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Postgraduate Dissertation

Diversity, Equity, Inclusion in language education digital platforms:
The Duolingo case study

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Patras, July 2023

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Diversity, Equity, Inclusion in language education digital platforms:

The case of *Duolingo*

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“Expressing gratitude entails the risk of sounding mawkish. However I would like to thank my two Gs, Giorgos and Georgia, for the unconditional love and support they have offered me all these years. I could never forgo expressing my utmost appreciation to the LRM community, for this program has offered me a once in a lifetime opportunity to accumulate invaluable knowledge and pursue self-development. To the DPS, the supervisors, the coordinators and tutors I have collaborated with I express my sincere gratitude. Last but not least, I wish to thank my supervisor, Dr Sofia Tromara, whose inspirational counsel, wise guidance and immense patience allowed me to fulfill my academic endeavour.”

Abstract

The learning process, as well as both the overt and covert aspects of a curriculum, is greatly aided by the use of textbooks and other educational resources. Students may be exposed to gender biases as part of a concealed educational program, which could impact not only their comprehension of gender roles but also their own growth, intellectual progress, and personalities as they pertain to their academic and professional pursuits.

With these considerations in mind, this thesis is built around the goal of presenting and analysing the significant issues of Diversity, Equity, and Inclusion in the field of language education digital platforms, with a focus on the Duolingo digital learning platform as an illustrative case study.

Consistent with these aims, the current project also seeks to investigate the link between gender equity and quality in education, as well as the criteria for identifying gender discrimination in teaching materials, and to examine the theoretical clarification of the most significant issues in the context of gender mainstreaming policies, the Beijing Convention for equitable treatment of women, and women's rights.

In addition, one more significant theoretical goal of that study is related to providing answers to essential questions about the investigation as regards the existence of gender asymmetry in the content of all texts, along with the resultant assessment of previous studies that are pertinent to the topic at hand. One of the objectives of the current study is related to the presentation and analysis of relevant previous studies involving teachers' perspectives in relation to the problem of gender stereotypes in line with the investigation of gender equity in digital environments/information and communication technology (ICT).

Moreover, utilising the methodological framework of case study analysis, this project attempts to present the issue of occupational roles in relation to the Duolingo digital learning platform, in accordance with the Examination of the issue of LGBTQ (lesbian, gay, bisexual, transgender, queer, or questioning) representation in both private and public life through Duolingo, along with the examination of the issue of Duolingo's inclusive language.

Keywords: Gender Equity, Gender Discrimination in Teaching Materials, Duolingo Digital Learning Platform, LGBTQ

Ετερότητα, Ισότητα, Συμπερίληψη στις ψηφιακές πλατφόρμες
γλωσσικής διδασκαλίας: Η περίπτωση της πλατφόρμας
Duolingo”

Στυλιανός Γιαννούτσος

Περίληψη

Η μαθησιακή διαδικασία, καθώς και οι φανερές και οι κρυφές πτυχές ενός προγράμματος σπουδών, βοηθούνται σε μεγάλο βαθμό από τη χρήση σχολικών βιβλίων και άλλων εκπαιδευτικών πόρων. Οι μαθητές μπορεί να εκτεθούν σε προκαταλήψεις ως προς το φύλο ως μέρος ενός κρυφού εκπαιδευτικού προγράμματος, το οποίο θα μπορούσε να επηρεάσει όχι μόνο την κατανόηση των ρόλων των φύλων αλλά και τη δική τους ανάπτυξη, πνευματική πρόοδο και προσωπικότητά τους όσον αφορά τις ακαδημαϊκές και επαγγελματικές τους επιδιώξεις.

Έχοντας υπόψη αυτές τις σκέψεις, αυτή η διατριβή βασίζεται στο στόχο της παρουσίασης και ανάλυσης των σημαντικών θεμάτων της Διαφορετικότητας, της Ισότητας και της Ένταξης στον τομέα των ψηφιακών πλατφορμών γλωσσικής εκπαίδευσης, με έμφαση στην ψηφιακή πλατφόρμα εκμάθησης Duolingo ως ενδεικτική περίπτωση. .

Σε συμφωνία με αυτούς τους στόχους, το τρέχον έργο επιδιώκει επίσης να διερευνήσει τη σχέση μεταξύ της ισότητας των φύλων και της ποιότητας στην εκπαίδευση, καθώς και τα κριτήρια για τον προσδιορισμό της έμφυλης συμπεριφοράς στο διδακτικό υλικό και να εξετάσει τη θεωρητική αποσαφήνιση των πιο σημαντικών ζητημάτων στο πλαίσιο του φύλου, την ενσωμάτωση των πολιτικών, τη Σύμβαση του Πεκίνου για την ίση μεταχείριση των γυναικών και τα δικαιώματα των γυναικών.

Επιπλέον, ένας ακόμη σημαντικός θεωρητικός στόχος αυτής της μελέτης σχετίζεται με την παροχή απαντήσεων σε βασικά ερωτήματα σχετικά με την έρευνα όσον αφορά την ύπαρξη ασυμμετρίας φύλου στο περιεχόμενο όλων των κειμένων, μαζί με την προκύπτουσα αξιολόγηση προηγούμενων μελετών που σχετίζονται με το θέμα. στο χέρι. Ένας από τους στόχους της παρούσας μελέτης σχετίζεται με την παρουσίαση και ανάλυση σχετικών προηγούμενων μελετών που αφορούν τις απόψεις των εκπαιδευτικών σε σχέση με το πρόβλημα των στερεοτύπων φύλου σε ευθυγράμμιση με τη διερεύνηση της ισότητας των φύλων σε ψηφιακά περιβάλλοντα/τεχνολογία πληροφοριών και επικοινωνίας (ΤΠΕ).

Επιπροσθέτως, αξιοποιώντας το μεθοδολογικό πλαίσιο ανάλυσης μελέτης περίπτωσης, η παρούσα εργασία επιχειρεί να παρουσιάσει το ζήτημα των επαγγελματικών ρόλων σε σχέση με την ψηφιακή πλατφόρμα εκμάθησης Duolingo, σύμφωνα με την Εξέταση του ζητήματος της ΛΟΑΤΚΙ (Λεσβία, Ομοφυλόφιλος, Αμφιφυλόφιλος, Τρανσέξουαλ, Queer, ή Ιντερσεξ) αναπαράστασης τόσο στην ιδιωτική όσο και στη δημόσια ζωή μέσω του Duolingo, μαζί με την εξέταση του ζητήματος της συμπεριληπτικής γλώσσας της Ψηφιακής Εκπαιδευτικής Πλατφόρμας Duolingo.

Λέξεις – Κλειδιά Ισότητα των φύλων, Έμφυλες Διακρίσεις στο διδακτικό υλικό, Duolingo Ψηφιακή Πλατφόρμα Μάθησης, ΛΟΑΤΚΙ

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List of Abbreviations & Acronyms

BPFA: Beijing Platform for Action

CSW: Commission on the Status of Women

EIGE: European Institute for Gender Equality

ESCWA: Economic and Social Commission of the United Nations for Western Asia

ICT: Information Communication Technologies

IWD: International Women's Day

LGBTQ: Lesbian, Gay, Bisexual, Transgender, Queer or Questioning
(ΛΟΑΤΚΙ: Λεσβίες, Ομοφυλόφιλους, Αμφιφυλόφιλους, Τρανς, Queer και Ίντερσεξ άτομα)

OECD: Organization for Economic Cooperation and Development

SDG: Sustainable Development Goals

UN: United Nations

UNDP: United Nations Development Plan

UNESCO: United Nations Educational, Scientific and Cultural Organization

WSIS: (United Nations) World Summit on the Information Society

Introductory theoretical remarks

Since 70–95% of class time is spent using textbooks, their major impact has been recognized by a number of academics (Sadker & Zittleman, 2007). This can be attributed to the fact that textbooks are used 70–95% of the time in classrooms, as Goyal & Rose (2020) have underlined.

Both the overt and covert parts and functions of the educational system, and especially textbooks, develop and formulate knowledge, attitudes, ideologies, behaviours, including stereotypes and perceptions of inclusion vs. exclusion, in other words formulate a social construction or the social structure (Brugeilles & Cromer, 2009). More specifically, the hidden curriculum is also believed to be a schooling as a socialization process (Brugeilles & Cromer 2009; Kentli, 2009) According to Odhiambo (2012); Samadikhah & Shahrokhi (2015) students may be influenced in their individual and intellectual growth as well as in how they behave in very biased ways (Odhiambo, 2012), as a result of the hidden curriculum that is correlated to gender prejudices that are concealed in it. In accordance with the above, students' beliefs about gender roles may be influenced by the biased representations which produce and reproduce stereotypes, discriminatory language, non gender neutral language etc. Hence this biased representation of males and females in educational materials may also limit the relationships between male and female students and subsequently restrict the conceptualization of students' current and future identities, espousing their educational and professional paths, as Samadikhah & Shahrokhi (2015) support.

As gender inequity, despite all efforts, still exists, a number of governments, have issued guidelines for the formation of gender-fair societies, such as the human rights programs run by UNESCO. Additionally, the European Institute for Gender Equality (EIGE) (2023a) promotes the implementation of gender mainstreaming policies, which are an integral part of the 4th World Conference in Beijing (1995), a landmark for the progress of women and gender equality and for humanity in general. As a method for achieving gender equality, the practice of "gender mainstreaming" has received widespread support on a global scale. It entails incorporating gender perspectives into the composition, development, execution, tracking, and assessment of policies, regulations, and expenditure programs, with the intention of advancing gender equality and eliminating prejudice. Gender mainstreaming guarantees that policy-making and legislation work is of higher quality and more relevant to the community, since it enables policies react more efficiently to the requirements of all citizens – women, men, girls, and boys, while targeting specifically at the empowerment of women. Gender mainstreaming increases the effectiveness of public interventions and prevents the perpetuation of inequalities. (European Institute for Gender Equality, 2023a).

However, multiple studies (in the United Kingdom, Australia and Russia, just to name a few) (Odhiambo 2012; Samadikhah & Shahrokhi, 2015) on genderism in language textbooks have found gender imbalances and stereotyped images. Historically, investigations into gender within materials have primarily involved quantitative methodologies, such as the enumeration of male and female characters and images, as well as qualitative approaches, such as the examination of thematic content. According to Lee (2014), there are five prevalent forms of gender inequality, which include gender stereotyping, differential visibility of females and males, utilization of gender-biased language, male-firstness and asymmetrical female address titles (European Parliament, 2018).

By taking into consideration the above this thesis is construed around the aim of presenting and analyzing the substantial issues of Diversity, Equity, Inclusion in the field of language education digital platforms by stressing specifically on the illustration case study of Duolingo digital learning platform.

In line with the above additional objectives of the current project constitute the examination of the conceptual clarification of the most substantial issues in line with putting an emphasis on gender mainstreaming policies-Beijing Convention for gender equity-women's rights, along with investigating the connection of gender equity with quality in education accompanied with the examination of the criteria for identifying genderism in teaching materials.

Also, one other important theoretical objective of that project is related to give answers regarding crucial queries concerning the investigation as regards the existence of gender asymmetry in the content of all texts accompanied with the consequential examination of relevant past studies

Moreover on other objective of the present study is related to the presentation and analysis of relevant past studies concerning Teachers' perceptions in relation to the issue of gender stereotypes in line with the examination of the gender equity in digital environments/ ICT.

Furthermore, this project by using the methodological framework of case study analysis tries to present the matter of occupational roles concerning Duolingo digital learning platform, in line with the Examination of the matter of LGBTQ (lesbian, gay, bisexual, transgender, queer or questioning) representation in private and social life through Duolingo accompanied with the examination of the matter of Duolingo's inclusive language.

Chapter 1: Examining the issue of gender equity and gender discrimination in teaching materials

1.1 Gender discrimination and language

To begin, it is of the utmost significance to point out that there are specific ideas that are frequently found while discussing problems associated with gender inequality. It is important to note, in light of what has been discussed above, that a person's gender is just one facet of their whole identity. Exploring the oppression, power, and privilege that are linked with gender requires taking into account a number of other social qualities that are intertwined with gender and help determine an individual's identity. These traits must be evaluated.

Oppression, when used in its conventional sense, refers to the imposition of authoritarian rule by a dominant group. Nevertheless, oppression is the root cause of injustice in a variety of other contexts as well. It is not always the case that cruel tyrants with evil motives oppress the populace. In certain situations, even a liberal society with good intentions can restrict the freedom of certain people by imposing system-wide limits on them. It is possible for a small number of people's decisions or policies to be the root cause of established, accepted norms, routines, and symbols that lead to oppression. These laws of society can turn into a restraining system of forces and obstacles that render a group or category of individuals immobile and decrease their potential (Young, as it is referenced in Heldke & O'Connor, 2004). In line with the above as Young has underlined (as it is referenced in Heldke & O'Connor, 2004) people are engaging in oppression whenever they take away the opportunities of other individuals to be completely human. In other words, oppression occurs when one group of people dehumanizes another group of people. This can entail behaving in a manner that is dehumanizing toward them. However, this might also entail depriving people the ability to speak their own language, receive an education, and other chances that could help them grow fully human in mind and body and when they create and sustain, through specific mechanisms, oppressive or inequitable processes and structures.

The term "genderism" refers to a combination of views, attitudes, and practices that are relied on in order to establish social inequity at the expense of one gender and its discriminatory treatment. Genderism may also be defined as the discriminating treatment of one gender. Women, as a social group, are considered subordinate to men, and as a consequence, they are mistreated and systematically exploited by men due to patriarchal

divisions of power. The majority of people who are affected by genderism are women. In addition, it is important to keep in mind that males and females do not constitute a single social group; as a result, not all men have superior power over all women. Genderism is an ideological and symbolic weapon that interprets and justifies numerous social actions as “natural” in order to defend and sustain gender imbalance and inequitable relations in all spheres of life, such as economy, education, society, politics etc.. Educational systems that do not challenge the genderist mindset unquestionably contribute to the perpetuation and replication of gender imbalance. As a result, genderism has no place in the modern democratic classroom (European Parliament, 2018; Odhiambo 2012; Samadikhah & Shahrokhi, 2015).

Gender-neutral language is a broad word that encompasses the usage of non-sexist, inclusive, or gender-equal terminology. The goal of gender-neutral language is to prevent using words that could be construed as prejudiced, discriminatory, or insulting if they imply that a particular gender or sexual orientation is the norm. Gender-neutral and inclusive language also helps to decrease gender stereotyping, fosters social transformation, and contributes to gender equality (European Parliament, 2018).

According to the guidelines of the United Nations gender-inclusive language (2023) instructions are provided which are related to a vast array of various strategies that can assist staff members at the United Nations in using language that is gender-inclusive. They can be utilized for any mode of communication, be in written or verbal, casual or formal, directed toward an either inside or outside audience, and so on. When determining which strategies to implement, the staff of the United Nations should consider the sort of text or oral communication being used, the context in which it will be received, the audience, and the objective of the communication; Additionally the staff of the United Nations should ensure that the material is readable, and that both the written and oral message is crystal clear, easy to follow, and succinct. Also, the staff of the United Nations should make it a goal to utilize a variety of approaches at various points in the written or vocal message (United Nations, 2023).

This specific approach is crucial, as language has the power to shape how we interpret the entire world and to form our thoughts along with behaviours and attitudes, hence how we construct the reality about gender in general and gender roles and relations, specifically. Therefore, it is a powerful mechanism to promote gender equality and reinforce equity between men and women, while on the contrary, when it is discriminatory or non-inclusive it poses and promotes stereotypes and barriers against women’s development (UNDP Turkmenistan, 2023)

According to the above definition, gender stereotypes are common oversimplified images that hold a society about the characteristics that the genders have or should have—

without taking into account the various gendered individual differences between the subjects—and which are frequently accompanied by prejudices that fluctuate from a favorable or unfavorable predisposition and attitude. Gender stereotypes are strongly ingrained in each social group's social views and cultural traditions (Ballantine & Hammack, 2011). Stereotypes are not only symbolic, but also have concrete manifestations of inequitable distribution of opportunities and progress in all spheres of human life, as we already mentioned, and affect future academic progress and career choices of women

Non-genderist educational material is defined by the absence of traditional stereotypical gender divisions, the presence and contribution of women, and the inclusion of the changing roles of men and women. The non-genderist approach is one that presents equal gender models in traditional and non-traditional roles while remaining neutral in its challenge to these gender stereotypes. It is considered anti-genderist educational material when not only genderism and gender discrimination are absent but also alternative views and proposed roles are provided so that reality is depicted more accurately and thus towards equality. Anti-genderist educational materials are those that encourage students to question genderism and gender inequality critically and take action to eliminate them (Odhiambo 2012; Samadikhah & Shahrokhi, 2015).

By examining the critical issue related to the main guidelines for detecting genderism in teaching material, it is deemed crucial to note that genderist teaching material reveals to students that their abilities, skills, professional choices, behaviors, and overall capabilities are defined and determined based on their gender. The effect of discriminatory material on the identity formation of boys and girls is a topic of particular interest to educators, in addition to learning itself. Educators should have the experience and knowledge to detect genderism in the teaching material and the expertise to proceed with the selection or production of additional non-genderist material in order to assess these effects and reduce their destructive effects (Ullah et al., 2014)

1.2 Gender mainstreaming policies-Beijing Convention for gender equity-women's rights

In the Beijing Platform for Action from 1995, the 12 most important areas that need immediate action to ensure more equal chances for women and men, girls and boys, were outlined. In addition to this, it outlined specific actions that nations might take to bring about transformation. In order to make this kind of change a reality for women and girls all across the world, UN Women collaborates with governments and other partners (United Nations Women, 2023).

The Beijing Declaration and Platform for Action is a forward-thinking plan that was developed with the purpose of empowering women. It additionally serves as one of the standard frameworks that are used aiming at the examination of the initiatives of states in favour of women's empowerment and to analyze the condition of women all over the world (United Nations Economic and Social Commission for Western Asia, 2023).

The Beijing Declaration and Platform of Action, adopted by consensus in 1995 after the Fourth World Conference on Women consisted of more than 40,000 government representatives, specialists, and civil society representatives. This declaration can be perceived as a representation of the international community's commitment to achieving gender equality and providing better opportunities and empowerment for women and girls. The Platform of Action is a continuation of the international community's commitment to addressing civil, political, social, economic, and cultural inequalities. It constitutes a response to the collective effort of girls and women within the world who have fought for gender equality and women's rights. It affirms that women's rights must be perceived as fundamental to humanity and that equality between women and men is linked to prosperous societies with economic sustainable development. (United Nations Economic and Social Commission for Western Asia, 2023).

The Platform also establishes a plan of action for worldwide organizations, nations, civil organizations, public institutions and the economic sector to follow in order to protect the human rights of women and to guarantee that gender provisions are incorporated into all policies and programs at a national, regional, and worldwide level (United Nations Economic and Social Commission for Western Asia, 2023).

The Commission on the Status of Women (CSW) meets once every five years to evaluate the progress that has been made in putting into action the Beijing Platform for Action (BPFA). In this regard, and ever since the first review was conducted in the year 2000, the UN's Regional Commissions, one of which is the Economic and Social Commission of the United Nations for Western Asia (ESCWA), have been tasked with the responsibility of preparing, working together with other regional bodies, regional reports on the advancements that have been made toward the implementation of the Beijing Platform for Action (BPFA) (United Nations Economic and Social Commission for Western Asia, 2023).

These reports are derived from national reviews that have been carried out in each of the countries that are members of the United Nations. These national reviews are then incorporated into a global report that is compiled by the Commission on the Status of Women Secretariat at UN Women and is presented to the General Assembly by the Secretary General (United Nations Economic and Social Commission for Western Asia, 2023).

Until now, there have been a total of five reviews, which took place in the years 2000, 2005, 2010, 2015, and 2020 respectively. The culmination of each review was the creation of

an outcome document, in which participating nations made a commitment to go on working toward the fulfilment of global obligations pertaining to the rights of women and girls. The outcome document provides greater explanation of the priority measures that should be taken during the next five years (United Nations Economic and Social Commission for Western Asia, 2023).

Since the pre-conference phase of the Fourth World Conference on Women, Economic and Social Commission for Western Asia has taken the lead in assisting Arab countries in implementing the Beijing Declaration and Platform of Action. As it has in the past, Economic and Social Commission for Western Asia is going to assist Arab nations get ready for regular local and regional reviews, as well as to implement global recommendations made in the wake of those reviews (United Nations Economic and Social Commission for Western Asia, 2023).

1.3 Gender equity and quality in education Sustainable Development Goals 4 & 5 (SDG4, SDG5)

The Sustainable Development Goals are a call to action for all countries, whether they are low, high, or middle-income, to foster economic growth while also preserving the environment within a global perspective. They acknowledge that putting an end to poverty must go hand in hand with measures that generate revenue for the economy and address a variety of social needs such as health, welfare, schooling, and job opportunities, all while addressing climate change and protecting the environment. Thus 4th SDG of UNESCO is related with the provision of quality education. Concurrently 5th SDG of UNESCO is correlated with the attainment of gender equality and consequential empowerment of all women and girls (United Nations Educational, Scientific and Cultural Organization (UNESCO) Sustainable Development Goals, 2022a).

It is essential to the development of a peaceful and prosperous world to offer high-quality education accessible to everyone. Education equips people with the understanding and abilities necessary to maintain their health, secure employment, and cultivate compassion and global awareness as a part of the modern citizen (United Nations Educational, Scientific and Cultural Organization (UNESCO) Sustainable Development Goals, 2022a).

However, the Covid-19 spread has resulted in a crisis in schooling all across the world. The majority of the world's educational systems have been adversely impacted by educational interruptions and have been put up against difficulties that have never been seen before. The global pandemic has forced the closure of schools, which has had a catastrophic impact on the children's ability to learn and their overall health (United Nations Educational,

Scientific and Cultural Organization (UNESCO) Sustainable Development Goals, 2022a). Most education systems in the world have been severely affected by education disruptions and have faced unprecedented challenges. School closures brought on by the pandemic have had devastating consequences for children's learning and well-being (United Nations Educational, Scientific and Cultural Organization (UNESCO) Sustainable Development Goals, 2022a). Some 147 million students are thought to have missed over fifty percent of their classroom time over the two years preceding this one. It is possible that the next generation will lose \$17 trillion in present-day income. UNESCO is responding with a series of efforts, such as worldwide surveillance of local and regional closures of schools, to encourage international cooperation and guarantee that education is always available (United Nations Educational, Scientific and Cultural Organization (UNESCO) Sustainable Development Goals, 2022a).

In March of 2020, UNESCO launched the Covid-19 Global Education Coalition. This coalition is a multi-sector collaboration among the UN family, civil society organizations, the Media and IT collaborators to design and deploy innovative solutions. The goals of the coalition are to safeguard the well-being of children and ensure that they have access to continued learning. During this time of abrupt and unprecedented upheaval in the educational system, they work together to assist nations in addressing content and connection issues and in facilitating equitable educational possibilities for children and young people (United Nations Educational, Scientific and Cultural Organization (UNESCO) Sustainable Development Goals, 2022a).

The Global Education Coalition's specific mission is related in the provision of assistance in organizing funds and carrying out creative and context-appropriate solutions for providing education remotely, making use of hi-tech, low-tech, and no-tech approaches; also, it is related in trying to find fair answers and equal opportunity accompanied with a possible maintenance of synergy between answers and prevent duplication of effort as well as preventing a rise in dropout rates, further it is considered important to help kids get back to school when classes resume (United Nations Educational, Scientific and Cultural Organization (UNESCO) Sustainable Development Goals, 2022a).

Gender equality is not only a basic human right, but also an essential building block for a more peaceful, wealthy, and environmentally sustainable world. The world is not on track to achieve gender equality by the year 2030 despite the fact that there has been progress over the past many decades. The COVID-19 pandemic has had both social and economic effects, all of which have contributed to an additional deterioration of the state of affairs. There has been insufficient progress made in a number of areas, including the quantity of time devoted to unpaid childcare and domestic work, making choices regarding reproductive and sexual health, and budgeting that takes gender into account (UNESCO, 2022b).

The already underfunded system of women's health care has been severely disrupted. Persistent violence against women is a global problem that has been exacerbated due to the pandemic. While women have taken the lead in the fight against Covid-19, they still lag behind males in achieving parity in decision-making roles. Committed and persistent actions are needed to expedite progress, including the advancement of legislation, regulations, budgets, and organizations which promote gender equality. This includes promoting gender equality in the workplace and also implements actions against the gendered digital divide (Organization for Economic Cooperation and Development-OECD, 2020; UNWOMEN Asia and Pasific, 2023). In light of the fact that just over fifty percent of the data needed for tracking Goal 5 are currently accessible, greater investment in statistics on gender is also absolutely necessary (UNESCO, 2022b).

To lessen the effects of the Covid-19 crisis and ensure that women and girls benefit from the long-term recovery, UN Women is preparing a swift and effective response centred around five priorities: (EIGE, 2023b)

- The prevalence of all forms of violence against women is decreased, including domestic violence.
- As a result of stimulus programs and other forms of social safety nets, women and girls benefit.
- People believe in and actively engage in a system of shared caregiving.
- COVID-19 response strategy and choice-making is led by and includes girls and women.
- The inclusion of a gender lens in data collection and coordination systems (United Nations Educational, Scientific and Cultural Organization (UNESCO) Sustainable Development Goals, 2022b).

1.4 Criteria for identifying gender-discriminatory language in teaching materials

The predominant manifestations of bias documented globally in educational resources pertain to the portrayal of genders in terms of quality and quantity, as well as the utilization of language that is discriminatory towards a particular gender. The following items are:

The phenomenon of a social group's invisibility, whether complete or partial, in conjunction with the utilization of gender stereotypes as a means of exemplifying roles, occupations, behaviors, and activities, serves to depict any given social group in a positive or negative perspective. A common manifestation of prejudice pertains to the notions of inequality and selectivity. This occurs when a singular perspective or interpretation of a given

issue, such as a particular situation, social phenomenon, or social group, is exclusively presented. Omitting crucial dimensions can lead to a distortion of intricate matters, as oversimplified renditions tend to do (Ullah, et al, 2014).

Moreover, bias can manifest itself through the presentation of an unrealistic portrayal of the world, wherein certain topics that may be deemed unsuitable for children or have the potential to cause distress are significantly omitted. Issues pertaining to prejudice, racism, gender inequality, poverty, exploitation, abuse, and other related topics are frequently suppressed. As a result, the potential for children to comprehend these matters and for societal intervention is diminished. The most common types of prejudice that can be found in educational materials all over the world are also linked to the segmentation and isolation of certain subjects. For these subjects, it is thought to be appropriate to have a “special” chapter in the book or a “separate” paragraph, rather than their integration or diffusion in the whole. This is one of the most pervasive forms of prejudice that can be found in educational materials (Gouvias & Alexopoulos, 2018).

Since language itself may be a substantial source of bias, other types of prejudice, such as gender discrimination in language, can be discovered in educational materials used all over the world. In addition, there is the possibility of including gender in a variety of different ways, along with the illusion of gender equality. The most recent type of bias that can be found in educational materials is a relatively new phenomenon. This is because, in recent years, these issues have more systematically concerned the educational community in several countries. This type of bias refers to the act of naming or declaring a material as non-genderist for communicative or other reasons, when in reality, the detailed analysis proves otherwise (Odhiambo 2012; Samadikhah & Shahrokhi, 2015).

1.5 Queries concerning gender asymmetry in the content of all texts accompanied with relevant past studies

Aligned with the aforementioned objective of exploring the potential presence of gender asymmetry in textual content, there exist a multitude of critical inquiries that are deemed imperative to investigate. To provide an example:

These queries are related with the gender composition of the authors of the chosen textbooks and written materials in combination with the issue of content exhibition concerning gender stereotypes. One other crucial issue is correlated with exploring the vast array of typical behaviors and roles associated with each gender in line with exploring the specific role of women, particularly in this context. One other issue is related with the possibility of utilizing the same text in the event that gender-based social roles were inverted,

such as that males were substituted for females and vice versa (Odhiambo 2012; Samadikhah & Shahrokhi, 2015).

Research has also focused on the exploration of the existence of a possible gender disproportionate representation combined with the examination of the issue of identifying which characters hold the most power and influence. One other critical issue under the spotlight is connected with the definition of the gender of the protagonist in line with investigating and identifying probable similarities in the attributes that heroes and heroines are revered for in combination with recognizing the possibility if males and females adhere to the same standards of accomplishment. What is more, one other substantial issue has to do with the exploration of a possible existence of a correlation between gender and leadership traits and skills accompanied with the examination of the gender that is more likely to offer dependable and empirically supported solutions and effectively address the issues at hand. Additionally, crucial can be regarded the probable existence of a discourse surrounding social issues that pertain to gender, or exploring the possibility that they regarded as inexorable outcomes of biological gender. Also, it is regarded of utmost importance exploring the existence of a probable correlation between gender and the distribution of power regarding poverty and social exclusion (Gouvias & Alexopoulos, 2018).

By considering the above queries it can be seen as an additional substantial issue the exploration of the subject matter if women constitute the root of the problem combined with the investigation of the issue regarding the investigation of which gender is more likely to engage in disruptive or accepting actions in response to the content. Additionally, research needs to pay attention to the reasons that one gender is not mentioned. In accordance with the above research tried to explore the extent according to which women seem physically capable of “caring” while males are seen as “taking responsibility”, “being professionally successful, and not typically referred to as roles of ‘partners’ and ‘fathers’”. Accordingly, one can easily wonder about the possibility that women become successful because of their own initiative and access to social resources, or because they are attractive and/or because they have positive relationships with the men in their lives (fathers, brothers, partners, relatives, professionals) (Gouvias & Alexopoulos, 2018).

In accordance with the above one other query of considerable importance is related to the identification of what kind of conventional/stereotypical roles do women play, and what kind of creative roles may introduce. Based on the characteristics assigned to the female and male characters, arises also the need of investigating the types of male and female personalities that this situation outlines. Also, queries are raised concerning the quantity of the presence of men and women, and the extent according to which they appear (Ullah et al., 2014).

In addition to that, significant concerns have been voiced regarding the potential oppression of women that is better understood in a context of a symptom of society as a whole or in a context of an unavoidable form of natural law. Researchers also tried to answer if there a distinction that can be made between “men’s” and “women’s” work in the fields in which both men and women appear to be employed. Also, concerns raised concerning the probable existence of a gender gap relating to the manner that women and men behave in their workplace in combination with their way of conduct in their professional context. What is more, additional significant concerns are related to the possible existence of equal numbers of women working in traditionally “male” professions, such as those in science and technology in alignment with the issue if women have started to see more guys working in historically female- dominated fields. (For example, a stenographer or a teacher at a kindergarten). One other set of probable queries is related to the possibility of existence of a significant number of women working in positions of global prominence and is also related to the possibility of their existence at the highest levels of the administrative hierarchy accompanied with the probability of existence of programs designed to encourage women to pursue careers. Also, vivid and crucial remains the concern which is related to the query if males and females are exposed to the same levels of professional development opportunities accompanied with the existence of a possibility that there is a probable connection between the preconceived views regarding gender roles and the kinds of jobs that young men and women declare they want to do in the future. In addition to the above crucial also remain queries which are correlated to the identification of the gender that is typically associated with positions of power and authority in line with the question if women typically cast in supporting or secondary roles. Moreover, additional queries are correlated to the existence of any kind of references made to individuals’ family lives, in combination with the query of what kinds of roles do the various members of the family play in the household accompanied with the family types that are depicted the most often (Gouvias & Alexopoulos, 2018; Yasin et al. 2012).

The following is an additional question that must be taken into consideration, as it is seen as being of the utmost importance and is correlated to the manner that exactly responsibilities within the family divide up in line with the manner that each member of the family spends their time while they are not working. In agreement with the aforementioned again crucial remains the question concerning the aspects of a person’s social life in relation to the possibility of individuals’ equal participation. Also, concerns exist regarding the possibility of existence of a variety of viewpoints, both true and realistic regarding male and female characters, as well as alternate ways of living, accompanied with the query if these views are featured at all levels. In line with the above if that is the case vivid remains the

query regarding the kinds of critical assessments and remarks that are made accompanied with the question of how often do they occur (Gouvias & Alexopoulos, 2018).

As Gouvias and Alexopoulos (2018) have commented, the usage of the term "genderism" refers both to an ideology as well as a set of views and social behaviors that demean individuals based on their gender and contribute to widespread prejudice against them. In line with the above, genderism can be thought of as both an ideology and a set of beliefs and social practices.

In alignment with the above Gouvias and Alexopoulos (2018) have commented upon the fact that "language, in a way that it constitutes a fundamental tool employed in every interaction in the day-to-day lives of persons and provides the primary means of expressing one's own self is an essential component of human communication and it may consequently be regarded as an implication of the existence of overt or veiled asymmetries that can be discerned to exist between different power positions. According to Gouvias and Alexopoulos (2018), the aforementioned can be regarded as a crucial point in the appearance and realization of genderism. This can be attributed to the fact that language is a central instrument used for every kind of contact concerning persons' daily lives.

Moreover, Sunderland (2011) does not neglect to put an emphasis on the fact that the power dynamics that exist between the genders are also reflected in language. The use of language has, throughout the course of human history and in every culture that has been constructed around patriarchal ideas, functioned in a way that normalized and sustained men's oppression of women.

A collection of thoughts about how people in general construct their perceptions about gender is often referred to as "gender discourses," as Eckert and McConell-Ginnet (2003) have commented upon. These ideas are often correlated to widespread "stereotypes" about "gender roles," which can be defined as "a uniformed mental representation that may be perceived as a reflection of a simplified too much opinion, predisposed attitude or judgment that is uncritical with regard to the mental and physical characteristics and/or expected conduct of one gender versus the other. As Rogers (2004) and Sunderland (2011) have commented, it can easily be deduced that, on account of the fact that ideas are embedded in ideologies of masculinity and academic literacy practices, gender stereotypes in language have received little attention.

Especially at the primary (elementary) educational level, textbooks function as transmitters of societal norms and expectations concerning conduct and gender roles. Language textbooks (whether literature, grammar, or other) are particularly powerful in this regard since they covertly impose gendered messages upon pupils, as Hall (2014) has mentioned. In the same context, Ullah, et al (2014) have not neglected to mention that a

greater 'visibility' of males than women is prominent in the overwhelming majority of textual and visual book content throughout western and non-western countries.

Gender bias in the classroom has been studied extensively since the 1970s, as Ullah, Ali, and Naz (2014) noted when the first fundamental research on the subject was published. Accordingly, analysis of British and French textbooks found that males were rarely depicted practicing female activities and that their professions were consistently portrayed as prestigious as Sunderland (2011) has commented upon.

Despite the fact that the Gender Discrimination Act has been in effect since 1975, a content analysis of prevalent historical texts in British elementary and high school revealed traditional methods of instruction for the role of women and a general disregard for women's experience in earlier centuries as Gouvias and Alexopoulos (2018); Ullah, et al (2014) have underlined. However, it was emphasized that the "worst excesses of genderist language" that were common in an array of books just a decade prior had been averted in the investigated textbooks by complying with the necessities of the 1991 "National Curriculum" history programs of study, as Osler (1994) has highlighted. This was done in compliance with the demands of the 1991 "National Curriculum" history programs of study.

According to Ballantine and Hammack (2011), one of the studies with the greatest popularity on those who read books for kids in the United States is the one that was carried out by a study team from Princeton University and was released in 1988 under the title "Women in Words and Images." More precisely, Ballantine and Hammack (2011) do not neglect to mention that the content study of books published by 18 prominent publishing companies that specialize in school textbooks (regarding preschool and primary education levels) revealed that genderist stereotypes were characteristic of the principal characters, visuals, and conversations used.

In alignment with the above research concerning a variety of 18 American high school history textbooks, that is to say the study of Clark, Allard, and Mahoney (2004) found that 1335 female personalities were included, compared to 12,382 males. This was further supported by the illustrations in the textbooks, which featured 616 images of women and 3,505 images of men.

The results of a research by Chick and Altoona (2006) were similar. The gender discrimination identified showed that textbooks fail to meet the standards set by the American Society to ensure a balance of genders in educational materials. In accordance with the above previous findings, Mustedanagic (2010) revealed that that the visuals and language used in the English books used in secondary school in Sweden confirmed the conventional gender roles that were repeated in the texts. In each of the texts, female characters were relegated to a secondary role, which was in stark contrast to the recommendations issued by the Swedish National Agency of Education (SNAE).

According to the research results of Jin et al.'s (2013) investigation of literature textbooks in Malaysia and English language revealed male dominance pervasiveness throughout the material. This superiority was readily apparent through the use of image visuals as well as gender-specific vocabularies within the context of the text (for illustration in the field of using common nouns, pronouns, terms of address, and names of characters). According to Jin et al. (2013), evidence like this stands in stark contrast to Malaysia's rapidly developing and improving culture, where women are increasingly taking leadership roles in all facets of public life. This can be further attributed to the fact that more women are starting to take on more involved roles everywhere.

In a similar vein, Yasin et al. (2012) note that a study of English-language textbooks in Malaysia conducted by Hamid et al. (2008) found evidence of a stereotypical association between women and the concept of 'private life' and family responsibilities. This indicates a firmly established social belief that condemns women to the edges of public life and accords them no equal status. Yasin et al. (2012) have commented that even international institutions, such as the United Nations Educational, have conducted comparison analyses of books on every topic and at all levels in nations spanning Africa, America, Asia and Europe. Hence, most of those investigations revealed that. As Brugeilles and Cromer (2009) have blatantly observed, though there is a disproportionate number of female characters in the field of health and social welfare domains and vocational courses males and females continue to be constrained to the roles and socio-economic activities with which they have customarily been identified in general education textbooks..

However, at this point, it is considered of utmost importance to mention that the findings of Gouvias and Alexopoulos (2018) revealed pervasive gender roles portrayed inaccurately in the new elementary school textbooks written in Greek for the Third Grade and in instructors' responses to genderism in the classroom. Gouvias and Alexopoulos (2018), in their current study, observed an obviously imbalanced representation of genders through qualitative and quantitative investigation via using consequential content analysis into the contents and graphics contained inside the pertinent books. Not only are men more likely to be depicted, but traditional ideas about what each gender is "supposed to do" also play a role. It's not only that men are more likely to be seen in public settings; there's also a preconceived notion of what each gender is "supposed to be good at," whether in the home, the workplace, or elsewhere. This means that men not only take on leadership responsibilities whenever there is a reference to politics, economics, science, or culture, but they are also shown as participating in a wider range of vocational and social activities than women.

Accordingly, according to the research findings of Gouvias and Alexopoulos (2018) women are also stereotyped as being "sentimental" and brimming with emotions like "fear," "tenderness," "insecurity," and "affection." On the other hand, men are portrayed as being less

sentimental and characterized solely by "toughness," "cool temper," and "severity." Words such as "capable," "smart," and "talented" are often used to describe men, while words like "cheerful," "good," "gentle," and "weak" are typically used to describe women, confirming this stereotype.

The only promising sign that appeared from the research of Gouvias and Alexopoulos (2018) derived from their examined textbooks was a reduction in the regularity of stereotyped portrayals of females and males in the household, as well as in the business or social world, in contrast to more antiquated textbooks. This was an optimistic sign because it was the only encouraging evidence that arose from our examination of the textbooks. Nevertheless, the fact that men predominate in every other field of analysis contained in the research of Gouvias and Alexopoulos (2018) whether in textual or graphical form, does not permit the inference that there has been an important change in the subject matter of textbooks toward a more equal and equitable representation of actuality. This is because males predominate in all other categories of Gouvias and Alexopoulos (2018) analysis.

The findings, with regard to the textbooks used in Primary Education in Greece, do not substantially differ from the conclusions of the worldwide research stated previously. Based on skewed preconceptions, Hamilakis (as it is referenced in Brown & Hamilakis, 2002) and Meselidis (as it is referenced in Zajda & Freeman, 2009) conducted research on the history textbooks used in primary schools between the years of 1970 and 1983 and 1997 and 2006, respectively. These roles can be anything from childcare to leadership positions.

Research findings pertaining to language textbooks, as stated by Gouvias and Alexopoulos (2018), point to a clear repetition of the patriarchal systems of society. After the socialist democratic 'Pan-Hellenic Socialist Movement' (PASOK in Greek) came as the ruling party in 1981 and started implementing a number of reforms with regard to the advancement of gender equality (for example, via the introduction of a novel institutional structure regulating the family law, the very first modification of Greek-language textbooks that were utilized took place in the school year 1982–1983), the initial modification of Greek-language textbooks that were utilized took place in the school year 1982–1983. This came about after the first revision of Greek language textbooks in the academic year 1982–1983, which took place at that time. It is important to mention that one of the key goals of those reforms in the educational framework of Greece was the battle against stereotypes based on gender, with measures such as boosting the proportion of male educators in programs for young children. This is something that is viewed as being of the utmost importance. According to Gouvias and Alexopoulos (2018), this was underlined in both newly passed legislation and other official documents.

The results of earlier research were taken into consideration while planning the second major reform of educational materials, which occurred place in 2006. This led to the

emergence of intriguing new research issues regarding whether stereotypes concerning gender had been reduced and, if so, how this had been accomplished in terms of the curriculum and the learning materials used in schools. Maragoudaki (2007) was responsible for conducting one of the earliest studies on the newly published textbooks. The investigation that was carried out by Maragoudaki (2007) concentrated on the reading habits of pupils in both fifth and sixth grades with regard to Greek-language literature. The researcher noticed an excessive emphasis on jobs dominated by men, a connection of women with home obligations, and a continual depiction of well-known male characters. Additionally, the researcher found an excessive concentration on male-dominated occupations.

1.6 Relevant past studies concerning teachers' perceptions in relation to the issue of gender stereotypes

Since gender stereotypes have been present in a variety of kinds of human activity for hundreds of years, it is more than logical that they ought to be perpetuated in education, whether intentionally or unconsciously. As Tang, Chen, and Zhang (2010) have underlined, teachers, in their daily teaching, construct their own ideas for pupils, instructional approaches, and learning results. As Crabb and Marciano (2011) have emphasized, the aforementioned constitutes a practice that teachers do. This is displayed most prominently in their day-to-day practical views and actions, which are regarded as being characterized by gender prejudice.

In accordance with the above, according to Crabb and Marciano (2011), Koustourakis, Rompola, and Asimaki (2015), and Tang, Chen, and Zhang (2010), teachers may exhibit distinct expectations and requirements from students when they implement differentiated instruction based on the 'gender' of the students. They also choose to teach distinct age groups different subjects based on their own gender identities, with women favouring the humanities and social sciences for younger students and men favouring natural sciences and technological studies for older students.

According to Rosenberg, De Moura and Silva (2009), teachers in Primary and Secondary schools generally acknowledge the existing disparities and differentiations and express their support for equal opportunity policies as an ideological value.

However, as Biemmi (2015) has underlined, study data from Greek schools has demonstrated that very often, even though teachers do not have any difficulties in recognizing the gender aspect of instructional preconceptions in textbooks, this tends to happen when the former are clearly emphasized in this regard by different investigators or instruction professionals, or when there is a special project devoted to 'gender issues.'

In addition, according to Frossi and Deliyianni-Kouimtzi (as it is referenced in Deliyianni-Kouimtzi, 2008) when teachers are asked to examine their own pedagogical practices from a conservative perspective, students are more likely to adopt what has been called a "hidden curriculum," as Margolis (2001) has underlined, which encompasses all non-formal teaching methods and strategies as well as the messages conveyed implicitly during the course of instruction.

In the same context as Frossi and Deliyianni-Kouimtzi (as it is referenced in Deliyianni-Kouimtzi, 2008) have commented that, in contrast to the official Greek primary school curriculum, which emphasizes "gender equality" in all areas of public education, this "hidden curriculum" is seen as harmful to girls' instructional and ultimately professional development and enhances social progress because it perpetuates harmful gender stereotypes.

According to Ballantine and Hammack (2011), over the past three decades, not only have there been academic discussions and theorizations concerning language stereotypes, but there have been targeted as well intergovernmental and federal initiatives against those stereotypes. These policies typically involve enormous expenditures in the manufacturing of gender-inclusive learning material and training for educators. As a result, there has been substantial advancement in gender consciousness all across the world and, of obviously, in the territory sector of Greece as well.

In accordance with the above, as Tatara and Emmanuela (2001) have commented, there are also underlined divergences in how teachers recognize or respond to gender stereotypes based on factors such as the teachers' own demographics (for illustration in terms of education level, gender, age, years of experience in the field, specialty, personal values, socioeconomic background, etc.).

In spite of this, as Biemmi (2015) has emphasized, it has been repeatedly brought to light by scholars and scholars dedicated to gender issues that not only do gender stereotypes remain in school textbooks, but teachers appear to make little or no effort to implement anti-discrimination measures in their classrooms. As Tatara and Emmanuela (2001) have mentioned, in order to address this problem, some academics suggest, amongst other policy regulations that future teachers be provided with the essential analytic abilities to think critically and ask about their own experiences at home and society as a whole with a particular emphasis on the in-depth nature of gender stereotypes. This is one of the recommendations made by some academics. These researchers have come up with a number of viable answers, and this particular one is one of them.

Regarding the perspectives that instructors have on gender stereotypes, Gouvias and Alexopoulos's (2018) research has led to the perception that teachers have only a little awareness of the gender stereotypes that are already present in their educational textbooks, and they require the appropriate cues in order to identify them. This is something that

Gouvias and Alexopoulos (2018) feel is the case due to their findings. The sole aspect that differentiates teachers of various genders in this regard is the level of prior sensitization achieved through training in such topics, which can take place either at the post-graduate level or during shorter-term seminars about gender-related topics. In this regard, there are no significant disparities among instructors of various genders. Moreover, teachers' responses in Gouvias and Alexopoulos (2018) research demonstrated a general dearth of knowledge and ability to recognize genderism in textbooks. In fact, some of them emphasized the requirement for training on gender issues, contending that it would not only assist them in identifying genderist words and pictures but also in adopting countermeasures to assist students in rejecting such stereotypes. Men reported that they were, to a greater extent than women, unprepared to diversify and adapt their teaching to any emergent sign of genderism, though they recognized that this is due to the way they are socialized and not to any inherent 'inability' or 'bias'. Some of them 'justify' the continued existence of stereotypes regarding gender in the classroom and textbooks, and they appear unwilling to challenge the prevailing ideologies in a society as profoundly patriarchal as Greece

1.7 Gender equity in digital environments/ Information Communication Technologies (ICT)

Over the past few years, the United Nations has maintained its focus on the potential for ICT, or Information and Communication Technologies, to serve as a useful instrument in the realm of international development. To improve cooperation among agencies across the United Nations system, cooperation agreements have been forged with funders, the commercial sector, and the public sector, and working parties and task teams have been established (United Nations, 2005).

As United Nations (2005) has commented upon the Council for Economic and Social Affairs approved a Ministerial Declaration on Information Technology and the Knowledge-Based Economy in the year 2000. Therefore, in 2001, the Secretary-General of the UN established an advanced technology advisory group Task Force aiming at the provision of a comprehensive oversight of the United Nations' implementation of strategies for using ICT in the service of development. (United Nations, 2005).

The Millennium Declaration from the year 2000 stressed the need of ensuring that everyone has access to the benefits of new technologies, especially those related to information and communication technology (ICT). In accordance with the above though, the United Nations World Summit on the Information Society (WSIS) has been split into two sessions so that this might be achieved. The United Nations called for a two-part World

Summit on the Information Society (WSIS) to help realize this target. The first step, which began at the Geneva Symposium in December 2003, aimed to foster legislative will and provide the foundation for an egalitarian Information Society. In the first stage of the procedure, a total of 175 countries expressed their commitment to the Plan of Action and the Covenant of Values. According to the information provided by the United Nations (2005), the subsequent phase of the WSIS will be held in Tunis in November.

Furthermore, International Women's Day (IWD) 2023 will focus on the topic "DigitALL concerning Innovation and technology for gender equality" in an effort to acknowledge and honour the girls and women who are working to expand the development of transformational technology and digitalization in education (United Nations Women, 2022). The focus of IWD 2023 will be on preserving the rights of women and girls in digital environments and combating online and Information Communication Technologies-facilitated gender-based violence, with the goal of illuminating the impact of the digital gender gap on expanding economic and social disparities (United Nations Women, 2022).

In alignment with the above central subjects that demand attention are construed around the five central axes of creating gender-sensitive policies regarding the internet, along with enhancing access to skills and technology in combination with putting gender stereotypes and cultural expectations up for debate along with struggling against violence in opposition to women and girls that occurs online (United Nations Women, 2022). Women and girls' opinions and experiences should be valued, and they ought to be taken into account on purpose when establishing, carrying out, and measuring programs and policies, contributors urged authorities in the digital area. In this context, the role of academics was emphasized as an essential component in the production of research on the impact of technological advances on gender equality on the grounds that academia can assist substantially by suggesting programs and evidence-based policies that foster gender equality in the field of the digital realm as well as increasing the number of women working in the field of technology (United Nations Women, 2022).

It was determined that one of the primary obstacles for women to fully benefit from the digital shift is a lack of access to various forms of technology. In order to address this problem, a number of potential solutions have been offered, including expanding internet access to more rural areas, constructing public digital hubs, and reducing the cost of technology and internet services (United Nations Women, 2022). In the same context dispelling the gender preconceptions and cultural conventions that hold girls back is essential to promoting inclusiveness as well as security in the digital environment through concurrently constructing close family backing in line with mentoring, awareness-raising that could possibly make an impact on bridging the online gender gap (United Nations Women, 2022).

The disproportionate impact of online abuse on women and girls has psychological consequences and discourages them from the use of the Internet. As a result, various best practices were discovered to safeguard women's and girls' rights, such as hotlines for reporting harassment, guidelines for handling abuse, content moderation resources, and removal procedures (United Nations Women, 2022).

There was a lot of talk on the need to encourage more women to be involved in the tech professional field, and one way to achieve that is to make them become more involved with STEM fields that is to say in the field of Science, Technology, Engineering, and Mathematics (United Nations Women, 2022). In line with the above, organizations within the technology sector need to work toward enhancing the social and political climate of the industry in order to make it more inclusive towards women. "Examples of this involve enhancing diversity in job settings, supporting regulations that encourage a balance between professional and private life, and addressing issues such as equal pay for equal work and discrimination (United Nations Women, 2022).

Chapter 2: Methodology

2.1 Introduction to Thematic Analysis

By analysing qualitative data, which have been produced in the context of an empirical study (e.g. transcribed interview texts), an attempt is made to assign meaning to these data, in order to answer the central questions of the current research. Many different approaches to qualitative research exist within the interpretive epistemological tradition, which differ in terms of their epistemological assumptions, the way they formulate research questions and the way they analyse data. Different methods of analysis that have been proposed are, for example, thematic analysis, analysis according to the principles of empirically grounded theory, narrative analysis, hermeneutic phenomenological analysis, discourse analysis, etc. (Willig 2015). Despite individual differences, most of them involve a kind of thematic treatment of the data, following the principles of thematic analysis.

By taking into consideration the fact that the present project aims at the examination of the issues of diversity, equity, inclusion in language education digital platforms though particularly emphasising on the Duolingo case study, thematic analysis concerning occupational roles, LGBTQ (lesbian, gay, bisexual, transgender, queer or questioning) representation and finally the issue of inclusive language was selected.

2.2 The conceptual meaning of thematic analysis

As Braun and Clarke (2013) have underlined thematic analysis consists of the systematic identification, organization and understanding of recurring patterns of meaning within a set of data. In this way, the researcher gains cognitive access to collective ways of meaning and experiences. The researcher can detect numerous patterns of meaning within his data. He focuses, however, on those that are relevant to the topic he is studying and, in particular, on those that are regarded as appropriate for answering his central research question correlated to the way that the issues of diversity, equity, inclusion in the field of language education digital platforms are treated, presented and examined by stressing specifically on the illustration case study of Duolingo digital learning platform. Therefore, the research questions act as a guide during the thematic analysis process. In the present project the researcher selected thematic content analysis in order to examine and answer the following **research questions**:

- Which are the central occupational roles regarding Duolingo digital learning platform?

- How the matter of LGBTQ community (lesbian, gay, bisexual, transgender, queer or questioning) is represented in the field of private and social life through Duolingo?
- How the Digital learning platform of Duolingo uses inclusive language?

Thematic analysis is not a 'technical' process in which the researcher, as another archaeologist, uncovers themes or categories that exist buried somewhere in the data and waiting to be discovered as Braun and Clarke (2013) have underlined. The process of analysis presupposes the active and creative role of the researcher in developing a dialogical relationship with his data by concurrently producing and composing the issues rather than discovering them (Tsiolis 2016).

Unlike other methods of analysis, which are bound to specific theoretical approaches – such as discourse analysis in discourse theory, conversation analysis in ethnomethodology, narrative analysis in narrative theory –, thematic analysis is considered as a flexible method of analysis, which it can be exploited in multiple ways by researchers by concurrently starting from different theoretical starting points and this advantage of thematic analysis constituted the central reason that the researcher selected to follow it (Braun and Clarke, 2013). In alignment with the above, thematic analysis was selected since it constitutes a flexible and systematic process, which does not evolve in a linear and mechanical way. Thematic analysis requires creativity, ingenuity and imagination as well as theoretical pre-work in order to sharpen its consequential analytical and interpretive look.

First and most importantly, during the process of the thematic analysis the research questions have a guiding role in the search for the passages that the researcher will choose to process and are therefore a considerable filter for reducing the complexity of the collected data. Secondly, during the process of the thematic analysis theoretical categories, schemes or ideas as well as findings, which the researcher has drawn during the literature review process, are used as frameworks for theoretical awareness during the data coding process.

2.3 The codification process

Following the previous stage, the researcher must interpret his data, for illustration, understand their meaning and attribute it with a conceptual definition. This process is called coding and the conceptual determinations, which express the meaning that the researcher attributes to the specific piece of data, are called codes as Tsiolis (2014) has underlined. According to Braun and Clarke (2013), codes attribute and name a feature (a unit of meaning) that the researcher recognizes in some part of his data (e.g. in a passage of the transcribed text of an interview) and appears to be important in answering his research questions. The

researcher marks the specific passage and matches it with the specific conceptual designation (code). The coding process must be systematic and consequently the codes must be characterized as comprehensive.

Thereupon, it should be noted that in the thematic analysis, as presented in the text at hand, ideas, categories and patterns that have emerged from the literature review and are relevant to the issue under examination - diversity, equity, inclusion in the field of language education by stressing specifically on the illustration case study of Duolingo digital learning platform – are instrumental. The researcher, however, is not limited to simply matching some of these categories with parts of his data (as is usually done in versions of content analysis). These categories work in a heuristic manner, as they sharpen the researcher's gaze, help him to think theoretically, to decode the meaning of the empirical data and to recognize, within them, interesting aspects of the phenomenon he is examining. They should not, therefore, limit the creative dimension of the analysis process and, in particular, the possibility of the researcher to recognize in his data aspects and perceptions of the phenomenon he is studying, which have not been highlighted (or have not been sufficiently highlighted) in the relevant bibliography.

At this point, it is considered essential to mention that the same passage may be assigned more than one code, since it may contain more than one unit of meaning (Willig 2015). Also, the same code can be assigned to several passages, when the same content of meaning is recognized in them.

As the coding process progresses, codes that have already been formulated may be reused. They may also be modified in the new database to include other versions of similar meaning and/or to clarify their scope against other generated codes.

In line with the above, codes can be descriptive in nature, i.e. summarizing and describing the manifest content of a section of data. They may, however, arise from the interpretation of the meaning or latent meaning that the researcher reads into his data (interpretative type codes) (Braun and Clarke 2012). As pointed out above, in this phase of the analytical process (coding), the researcher uses relevant ideas or findings from previous research, which his literature review has highlighted, as schemas that sensitize his research gaze and help him to recognize patterns of meaning in the data. Consequently, some of the codes the researcher produces come from the informants' own words or reflect their ideas, while other codes draw from the conceptual and theoretical framework adopted by the researcher (Braun and Clarke 2013).

What is more, during the codification process the transition from the level of codes to that of themes is attempted. Themes are conceptual constructs more abstract and general than codes. They emerge from the processing, comparison, merging of codes and correspond to a recurring pattern of meaning. The themes are autonomous conceptual entities and can

function as versions of the answer to the research question that is examining. In this phase, the topics are defined and their content is determined, highlighting their properties and connecting the properties to each other. An attempt is also made to formulate a thematic map (Isaris and Pourkos, 2015), which will demonstrate the relationships between the topics as well as between the topics and their properties. In this project the thematic analysis is construed during the following recognized thematic topics:

1. Examination of the matter of occupational roles concerning Duolingo & recruiting from the appropriate colleges
2. Examination of the matter of LGBTQ (lesbian, gay, bisexual, transgender, queer or questioning) representation in private and social life through Duolingo
3. Examination of the matter of Duolingo's inclusive language

2.4 Presentation of the findings

While during the process of analysis/coding the movement was from the data to the codes-themes, in the process of presenting the findings the themes/characteristics that emerged and answer the research questions are presented first. Each topic is presented separately and its content is highlighted based on the particular aspects that emerged during the analysis of the data. Potential differences or variations that characterize each topic are also highlighted.

Further, it is regarded essential to mention that during the reporting of the findings, the way in which the themes are connected to each other should also be demonstrated. This also constitutes the thematic map resulting from the analysis which further should be presented and discussed.

Chapter 3: Presentation and analysis of Duolingo media platform

3.1 Presentation of the main characteristics of Duolingo learning platform

Duolingo is educational software that facilitates the acquisition of new languages. Given the staggering number of approximately 300 million users worldwide, it is also the most popular language acquisition platform in the globe. Duolingo is a must-have for anyone desiring to expand their lingual horizons due to the application's sleek design, relaxing workouts, and scientifically-based learning methods (Zippia, 2023).

Duolingo offers a service that has the potential to alter people's lives for the better. There are several instances of individuals who used the tool, found a job, or found the person they will spend the rest of their life with as a result of using it. People who choose to devote their entire lives to the Duolingo goal are those who have a profound interest in the organization's goals and are aware of the significance that language can have in people's lives (Zippia, 2023).

Duolingo's goal is to help people all over the world learn languages at a high level for free. They do this through rendering it fun, unique, and scientifically. As learning a new language exclusively individually and in a digital environment can be hard, Duolingo strives to make the process of language learning less exhausting. Most of the people on the Duolingo team use the application themselves to make sure it stays user-friendly, which does constitute an important part of the entire procedure. They additionally utilize it because most of the people on Duolingo are frequent users (Zippia, 2023).

Duolingo places a high value on diversity and considers it to be an essential component of both their business and their product. In general, Duolingo places a high importance on its employees, as seen by the fact that the company ensures issues like comparable compensation and benefits policies, which are rigorously assessed on an annual basis for the well-being of its staff members (Zippia, 2023). In addition to this, Duolingo provides its staff with a significant amount of autonomy to create and cooperate. The organization trusts its staff members to take responsibility for their work, and those employees continually show that they deserve that trust by delivering excellent results (Zippia, 2023).

Gender is a societal construct which defines the positions, actions, tasks, and characteristics that a particular culture thinks proper for men and women. Gender positions, behaviours, and activities are determined by what a community considers to be appropriate

for each gender. When signing up for the site, the users of Duolingo are not required to provide any information regarding their gender. On the other hand, the corporation does track users' gender for statistical purposes. There has been much discussion over the past few decades over the question of whether one's gender is a significant component of who they are as a person; it is also important for industries, economy and the marketing, especially in terms of consumption (I Love Languages, 2023).

This controversy has also spread to the field of virtual language learning, with some users saying that Duolingo ought to enable users to identify their sexual orientation in order to create an environment that is more welcoming to people of different gender identities. Others have stated that Duolingo is not obligated to gather data on the gender of its users because the program is supposed to be utilized by individuals of all genders, so there is no need for the company to do so. This discussion is expected to continue as Duolingo's user base continues to expand and more individuals become familiar with the one-of-a-kind strategy that the website employs for language acquisition (I Love Languages, 2023)

The service known as Duolingo makes it possible to educate oneself in a foreign language without any charge. Users who are acquiring a language have the ability to translate web pages, finish phrases, and evaluate the interpretations that other individuals have provided (I Love Languages, 2023).

3.2 Examination of the possible gender of Duolingo trade mark Owl

Duolingo's logo feature, that is to say the company's mascot, is a green owl like the real-life spectacled owl, and is supposed to represent wisdom, education, and intelligence. Consequently Duo can act as a coach to assist language learning goals and guide through the subsequent various features of the Duolingo website. In the midst of learner's lessons, Duo may occasionally intervene to provide words of support (See further Image 1) (Duolingo Wiki, 2023).

Image 1: Duolingo's Mascot "Duo"



Source: (I Love Languages, 2023).

Regarding the examination of the possible gender of Duo we can argue that the Duolingo owl is an imaginary character, therefore, we cannot decide upon its gender, because the owl does not have a gender and it has a gender neutral depiction. There are those who maintain that the owl is a female bird, while others hold the opinion that it is a male. Since there is no obvious proof to support either of these claims, the decision of which one to trust eventually lies with the individual (I Love Languages, 2023).

Duolingo assists substantially individuals in learning languages more effectively because it uses the element of gamification, which encourages learners to continue practicing what they have learned. Accordingly, Duo, the company's mascot, will give learners periodic alerts to keep training, and the application will let learners to take part in routine tasks to win points and other rewards upon their completion. Because Duolingo offers such a wide variety of languages for users to select from, learners can feel sure that they will be able to pick one that is suitable for their actual needs (I Love Languages, 2023).

3.3 Duolingo and diversity in the workplace

As Leaf and Core (2019) have underlined, in spite of the fact that women consist of slightly over half of the population of United States, in 2015, they only make up about 47 percent of the labour force. In line with the above concerning female workforce, their average salary at home is approximately 18% lower than that of their male co-workers. Moreover women are underrepresented in managerial and executive roles in the majority of companies. In some regions, the percentage of women obtaining degrees in computer science (CS) is lower than the percentage of women who are hired by technology companies. In the same context there are more women who are interested in working in technology than the available vacancies.

Duolingo constitutes a company that perceives diversity not only as fair but also as beneficial for business. Ideas from a wide variety of perspectives and experiences are brought

to the table by an array of people. In the world of technology, varied ideas are referred to as "innovation." It is the decisive factor that decides whether or not a corporation succeeds in its endeavours or fails miserably. Thinking outside of the box is necessary for both ongoing innovation and constant gains in efficiency. Duolingo's perception is that the aforementioned without a question can be attained most effectively through the subsequent use of multiple employment procedures. This necessitates for the company the recruitment of individuals who come from a variety of racial, ethnic, economic, and religious backgrounds. Additionally, this necessitates the recruitment of individuals who reflect women, men, LGBTQ persons and non-binary as well, since they too have experiences that are distinctive and varied. It also entails employing people with different levels of physical capabilities (Leaf and Core, 2019).

That's why Duolingo set out to ensure that half of their new hires in 2018 were women. The production of unique concepts by a variety of divergent groups is closely linked to the achievement of financial success. Because of this, the top 25 percent of companies in terms of racial diversity have a 35 percent greater chance of seeing financial returns that are higher than the nationwide medians (Leaf and Core, 2019). Duolingo has achieved success in the field of knowledge as well as in terms of hiring employees to reflect social diversity. This was accomplished by recruiting from the appropriate colleges in a manner that minimized the effects of unconscious bias while simultaneously visiting women's conferences (Leaf and Core, 2019).

Hiring people from underrepresented groups can be hindered by an office environment that lacks diversity. It will be extremely uncomfortable for a woman employee to be fully productive at an office where she will be the only female colleague, where the benefits are not gender-neutral, and where the only source of feminine hygiene products is an automated dispenser. In addition, it is going to be challenging to attend workshops aimed at improving diversity when staff members are exclusively or predominantly male. It is highly possible that the male recruiter and the other male employees surrounding him are of the opinion that they are totally unaware of how someone else might have gotten into the tech industry if they did not follow the same route that they did (Leaf and Core, 2019).

But now all recruiters have the internet to assist in finding the proper diverse applicants. One can find a wealth of advice on how to find and retain a diverse pool of qualified applicants. Hence, the source of internet constituted Duolingo's first major step toward fostering a more inclusive workplace culture (Leaf and Core, 2019).

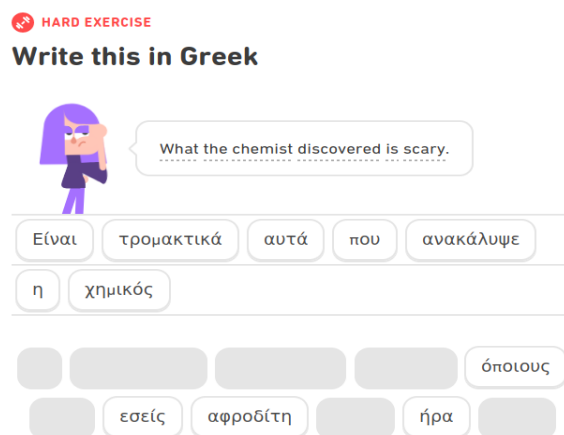
3.4 Examination of the matter of occupational roles concerning Duolingo & recruiting from the appropriate colleges

Female computer science majors make about 18% of the average U.S. college graduating class, 35% of the population in 1985. Women's absence from the tech industry is evident. Due to abuse and misogyny, women are 45 percent more likely to abandon STEM fields (Leaf and Core, 2019).

Even so, female computer science majors' numbers continue to rise. Female computer science graduates are more common at institutions that promote women to pursue careers in STEM. Those educational institutions form Duolingo's source of recruitment. Duolingo was able to hire more women by actively recruiting at these universities through workshops and job fairs. Their issue was not a lack of qualified women, but rather a lack of searching in the appropriate locations (Leaf and Core, 2019).

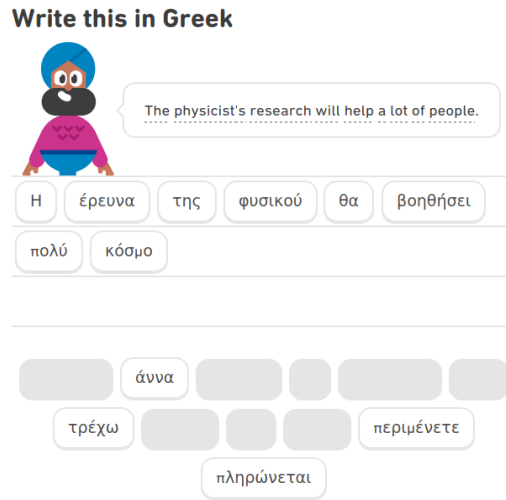
What is more, in the following examples the use of the feminine definite article (της, η) and the feminine type of the adjective “private” (ιδιωτική) clearly indicate that women occupy positions that belong to the scientific field (physicist, chemist), high administrative positions (president) or occupations that are mostly expected to be performed by men (astronaut, private guard). However, all nouns are used in the masculine form since the feminine one is not universally acknowledged. Nevertheless, it is of utmost importance that female learners are able to identify with roles described in the course (See further images 2, 3, 4).

Image 2: Example 1 women representation in several occupational positions via Duolingo platform



Source: (Leaf and Core, 2019)

Image 3: Example 2 women representation in several occupational positions via Duolingo platform



Source: (Leaf and Core, 2019)

Similarly, there are abundant such examples in the French language course. Apart from linguistic evidence, the visual representation of a woman addressing her male employee and prompting him to work harder is promising in the sense that women are not necessarily represented as subordinate to men in their professional sector, on the contrary, they stand in prominent positions in the chain of command (See further image 4).

Image 4: Example 3 women representation in several occupational positions via Duolingo platform



Source: (Leaf and Core, 2019)

3.4.1 Duolingo and its selection to minimize the effects of unconscious bias

According to a number of studies, men are more likely to cut women off in conversation, particularly in professional contexts. In addition, they demonstrate that women are evaluated far more harshly during the interview process and, later on, while they are working (Leaf and Core, 2019). This phenomenon is referred to as unconscious prejudice. Because of this, female workers are forced to leave their jobs, and employers end up hiring more males than women. It is caused by micro-aggressions, which are subtle shifts in the manner in which people approach women that demonstrate them less respect than they would express to a man, and it is further reinforced by micro-aggressions (Leaf and Core, 2019).

The most effective method for putting a halt to it is to educate staff and invest in further training about gender-neutral language and subconscious bias as well as small-scale assaults. The vast majority of people are not interested in being sexist. They have no stake in preserving the system of masculinity or preventing women from participating in the workforce. When they become aware of the fact that what they are doing is erroneous (to say the least) they immediately cease doing it (Leaf and Core, 2019). On the other hand we could argue that language bias reflects a long history of patriarchy and female subordination exactly because it was formulated by the 'formal' occupiers of public and scientific life, in other words men. Common and every-day life speakers are not usually aware of this and this is why they perpetuate discriminatory discourse. This may have the additional benefit of producing more conscientious workers who are also less inclined to engage in hostile behaviour toward or harass one another. It encourages everyone to collaborate with one another in the workplace in order to produce outstanding results (Leaf and Core, 2019).

3.4.2 Duolingo and visiting women's conferences

Duolingo compiled a list of organizations that they were familiar with as well as others that they discovered by means of job fairs. They came across organizations such as the Society of Women Engineers in combination with Women@, as well as Women in Computer Science, and other kind of similar groups. These organizations host events for networking in a variety of locations. They host meals, happy hours, get-togethers for computer enthusiasts, and discussions. They engage in educational and outreach activities throughout the community. Duolingo realized that one of the most successful recruiting tactics, word of mouth, ultimately began working to their benefit after they became more involved. References can be provided by the best employees (Leaf and Core, 2019).

Additionally, Duolingo has invested significant financial resources into the company. In 2017, they were the proud sponsors of the Grace Hopper Conference, which all of their female workers attended. Over 18,000 women join each year's Grace Hopper Conference,

which brings together women who work in technology for a variety of occasions including workshops, keynotes, presentations, and social occasions. On the basis of this alone, they were able to discover 250 female engineers to hire (Leaf and Core, 2019).

During 2018 Duolingo participated in the event as a "Silver Tier" sponsor, which is the lowest level of sponsorship. If even the smallest business sponsorship will be sufficient to attract 250 qualified candidates, then the Global Human Capital Conference can be perceived as an excellent investment. In addition to that, Duolingo learned a lot about computers during the conference, as well as strategies to increase the number of women in its workforce. It was a wise investment that will continue to generate returns for several decades in the future (Leaf and Core, 2019).

3.5 Examination of the matter of LGBTQ (lesbian, gay, bisexual, transgender, queer or questioning) representation in private and social life through Duolingo

The month of June in the United States and worldwide is known as Pride Month, and throughout the month, Duolingo Company will be honouring the LGBTQIA+ community across all of their online channels as well as on this very blog. Individuals can take a peak behind the curtains to see how the Company made sure to include characters that represent a variety of backgrounds in the creation of our new ensemble of characters! (Chiou, 2021). During the process of designing new cast of characters, Duolingo spent a significant amount of time debating their names, as well as their vices, virtues, and life objectives (or lack thereof, regarding the case of Lin character of Duolingo). However, the necessity of LGBT representation was never something that the company cast any doubt on. This is true and can be further attributed to different reasons (Chiou, 2021).

First, Duolingo has a strong commitment to inclusively and fair representation of all backgrounds. Because of this, it was an easy and obvious decision to incorporate a diverse cast of characters, including those of various ages, cultural origins, and gender identities.

The second justification is related with the students of Duolingo. Language students of various ages and from all parts of the globe make up Duolingo's audience, and consequently rendering this component of the platform as one of its most distinguishing characteristics. Indeed, that's a really huge amount of individuals. And because Duolingo has such a diverse group of students, it is the Company's obligation to think about and understand the experiences of people of all walks of life, including those who identify as LGBTQIA+ (Chiou, 2021).

Characters are more interesting when they can be identified with, not just due to their hopes and weaknesses, but also through of the people they love. Duolingo writes their Stories in English first and then translates them into various languages so that they are engaging and relevant to students all across the world. This is an entertaining and, at times, demanding task. Managers of Duolingo continually please their LGBTQ characters in particular to contribute to the goal of minimization of the matter of diversion (See further images 2 & 3) (Chiou, 2021).

Image 5: LGBTQ representation in line with the subject matter of diversity through Duolingo



Source: (Chiou, 2021).

Image 6: LGBTQ representation in line with the subject matter of diversity through Duolingo



Source: (Chiou, 2021).

3.5.1 Duolingo's characters concerning the LGBTQ community

Lin, Bea, and Oscar are our three established lesbian, gay, bisexual, and transgender characters. Lin pursues relationships with women, Bea dates both men and women, and Oscar has an interest in men, despite the fact that he is just as picky with men as he is with his cheddar and almost anything else (See further images 4,5,6). Duolingo believes that allowing an LGBTQ personality to have an existence without calling emphasis to that identity should be considered a storytelling best practice. By normalizing something, Duolingo simply depicts it without drawing attention to it, which is what is meant by presenting it as normal (Chiou, 2021).

Image 7: Lin Character of Duolingo



Source: (Chiou, 2021).

Image 8: Bea Character of Duolingo



Source: (Chiou, 2021).

Image 9: Oscar Character of Duolingo

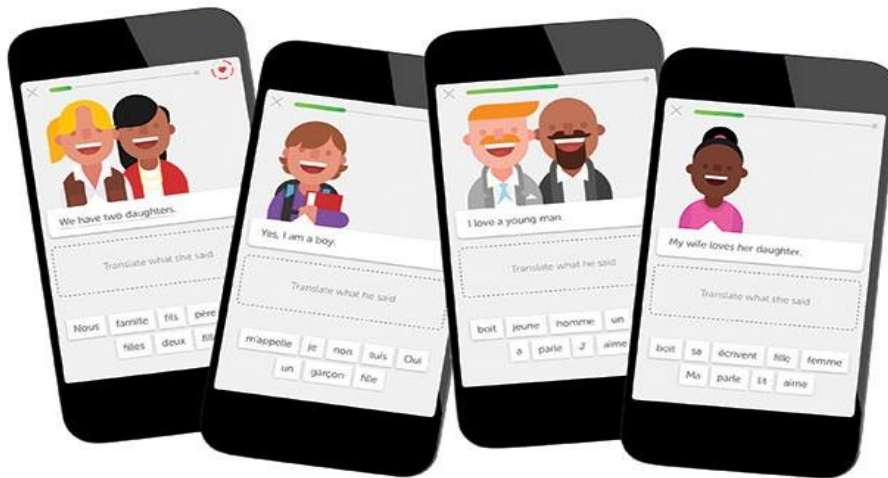


Source: (Chiou, 2021).

3.6 Examination of the matter of Duolingo's inclusive language

The language-learning program Duolingo celebrated Pride Month by posting screenshots on social media of LGBTQ-related lines that users of the application would be asked to interpret during the course of their lessons. The phrases in question are things such as "her wife is reading a book" accompanied with phrases of the type "the dress fits him very well." Even though these kind of phrases are sufficiently vague that one might miss them if he or she does not pay close attention to what her or she is reading, yet they make sufficient of an argument for it to be significant if he or she manages do see them. The advertisement was published during Pride Month, although fostering inclusiveness has been one of the application's primary goals for some time (See further image 10) (Lynn, 2018).

Image 10: Duolingo's Language App for the enhancement of all inclusive language

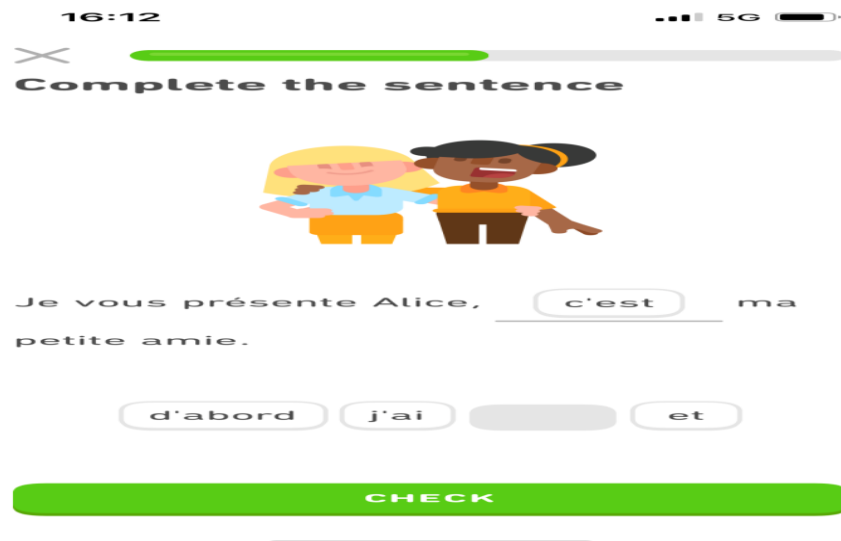


Source: (Lynn, 2018)

Over the years, the management team of Duolingo has paid close attention to the demands of a wide variety of students that they seem to value and appreciate this kind of inclusiveness in their lessons, and consequently managers of Duolingo think it is substantial to keep up with this as it can be deduced from the aforementioned illustrations (Lynn, 2018).

In the same context Duolingo language learners are also familiarized with the LGBTQ community, resulting in cultivating acceptance and inclusion. Moreover, the idea of the traditional family formed exclusively by a man and a woman and their children is seriously challenged, as same sex couples are depicted with their children. Additionally in specific exercises that focus on target language in each chapter, men are referring to their husbands or partners and women to their wives. Empowering for the migrant learners that possibly belong to the LGBTQ community are also texts that describe social acts such as protests or efforts to defend the civil rights for people with the same sexual orientation (See further images 11 & 12).

Image 11: Illustration of All-inclusive language concerning the LGBTQ community via Duolingo platform



Source: (Chiou, 2021;Lynn, 2018)

Image 12 Illustration of All-inclusive language concerning the LGBTQ community via Duolingo platform



Source: (Chiou, 2021;Lynn, 2018)

Chapter 4: Discussion

There is no general agreement regarding the strategies for achieving change among those who consider changing gender inequality in school may be perceived as priority, as the type of the chosen policy depends on the interpretation of gender inequality in society. The examination of the literature review of the current study illustrated that despite the divergent strategies for attaining change in the school, the main intervention models have common points and activities, for instance, the initial training and education of educators. In the same context, the issues that are considered particularly substantial are the goal of programs aiming at gender equality in primary and secondary education (Ballantine and Hammack, 2011; Frossi and Deliyianni-Kouimtzi, 2008)

Hence, issues of particular importance are considered the organization of the school in combination with the analytical program and the content of the lessons, in line with the "hidden" curriculum and the teachers' attitudes and expectations as well as exams and assessments. Many programs have been implemented internationally in each of these areas with multiple goals and have been proved as successful. Today, as a substantial amount of research is done in this field, the interventions are evaluated so that researchers can avail the opportunity of espousing the most effective strategies for the future. Accordingly, effective work in this area presupposes planning, the existence of resources and logistical infrastructure and the direct involvement and cooperation of teachers in the field of the change process (Crabb & Marciano, 2011).

One of the dimensions of the educational process in relation to gender formation that has been widely studied internationally since the late 1960s is the content of school textbooks, and, as a consequence, much criticism has been made over the fact that – to a greater or lesser extent – they contain gender biases. The reason why special importance has been given to the study of this dimension is located in the socializing effects of school textbooks since their content is decisive in the formation of children's gender roles. (Koustourakis, Rompolá, & Asimaki, 2015).

These studies formed the basis for the development of many intervention programs in this field with many objectives, both at the level of educational policy by the states and by publishing houses. Some states have established rules so that teaching materials do not contain preconceptions about gender roles. Some teachers - on an individual level - have developed strategies to deal with the sexism that exists in books as they encourage students to identify the phenomenon and deal with it critically and when there is a lack of suitable material they create new ones (Crabb & Marciano, 2011).

Many primary school teachers in particular have also dealt with fairy tales and children's literature in general because irrespectively of the existence of stereotypical notions of gender roles, they wrote fairy tales which did not include discriminatory language. What is more, many organizations have created catalogues of non-discriminatory fairy tales, and in the same context, lists of questions have been created that assist parents and teachers to immediately identify gender discrimination elements that are presented in the book material. In the Greek literature, several research projects have been developed on the content of primary school textbooks, nevertheless, no integrated intervention program aiming at the enhancement of gender equality in educational materials has been produced. (Frossi and Deliyianni-Kouimtzi, 2008)

According to the findings of the current study Duolingo can be perceived as the educational application that makes new language acquisition much more straightforward and enjoyable. Due to the fact that it has more than 300 million users all over the world, it is also the most popular language learning platform in the entire world. This finding seem to coincide with what Zippia, (2023) has underlined that due to the application's modern design, calming workouts, and scientifically-based learning methods, Duolingo can be regarded as an absolute necessity for everyone who wants to broaden their linguistic horizons.

Moreover, the findings of the current project revealed that Duolingo values diversity greatly, and it is an integral part of the company and the product. However, at this point in it is considered essential to mention that the above finding contradicts with what Gouvias and Alexopoulos (2018) revealed in their research by stressing on the fact that pervasive gender roles portrayed inaccurately in the new elementary school textbooks written in Greek for the Third Grade and in the responses of instructors to gender discrimination in the classroom.

What is more, the comment of Leaf and Core, (2019) regarding the fact that the recruitment of individuals who reflect women, men, LGBTQ persons, and non-binary individuals as well because they, too, have experiences that are diverse and varied necessitates also the hiring of individuals with varying degrees of physical capabilities. This finding regarding Duolingo case seem to be in line with what Tatara and Emmanuela (2001) have mentioned, that in order to be addressed effectively the issue of Duolingo and diversity in the workplace, it is regarded of utmost significance that future educators be provided with the essential analytic abilities to think critically and ask about their own experiences at home and society as a whole by simultaneously stressing on the in-depth nature of gender stereotypes.

The examination of the matter of occupational roles concerning Duolingo & recruiting from the appropriate colleges revealed that Duolingo tries to restrict gender bias through recruiting more women. Needless to say that this result contradicts blatantly to what Gouvias and Alexopoulos (2018) have underlined through conducting their qualitative and

quantitative analysis concerning the contents and graphics of the relevant books and consequently found glaring evidence of a gender bias.

Moreover, the results of the current content analysis concerning the issue of the LGBTQ (lesbian, gay, bisexual, transgender, queer or questioning) representation in private and social life through Duolingo seem to reaffirm that the company under examination does not underestimate the importance of having LGBT people on staff. Hence, this matter according to Chiou (2021) was never questioned by Duolingo Company. On the contrary this finding is opposed to what Odhiambo (2012) and Samadikhah & Shahrokhi, (2015) have underlined in relation to the fact that gender discrimination in language textbooks is reflected through gender imbalances and stereotyped images.

While the examination of Duolingo digital learning platform revealed that Lin, Bea, and Oscar are their three established lesbian, gay, bisexual, and transgender characters, what Biemmi (2015) has highlighted, obviously contradicts to the fact that gender stereotypes remain in school textbooks on the grounds that the examination of the learning material (words and images) of the digital learning platform of Duolingo depicted absence of stereotypical images and diversity issues. Accordingly, Biemmi (2015) has emphasised on the fact that teachers appear to make little or no effort to implement anti-discrimination measures in their classrooms. This is something that has been brought to light by scholars dedicated to gender issues on multiple occasions. In the same context, scrutinizing on the Duolingo digital learning platform seem to coincide with what I Love Languages, (2023) has put an emphasis on and is correlated to the fact that the specific language-learning platform ought to give users the option of revealing their sexual orientation.

Furthermore, current findings concerning the thematic axis of the matter of Duolingo's inclusive language seem to reaffirm that Duolingo digital learning platform shared pictures on social media depicting LGBTQ-related sentences that its users would be required to translate. The words in question include "her wife is reading a book" and "the dress fits him very well." The above finding seem to coincide in certain extent with what Rosenberg, De Moura and Silva (2009) have underlined by commenting upon the fact that teachers in Primary and Secondary schools generally acknowledge the existence of disparities and differentiations and consequently express their support regarding equal opportunity policies as an ideological value. Therefore, Duolingo seem to be compatible with the wishful thinking of many teachers regarding a coordinated effort to eliminate the existence of differentiations and disparities in the educational field.

In accordance with the above the present results revealed that the comment of Zippia (2023) regarding the language-learning company Duolingo and the fact that it places a high premium on extinction of diversity and views it this process as a vital component of both their business and product they sell since the aforementioned finding seem to be reaffirmed by

what I Love Languages, (2023) has mentioned in relation to the fact that when signing up for the site, users of the language learning platform Duolingo are not required to provide any information regarding their gender

Conclusive Remarks

Goyal and Rose (2020) have commented upon the fact that because of their "considerable power of legitimation," textbooks have a significant impact on the field of growth of "behavioural models, gender-inclusive and values societal identities". Hence, promoting gender parity requires that textbooks accurately portray both genders. Accordingly, Brugeilles and Cromer (2009) commented upon the fact that a rising amount of papers on gender in textbooks propose that books ought to portray the world as it should be instead of the world as it currently is.

It is vital for relevant government entities to enhance textbooks through their authorization procedures in order to build a society that is gender equitable. This can be accomplished through actions such as issuing recommendations to promote equal treatment for women for educational materials. It has been suggested by a large number of studies that editors ought to participate in critical reflection on female and male images, as well as be conscious of the usage of sexist terminology and potential for sexism in texts.

Discrimination about women and the roles they play should not be allowed to be perpetuated in subsequent materials; instead, they ought to show an equitable depiction of the position of women in contemporary society. Textbooks ought to feature a more balanced by gender cast of characters, with an equal number of male and female protagonists, as well as equitable subject matter which reflects a fair representation of both genders.

As it can be deduced from the former presentation and analysis there should be "balanced portrayal of men and women across the book," "enough description of significant women," "defiance against gender discrimination in terms of the tasks carried out and traits displayed," "avoidance of discriminatory words," "symmetrical deal with of women and men," and "adoption of non-sexist language" (Lee, 2014).

Teachers need to be more aware about what is concealed in textbooks and make texts with less prejudice against women a priority in the classroom. Teachers, according to Holmvist and Gjorup (2007), need to offer students "a broader view on representation of gender that is given in the texts." In the same context Holmvist and Gjorup (2007) support the view that educators are considered crucial to encourage students to address gender related issues brought up in the classroom. It is also imperative for illustration instructors to capitalise on the opportunity of utilizing the literature as a springboard in order to encourage gender

neutral perspectives by having students engage in serious discussions on the social impact of the depictions

Previous research has generally found gender inequalities in the manner of gender prejudice, female disappearance, employing gender-biased language, irregular titles of female address, and male-firstness. However, current analysis demonstrates that the male and female depictions in the Duolingo digital learning platform are relatively balanced. .

Finally, it must be mentioned that Duolingo Company could be improved through expanding its research. Therefore, it would be in everyone's best interests for Duolingo and other similar software companies to broaden their search. Someone who is part of the Duolingo team mentioned in one of their tweets that the business prioritizes hiring women who graduated at the highest levels of their college courses. However, this disregards the reality that a large number of women do not pursue degrees in computer science. Most of the time, it can be attributed to the fact that they cannot afford it or because they were not encouraged to participate in STEM-related activities in high school. As a consequence, a lot of women get higher education through boarding schools, after school programs, programs for adults, or just by working really hard on themselves (Leaf and Core, 2019).

Additional study is required to analyse the ways in which different types of educational resources influence portrayals of gender, the ways in which textbooks are utilized in the field of a classroom, and the ways in which gender prejudice affect the development of pupils.

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