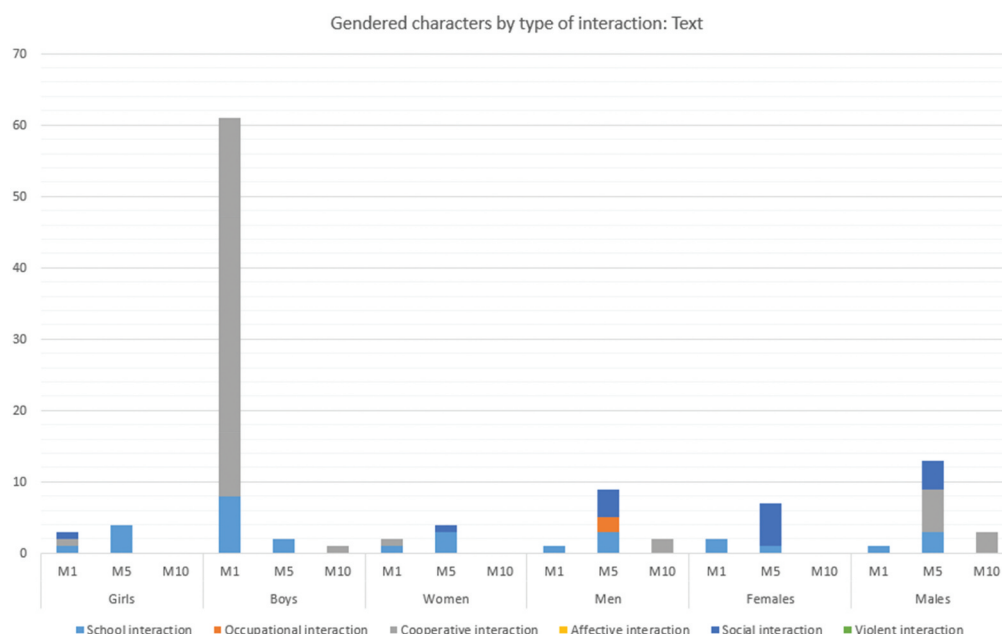


Figure 8. Graphic representation of gendered characters in texts by age, sex and type of interaction



result of a methodological choice. Nevertheless, as showed by Figure 4, the occupational status already appears as a designation with reference to boys in MA.05. In this case, the text directly addresses the students, referring to an imagined occupational status, projecting a role for them in the labour market. This appears twice in the titles: “I am a scientist” and “I am a carpenter”.⁵⁹ In both cases, the use of the first-person pronoun “I” (otherwise ungendered) comes with a masculine noun, referring therefore to male students. While in these cases a gendered choice could have been difficultly avoided, as Arabic language doesn’t provide for grammatically ungendered nouns, the use of a feminine noun in one of the two cases would have represented a choice in the direction of gender equality. Out of the total designations in the analysed sample, references to the occupational status affects 38% of women while this percentage rises to 60% in case of men.

As far as activities are concerned, the main difference between sexes relates to successful activities.⁶⁰ Successful activities involve boys (in MA.05) but never involve girls. They concern women in only one case (in MA.10) while there are seven men depicted as involved in successful activities. Male characters (of undefined age) involved in successful activities outnumber female ones as well. Out of the total “successful activities” mentioned in the analysed sample, 85% relates to masculine characters while this percentage decreases to 15% in the case of feminine ones. Negative activities (such as making a mistake) relate to girls more than boys.⁶¹ Nevertheless, the findings demonstrate a balance concerning negative activities out of the total characters in the sample (out of total cases of negative activities, feminine and masculine characters have an equal share of 50% involvement). Feminine figures are more often represented as involved in a static activity of ownership than male ones (with a ratio of 2:1). As far as activities are concerned, involvement in “domestic” activities is equal (at least if we consider absolute values) between sexes and more masculine than feminine characters are involved in “caring” activities. Yet, it is worth mentioning that “caring” activities in the sample mainly refer to the Muslim religious duty of making donations (*zakāt*). Finally, while adults of both sexes are mainly represented as involved in occupational activities, men are also depicted as having leisure time. This is not the case for women. Indeed, the entry “leisure” interestingly disappears for adult feminine characters, as

showed by Figure 5. It is relevant to notice that, in the analysis, leisure activities include travel. As such, the textbooks reflect and legitimize a portrayal of reality where women's mobility is reduced. Female characters' limitations in terms of mobility are reflected in the findings regarding occupational activities as well. As we see, in Figure 6, women are almost excluded from the realm of vocational jobs requiring travel or significant outdoor activity or interactions. As far as occupational activities are concerned, only a few occupational activities belong to both masculine and feminine characters (teacher, engineer, investor and scientist). It is noteworthy that female characters were excluded from some of these activities, according to previous studies. According to the findings of Abu Jaber (2014) the engineer or the laboratory technician were male-only professions, while in the sample analysed here they are professions also attributed to feminine characters.⁶² Moreover, while the ability to manage financial decisions in Abu Jaber's sample was attributed predominantly to masculine characters, in the sample considered here it is attributed to female characters as well (with one relevant example of a female character "buying shares" in MA.10).⁶³ Yet the findings also confirm that female characters continue to be almost completely excluded from the large occupational sector of vocational job, while mainly being employed in the professional and public sector. This is particularly interesting, and relevant, as it supports findings from previous studies explaining the paradox between rising educational attainment and the yet stagnant female labour participation in the MENA region as resulting from a contraction in public sector employment opportunities not made up by a commensurate increase in opportunities in the formal private sector.⁶⁴

As illustrated in Figure 7, in the matter of characters' attributes, food appears as one of the most interesting items in connection to the characters' gender and age. Indeed, food appears as an attribute of girls but never of boys. At the same time, it rarely appears as an attribute of women while matching with men in both MA.05 and MA.10. It is also worth noticing that food appears differently, in combination with activities, depending on the sex of the characters referred to. In greater detail, food appears in combination with an occupational activity only in relation to masculine characters (two characters in MA.10, four in MA.05). As far as feminine characters are concerned, food is always associated with buying activities, domestic activities (such as baking, for example) and routine activities (such as eating). Despite the number of feminine characters being significantly less than the number of masculine ones, the number of feminine characters associated with food as an attribute exceeds that of masculine ones. Food appears as an attribute of 14% of the total number of feminine characters in the analysed texts. This percentage decreases to 4% in the case of masculine characters, highlighting a significant difference in terms of gendered attributes. Other interesting data concerning attributes are related to possession: in the case of feminine characters the texts often refer to the ownership of a house or a garden while in relation to masculine characters plots of land appear as additional attributes. Psychological attributes appear only in connection with boys. These data are explained by reference to "your beloved son" (*ibnukum al-muhibbu*) as the concluding formula of letters addressed by the students (who have to add their names in the ending line) to their caregivers in the textbook for grade 1. Such letters, including details to update the families with the educational content of the unit, are repeated (always using the same gendered conclusive formula, in the male) at the beginning of each unit in MA.01, as in the example below:

"الْوَحْدَةُ التَّمْهِيدِيَّةُ: الأعدادُ حَتَّى 20

أُسْرَتِي الْكَرِيمَةُ: بَدَأْتُ الْيَوْمَ أَنَا وَزَمَلَانِي دِرَاسَةَ الْوَحْدَةِ التَّمْهِيدِيَّةِ الَّتِي سَأَتَعَلَّمُ فِيهَا الْأَعْدَادَ حَتَّى الْعَدَدِ 20. لِنَقْدُمَ مَعَ النَّشَاطِ الْآتِي. لِأَنَّهُ سَيُسَاعِدُنِي عَلَى مُرَاجَعَةِ الْمَفَاهِيمِ الرِّيَاضِيَّةِ الَّتِي دَرَسْتُهَا سَابِقًا. وَأَحْتَاجُ إِلَيْهَا فِي دِرَاسَةِ هَذِهِ الْوَحْدَةِ."

Beginning letter of unit (MA.01, p.6). Personal translation: "My honourable family: today my colleagues and I began studying the preparatory unit, in which I will learn the numbers up to number 20. This is to do together the following activity, as this will help me to review the

mathematical concepts that we have studied before and that I need in the study of this unit. Your beloved son...”

Physical attributes are rarely mentioned. In this regard, it is worth noticing the difference in connection to gender. Physical attributes refer to sickness in two out of four total cases, equally addressing masculine and feminine characters. The remaining two occurrences relate to the loss of body weight in the case of a woman in MA.05 and to speed in the case of a male skier in MA.10.⁶⁵

The analysis of gendered characters' interactions is also very interesting. Out of the total number of gendered characters in texts, interactions involving masculine characters significantly exceed the number of interactions involving feminine ones.⁶⁶ Moreover, the percentage of feminine interactions out of the total of feminine characters is significantly smaller than the percentage of masculine interactions out of the total of masculine characters (22% in the case of feminine, 47% in the case of masculine interaction). As illustrated in Figure 8, relevant differences also relate to the kind of interaction. In the case of feminine characters, interactions are in most cases social (talking, celebrating, inviting, sharing) and/or take place in a school environment. With the single exception of a case of domestic cooperation between two feminine characters, feminine characters are not involved in cooperative interactions.⁶⁷ Differently, cooperative interaction (including acting together and helping each other, for instance) is the predominant type of interaction between masculine characters, at different ages. Indeed, cooperative interaction counts for 70% of masculine interactions.⁶⁸ It is noteworthy that the great majority of interactions involve same-sex characters. In the sample analysed, groups of people are usually referred to by the masculine plural form. Yet use of nouns in the feminine plural is frequent in the case of interactions involving a feminine character (the typical example is that of a teacher interacting with her female students).

5. Discussion and conclusions

The analysed sample provides relevant examples for application in the implementation of some strategies to safeguard gender inclusion and equity. For instance, the findings demonstrate consistency in the use of ungendered pronouns to refer to students and even caregivers. Nevertheless, the analysis of gendered characters in texts and images unveils the reproduction of unbalanced representations with few relevant exceptions (as in the case of equal involvement of characters of both sexes in domestic activities).

While, on the one hand, these unbalanced representations may be explained as intentionally aiming at encouraging the engagement of male students in order to counter the “reverse educational gap” experienced in the Jordanian educational system, on the other hand they contribute to the construction of a gender system that reproduces discrimination and patterns that foster female exclusion from relevant sectors of the labour market.

First, quantitative analysis highlights a lack of female role models. Indeed, male characters are substantially overrepresented in both texts and images. More than 67% of total gendered characters included in the sample (in both texts and images) are male. Boys outnumber men, being therefore the most often chosen characters to teach mathematics in the sample. The analysis also unveils a glaring lack of female figures, as females (in both texts and images) represent less than 33% of total gendered characters. Women are largely overlooked in comparison with girls, especially in images. Furthermore, the percentage of women compared to men decreases as the level of education increases. We can suppose this unbalanced representation as being part of a strategy to counter the mentioned “reverse gender gap” so as to encourage male students to identify with textbooks' characters and to build the self-confidence and self-esteem needed to apply themselves in the subject. Nevertheless, as far as female students are concerned, this lack of balance means a scarcity of female role models. As female role models are rare, girl students have less foundation for identification and projection into adulthood than their male counterparts, also affecting girl students' potential to project themselves into the labour market.

When we look at qualitative data concerning characters' profiles, the research unveils unbalanced representations as well. Feminine characters in texts are mostly designated through their first name, while masculine characters are introduced by different designation types of reference and appear therefore as integrated within wider social networks, including the labour market. Out of the total designations in the analysed sample, references to the occupational status affect 38% of adult women characters while this percentage rises to 60% in case of men in the sample. If we compare this data with the rate of the female working-age population in the Jordanian labour force in 2019, we may notice an attempt on the part of the textbooks to reflect a representation of a more gender equal reality. Indeed, the 38% percentage of adult female working characters in the sample is quite high when compared with the effective 13.4% rate of the Jordanian female population in the labour force.⁶⁹ Nevertheless, the reality reflected by the textbooks analysed is far from portraying gender equality in terms of occupational profiles. In particular, the analysis highlights the reproduction (and legitimization) of a gendered segregation at the level of the occupational market. Indeed, while female characters in the sample assume professional jobs or work in the public sector (especially as teachers) they almost disappear from the vocational sector.

Through these findings, this article supports and complements the results of previous studies that illustrated how patriarchy, as a social system, continues framing both the educational and the labour market in Jordan. In the framework at hand, patriarchy can indeed be understood as both the cause and the effect of the gendered representations affecting the sample analysed.

With regard to the educational reforms towards gender equality implemented through recent textbook revisions, the findings suggest that revisions did not manage to fully challenge the deeply rooted patriarchal belief systems of those who are involved in writing, reviewing and approving the textbooks. In particular, in the sample analysed vocational professions are predominantly carried out by male characters, reflecting and reiterating the idea that employment in a vocational job is not desired for women and that there is only a limited number of acceptable jobs for them. These findings contribute to our understanding of how the social stereotypes, described in the previously mentioned work of Banihani and Syed as influencing female work engagement at the level of the labour market, are reflected in textbooks. The findings of this study are also consistent with what Abu Jaber (2014) noted in her analysis of Jordanian textbooks for social studies, civic education, geography and vocational education. Two relevant features appear as being consistent with the findings of Abu Jaber: lack of mobility and access to benefits for females. Female characters in the sample analysed here are attributed very little or no mobility. Females (in particular adult women) have reduced access to recreational and occupational settings involving travel or outdoor activities. On the contrary, their activities appear as mostly limited to home or school settings. Moreover, while female characters in the sample have access to educational and financial resources, they enjoy minimal benefits from such access in terms of what is classified as "successful activities", such as making profit, saving money or excelling in some kind of activities.

Unbalanced gender representations in the sample extend to the realm of interactions. Interactions involving feminine characters are significantly less in number than interactions involving masculine characters. They are in most cases social interactions (talking, celebrating, inviting, sharing) and/or take place in a school environment, while cooperative interaction (including working together or pursuing a common goal together) affects predominantly masculine characters. As far as interactions are concerned, it is relevant to note that they usually involve same-sex characters. This last feature, especially as far as interactions in school spaces and environments are described, reflects the reality of gender-segregated schools in the Jordanian school system. Indeed, despite the majority of public schools being classified as "mixed" gender, schools comprise mixed classrooms only in early grades. Public school

classrooms are usually segregated by gender after grade 3.⁷⁰ Furthermore, the teaching workforce at public schools is also gender-segregated in accordance with the school's gender classification.⁷¹ Yet, as same-sex interactions in the analysed sample also involve characters acting in non-school environments, they represent and legitimize gender-segregation at socio-economic level, in a broader sense. This feature appears consistently through the different educational stages analysed in the sample.

In conclusion, the textbooks analysed maintain the legitimization of some unbalanced gendered representations that arguably affect female students' ability to project themselves into the labour market. Indeed, in the framework of the gender system constructed by the volumes in the sample, female adult role models are rare and women are portrayed as keen to enter education and science (somehow confirming the highlighted "reverse gender gap") but alienated from the wider social networks, relevant occupational sectors and cooperative interactions that characterize the labour market or constitute an asset inside of it.

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Disclosure statement

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Notes

1. Mernissi (1987, p. xxv) in Moghadam (2004).
2. Abbott (2017).
3. Al-Khatib (2020)
4. Chamlou et al. (2011), p. 3. About the so-called phenomenon of the "MENA paradox" see, Ragui et al. (2018).
5. Shteivi (2015), pp. 15–27.
6. Sharabi (1988); Moghadam (2004, pp. 137–162).
7. Moghadam (2004, p. 148).
8. Moghadam (2004).
9. In this regard, an interesting discussion is brought forward by Mancini (2012, pp. 411–428).
10. Tillion (1983).

11. Tillion (1983).
12. Moghadam (2004), op. cit., p. 145. See also, Moghadam (1998).
13. Moghadam (2004), op.cit., p. 157.
14. Abu-Lughod, 2002, pp. 783–90; Abu-Lughod (2009, pp. 83–103); Hasso (2009, pp. 63–82).
15. Adely (2012, p. 12).
16. For most recent examples see the contributions in Reda and Amin (2020).
17. See, Barrett (2017); Giulia Castegnaro, "Nazione e religione: le due facce della riforma dell'educazione in Giordania attraverso l'analisi diacronica dei capitoli inerenti ai diritti dell'uomo e della donna nel nuovo corso di religione" (Nation and Religion: The Two Sides of Jordanian Reform of Education through the Diachronic Analysis of the Chapters on Men and Women's Rights in the New Textbooks for Religious Education), unpublished MA thesis, Corso di Laurea Magistrale in Lingue, Economie e Istituzioni dell'Asia e dell'Africa Mediterranea, Università Ca' Foscari Venezia A.A., 2017/2018; and Nasr (2007).
18. Castegnaro (2018) op. cit.
19. See, Anderson (2001, pp. 5–14); Nasser (2004, pp. 221–249); Nasser (2019, pp. 181–218); Edres (20212021).
20. Adely (2012, op.cit., p. 32).
21. Adely (2012).
22. Such a claim of "religious neutrality" came together in the Amman Message in 2001, see <https://ammanmessage.com/> (accessed on 11 May 2021).
23. <https://www.al-binaa.com/archives/article/55630> and <https://alghad.com/%D8%B9%D8%A8%D9%8A%D8%AF%D8%A7%D8%AA-%D8%A7%D9%84%D9%85%D9%86%D8%A7%D9%87%D8%AC-%D8%A7%D9%84%D9%85%D8%AF%D8%B1%D8%B3%D9%8A%D8%A9-%D8%A8%D8%AD%D8%A7%D8%AC%D8%A9-%D9%84%D8%A5%D8%B5%D9%84%D8%A7%D8%AD/> (accessed on 11 May 2021). On university curricula see, Sowell (2017, pp. 153–163). To know more about gender bias in Jordanian textbooks before 2016 see, Alayan and Al-Khalidi (2010, pp. 78–96).
24. Tweissi et al. (2014, pp. 11–12).
25. Abu Jaber (2014); Adely, *Gendered Paradoxes*, op. cit.; Giulia Castegnaro, "Nazione e religione: le due facce della riforma dell'educazione in Giordania", op. cit.
26. With reference to the reverse gap in science assessments, Jordan ranked first, the UAE second, and Qatar fourth among all participating countries. QRF (Queen Rania Foundation; 2018, p. 2).

27. QRF (Queen Rania Foundation; 2018). See <https://timssandpirls.bc.edu/timss2015/international-data-base/> (accessed 18 November 2020).
28. QRF (Queen Rania Foundation; 2018).
29. Organisation for Economic Co-operation and Development (OECD; 2019), p. 26).
30. In 2019, only 13.4% of the female working-age population was in the labour force, compared to 61% of working-age males. World Bank (2020).
31. World Economic Forum (2018).
32. This appears as a common feature across Arab States, which have the widest gender gap in workforce participation globally at 55%. Data published in International Labour Organization (ILO), "World Employment and Social Outlook—Trends for Women 2017", Geneva: ILO.
33. Maram Al-Khatib (2020) op.cit.
34. Abbott (2017), op. cit., p. 18.
35. Banihani and Syed (2020, pp. 611–637).
36. Banihani and Syed (2020).
37. Tweissi et al. (2014) op. cit., pp. 11–12.
38. Tweissi et al. (2014 p. 11).
39. Tweissi et al. (2014).
40. World Bank, "Labor Force Participation Rate, Female and Male (% of Female and Male Population Ages 15+) (National Estimate)—2019", op. cit.
41. See, for example, the case studies analysed in Sundström (2002, pp. 193–205); Brajdic-Vukovic et al. (2007, pp. 32–53); Arijit and Mitra (2012, pp. 146–162); Tlaiss (2014, pp. 2858–2880). On the durability in contemporary times of basic stereotypes about how men and women are perceived to differ, despite changes in the participation and acceptance of women and men in non-traditional domains see, Haines et al. (2016, pp. 353–363).
42. Thébaud (2005), p. 27.
43. Following the definition of Bruguilles and Cromer (ibid., p. 14), a textbook is here conceived as an educational tool "usually consisting of text and/or illustrations—reviews, structures and renders accessible the state of knowledge in a given subject for a given age group in order to lay the foundations for standard learning and a shared culture. It thus transmits a society's cultural capital to its youngest citizens at a particular moment".
44. Ibid.
45. On gender bias in textbooks and the invisible obstacles to educational equality gender bias in textbooks see for example, Blumberg (2008, pp. 345–61); Stromquist et al. (1998) pp. 397–407; David et al. (2009); David and Zittleman (2007).
46. See note 51 for references.
47. Abu Jaber (2014 op. cit., p. 31).
48. Abu Jaber (2014 p. 42).
49. Carole Bruguilles and Sylvie Cromer, op. cit., pp. 28–29.
50. Bruguilles and Cromer (2009).
51. Bruguilles and Cromer (2009).
52. See, Bataineh (2014, pp. 113–127); Nofal Mohammad and Hanadi (2015, pp. 14–18); Hamdan and Jababneh (2009, pp. 52–56); Hamdan (2010, pp. 22–26); Shteiwi (2003, pp. 90–104); Mousa Shteiwi (1999); Raghda Ahmed Al-Ruba'i (1994); Alayan and Al-Khalidi (2010) op. cit., pp. 78–96; Al-Khalidi (2016, pp. 97–107); Ootom (2014, pp. 283–294); Georg-Eckert-Institut für internationale Schulbuchforschung, Braunschweig, "Educational Sector, Reforms, Curricula and Textbooks in Selected MENA Countries: Images of 'Self' and 'Other' in Textbooks of Jordan, Egypt, Lebanon and Oman", *Eckert.Analysen* 2011/1, 2009, pp. 13–27. Among the most recent studies on gender representation in Jordanian religious education see Giulia Castegnaro, "Nazione e religione: le due facce della riforma dell'educazione in Giordania", op. cit. and Eldad Pardo and Maya Jacobi, "Jordan's New Curriculum: The Challenge of Radicalism", *IMPACT-se*, Ramat Gan, August 2019, https://www.impact-se.org/wp-content/uploads/Jordans-New-Curriculum_Final.pdf, (accessed 9 February 2021).
53. Carole Bruguilles and Sylvie Cromer, Promoting Gender Equality through textbooks, op. cit., pp. 31–32. Several scholars highlighted gender discrimination in European textbooks for mathematics education. See for example, (on the German case) Ott (2015, pp. 52–6) and Ott (2016, pp. 65–72) and Moser and Hannover (2014, pp. 387–407).
54. UNESCO/Mahatma Gandhi Institute of Education for Peace and Sustainable Development (2017, p. 19). This idea has been at the core of recent research that included the analysis of mathematics textbooks (and RLC, real-life-connections) to evaluate the promotion of peace and sustainable development in conflict-related environments.
55. 'Omar Muhammad Abū Ghāliūn, Heba Māher al-Tamīmī, Ahmad Mahmūd al-Bashtāwī, *Al-Riyādiyyāt, Al-fasl al-dirāsiyy al-'awwal, Kitāb al-tālib 1*, Vol.1, Amman: The National Center for Curriculum Development, 2020. 'Omar Muhammad Abū Ghāliūn, Ahmad Mustafa Samāra, Shādiā Šālih Gharāyba, Jamāl Abdāllah Abu Najam, *Al-Riyādiyyāt, Al-fasl al-dirāsiyy al-'awwal, Kitāb al-tālib 5*, Vol. 1, Amman: The National Center for Curriculum Development, 2020. 'Omar Muhammad Abū Ghāliūn, Yūsef Šlīmān Jarādāt, Ibrāhīm Aqlah Al-Qādrī, Haytham Zuhayr Maršūd, *Al-Riyādiyyāt, Al-fasl al-dirāsiyy al-'awwal, Kitāb al-tālib 10*, Vol. 1, Amman: The National Center for Curriculum Development, 2020.
56. Cit. Carole Bruguilles and Sylvie Cromer, op. cit., p. 28.
57. Alexander and Welzel (2010, pp. 364–84) in Abu Jaber (2014 op.cit., p. 7).
58. The terms "feminine" and "masculine", used from here onwards, refer to the grammatical gender attributed to the characters in the analysed texts. The UNESCO guidelines categorize as "female" and "male" characters of unknown age. To avoid confusion, the terms "females" and "males" have not been used when referring to the total (characters of all ages, including unknown age). When referring to the total the terms "feminine" (including women, girls and females of unknown age) and "masculine" (including men, boys and males of unknown age), indicating the grammatical gender in the text, have therefore been preferred.
59. MA.05. Student book, p.29; 57.
60. In the sample analysed, inventions are considered among successful activities, together with making a profit, saving money and excelling in something.
61. In the sample analysed, only cases of characters were explicitly attributed a mistake in doing something (a calculation, for instance) have been considered as examples of negative activities.
62. Abu Jaber (2014 op. cit., p. 18).
63. Abu Jaber (2014 p. 31).
64. See Assaad Ragui, Hendy Rana, Lassassi Moundir and Yassin Shaimaa, "Explaining the MENA Paradox: Rising Educational Attainment, Yet Stagnant Female Labor Force Participation", op. cit.
65. MA.05. Student book, p. 22; MA.10. Student book, p. 19.
66. In the sample considered, the author of this study noted 93 cases of interactions involving masculine

characters, and 21 cases of interactions involving feminine characters.

67. MA.01. Student book, p. 33. In this case cooperative interaction between two female characters (Heba and her mother) happens in a domestic environment and involves a domestic/routine activity (Heba helps her mother cooking).
68. 65 cases out of a total of 93.
69. World Bank, "Labor Force Participation Rate, Female and Male (% of Female and Male Population ages 15+) (National Estimate)—2019", op. cit.
70. QRF (Queen Rania Foundation; 2018, op. cit., p. 1).
71. QRF (Queen Rania Foundation; 2018, p. 2).

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