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### **Abstract**

Studies have shown that gender imbalances and biased gender representations are common in materials used in educational systems throughout the world. Learning resources for Open and Distance Learning programmes are, potentially, a powerful tool for reinforcing gender stereotypes, thereby perpetuating gender inequalities through education. This paper reports the methodology and results of a gender analysis of Environmental Education resources offered as part of a distance learning programme by a COL partner institution in Nigeria. A review of the written curriculum was conducted to determine the level of gender responsiveness of the programme, with a view to determining conformity to minimum standards stipulated in international best practice and promoting gender equality as a fundamental dimension of inclusivity for sustainable development. An analytical framework using both quantitative and qualitative instruments was applied to the resources to determine both subtle and more obvious expressions of gender disparities and biases, as well as to determine examples of good practice that promote gender equality and empowerment. The paper reports the results of the analysis and proposes ways to integrate gender responsive pedagogical methods in distance learning resources, for inclusion and sustainable development. Results indicate program has great potential for gender mainstreaming.

**Keywords:** *Gender mainstreaming, gender equality, distance learning, social inclusion, sustainable development, learning resources*

### **Background of Study**

Teaching and learning materials have a key role in shaping the values, attitudes and social skills essential to achieving gender equality, a cornerstone of both the Millennium Development Goals (MDGs) and the goals of Education for All (EFA). Yet, despite efforts to correct disparities in the visibility, status and perceived potential of boys and girls, men and women portrayed in these resources, such imbalances are common in the materials used in educational systems throughout the world. Many teaching and learning materials or resources (TLRs), including textbooks and other resources in use today are based on gender stereotypes-showing men and boys as powerful, assertive and intelligent as well as leaders in society as compared to women. Such resources depict women and girls as weak, passive and submissive, and mostly involved in domestic, care-giving and supportive roles. As a result, resources for teaching and learning might often reinforce gender stereotypes. Learning materials as well as learning processes that are free from gender biases and promote gender equality are both a good practice in education and may contribute to more inclusive and cohesive societies in the long run. Analyzing existing gender representation in TLRs of any education program is, thus, a necessary endeavor to determine their gender responsiveness as well as conformity to minimum standards as stipulated in international best practice. This is particularly critical in an environmental education program where learners are expected to contribute to environmental protection in their day-to-day lives, irrespective of their gender. TLRs may influence users in many ways: through their content (concepts, factual information, and value judgments), language, their design, visual elements, pedagogical approach and other aspects. A gender analysis of TLRs should consequently take into account all these issues in a comprehensive manner.

Green Teacher Nigeria (GTN) is an Environmental Education (EE) Programme offered by the National Teachers' Institute (NTI), Kaduna, Nigeria in collaboration with Commonwealth of Learning (COL), targeting over 225,000 through the 22,500 teachers targeted for training. The overall goal of the GTN programme is to empower teachers with the knowledge, skills and attitudes that enable them to impart environmental awareness among learners, thereby increasing capacity to protect and improve the environment in a sustainable way. In line with COL's gender equality policy, the resources, therefore, needed to be gender responsive in order not to perpetuate gender inequalities through education. A well trained and competent teacher can influence hundreds, even thousands of pupils' awareness and understanding of environmental issues and problems and can motivate them to take action that contributes to the resolution of the issues or problems. In the same way a teacher plays a critical role in

promoting gender equality or perpetuating inequalities through his/her learners. This gives the importance of having a gender responsive teacher education program. This can have a profound effect on promoting positive attitude, behavior and participation by all in protecting and improving the environment and promoting gender equality and participation in this. By reaching a large number of people (teachers and learners), the GTN through COL-NTI collaboration needs to be gender responsive in order not to perpetuate gender inequalities through education. Furthermore, the content of the GTN program had been written without any prior training of the development team in gender-responsive resource development. There was need, therefore, to determine how this impacted on the resources. The crucial role teachers can play in ongoing efforts to use education to address environmental problems and issues is widely recognized. Teachers constitute the key change agents in any educational innovation. The effectiveness of Environmental education is largely dependent on the teachers' knowledge, skills, and attitudes. Therefore it should have as its starting point the transformation of teachers' knowledge, understanding, skills and attitudes. A well trained and competent teacher can influence hundreds, even thousands of pupils' awareness and understanding of environmental issues and problems and can motivate them to take action that contributes to the resolution of the issues or problems. It is in this context that the design, development and implementation of a Green Teacher program at NTI assumes a huge significance. In the same way a teacher plays a critical role in promoting gender equality or perpetuating inequalities through his learners. This gives the importance of having a gender responsive teacher education program. Being one of Africa's largest ODL institutions and the only single mode distance learning institution in the whole world that is dedicated exclusively to teacher training, NTI is ideal for enhancing quality of teachers hence enhanced learner empowerment through training, development, upgrading and certification of teachers. This can have a profound effect on promoting positive attitude, behavior and participation by all in protecting and improving the environment and promoting gender equality and participation in this. By reaching a large number of people/teachers, the GTN through COL-NTI collaboration needs to be gender responsive in order not to perpetuate gender inequalities through education.

From the foregoing it is imperative to have a curriculum that takes care of the needs, interests, perceptions and roles of gender (group in terms of their gender needs, aspirations, social relations). A gender sensitive/responsive curriculum will allow both girls/boys, women/men have equal opportunity to acquire/develop awareness, knowledge, skills, understanding and attitudes towards the environment and this will make all to actively take responsible actions to protect and improve the environment for sustainable development. Looking at this (goals/objectives of EE) it is imperative to have a gender responsive curriculum (UNESCO-UNEP 1978, p. 3).

TLRs are obviously not the only place where biases of all kinds (including gender biases) may occur. However, given their powerful role especially in the early years of schooling, it is critical to identify aspects (both intentional and unintentional or unreflected prejudices and stereotypes) hindering gender equality.

As the most visible expression of the curriculum, TLRs play an important role in the transmission and internalization of values, and the acquisition and development of knowledge, skills and attitudes. As such, if well designed and implemented, they can facilitate quality learning processes and outcomes. However, in the absence of reliable quality checks based on clear and sound quality criteria they can also become vehicles of biases and/or misconceptions, including gender biases.

As part of the regular monitoring and evaluation of the programme, gender analysis study of GTN TLRs was conducted between September and December 2019.

*Significance of study:* The information gained from this gender analysis study would help in the formulation of and/or making changes in policies and plans, in the planning of interventions, and in the evaluation of EE program such as to reduce gender gaps identified.

The analysis would contribute to detailing key gender inequalities in the EE program and hence suggestion of ways that the program could narrow or close gender gaps, address inequalities, and/or empower women and girls in education and environmental conservation.

### **Methodology and Scope**

Objectively study set out to carry out gender evaluation of the standalone GTN modules and handbooks, specifically examining their gender responsiveness, potential for gender impacts on girls, boys, men,

and women; and their potential es to bring about gender mainstreaming through gender equity, equality, empowerment.

Evaluation of GTN learning materials was done with the aim of collecting evidence of gender biases in the resources, as well as determining examples of good practice that promote gender equality and empowerment. The scope of the evaluation study entailed examining the written curriculum only. Following international standards on research on gender equality, an analytical framework using both quantitative and qualitative instruments was applied as a combined strategy to be able to uncover both subtle and more obvious expressions of gender disparities and biases. While adapting a content analysis design, a holistic approach to gender analysis was used, in which different gender analysis frameworks and checklists were reviewed, referenced and integrated on a needs basis and used to prepare suitable tools to evaluate the GTN materials. These tools included COL's Learning Resources Gender Analysis Checklist (the key tool), Harvard Gender Analysis Framework, UNDP Checklist for Gender Mainstreaming in Project and UNDP Checklist for Gender Mainstreaming in Work Planning and USAID Gender Analysis Checklist. A Gender Analysis Workshop was conducted at NTI where the tools were discussed and disseminated, as well as user perspectives gathered on the gender representation on sample resources. Thus study emphasized assessment of messages delivered in, and through the materials based on wording/narratives, examples, case studies, stories, illustrations, working methods only. The analysis was conducted to determine gender biases in different aspects and components of the materials, gender ratios, gender roles and responsibilities and psychological descriptions in illustrations, pictures, images, photos, charts, diagrams, figures, texts and assignments using gender lens. It included analysis of representation of characters in the materials through determining frequency of representation, ordering, placement or locus and naming of male and female characters, frequency of characters from different subgroups in society (language and ethnic or racial) and marginalized groups (eg disabilities). Gender representation by character was determined by counting the number of characters of each sex, counting each person only once, to determine how many times males and females (men/boys and women/girls) appear in texts, pictures, photos, illustrations, citations, authors, titles etc. Frequency of appearance of women/men and girls/boys giving gender ratios was calculated as percentages. Naming, power and visualization by gender was also examined. Content analysis was done to examine accessibility of content design, content relevance & functionality, gender responsiveness. The target of evaluation was to determine the extent to which gender is mainstreamed in the GTN program, the level of gender equality, gender gaps in the program and potential gender impacts.

## **Results and discussions**

### *Module Design*

The modules and handbooks have clear page layout, with appropriately bolded prints and text in clearly separated sections. This makes it accessible to all gender and so the design is gender sensitive.

Assessment and evaluation comprises self-check questions and exercises, and there are options of 'assignments' to be carried out by the learner and results/analysis/report thereof to be submitted in the required manner. This increases individual learning.

### *Frequency of Gender Representations/Ratios*

Developers of material (consultants, writers and reviewers) consisted of a mixed team, both men and women. However, there is predominance of men (73.7%) in developing this material, this means women's voice and experiences are underrepresented.

### *Narrative text*

Looking at how male and female characters are represented, it was observed that reference is made more to male thinkers (71.42%) than females (26.53%). There is a general male dominance (71.42%) in representation of ideas, a reflection of gender biasness/inequality. There is need to address this gender inequality in representation. There is also gender inequality, imbalance as well as lack of gender inclusivity, with the social or ethnic/religious groups and the marginalized groups/disabled being excluded. Disabilities and social/ethnic groups are not recognized in the material.

### *Visualization*

On visualization, there is gender biasness. Where photographs are given, it is either all are men or if a mixed group the men are in the frontline and their pictures are bigger than those of females. This makes men more conspicuous than females in pictorial representation. So there is gender bias in relative positions/locus of men and women. Review of number of pages that first revealed name of men and women showed that frequently first man appears in earlier pages. For example in module 1 first man appears on page 2 and is identified by name, while the first woman appeared on page 15 and her name is not identified. This shows that there is gender bias on who will appear first in the module. Prominence given to males and message passed to learner is that men are more important and more

powerful as leaders and in the opinion they give than females. Looking at source materials, it was not possible to establish gender of authors of references based on names, but there is no any publication/references on gender issues.

Examining gender representation in academics and contribution of information, both men and women contributors are seen as contributing to international discourse on environmental movement and EE. However, there is bias, men form 62.5% while females form 37.5% of resource persons. This means men's voice dominate. This demonstrates that voice/visualization of men and women are described by stereotyped ideology, for example that men are more intelligent than women.

The featuring of women as leaders eg Hon. Minister of Education, and contributing to international discourse on EE and environmental movement serves to give good role models and in positions of power, thus promoting gender equity and equality. Both men and women are explicitly mentioned as examples of scholars who laid foundation for development of EE and this makes module 1 accessible to learners.

*Assessment:* There are options of 'assignments' to be carried out by learners and results/analysis/report thereof need submitted in the required manner, a means of promoting gender equality.

*Support system;* Consultations during contact days or through e-interaction such as mails, cell-phones, etc provides learners with choices of media for communication. Learners also supported by connection/networking through e-blog. Other support provided include counselling to help all learners who have individual challenges, with an aim to maintaining learners in the program. A vibrant learner support system takes consideration of specific gender needs and is important for mainstreaming gender in education. There are no any statements how to address gendered needs in the analyzed modules.

Use 'further/suggested readings' in case of your interest in a concept and subject and for finding for more information about the same. This helps develop independent learning skills based on learner's needs, interest, experience, capacity.

There is provision of equal opportunity to all through consultation of Course facilitator on issues unclear to learner on contact days or through e-interaction (mails, cell-phones, etc.) making the teaching/learning process interactive. Use of different media means inclusivity in timing/flexibility.

The existence of different approaches to offering the program ie purely online approach and the blended approach, together with TLRs modules and handbooks being available online and in printed format, promotes accessibility to all (gender accommodating).

Results indicate that there is gender imbalance and gender bias in representation in the text and illustrations, with males having a higher percentage representation than females. There is also gender bias among content developers, with males dominating. This imbalance in gender representation has a potential to perpetuate gender stereotypes. Women are portrayed in non-traditional roles, while men are seen in their traditional roles, demonstrating some extent of change in traditional gender role, and this has the potential to transmit messages about gender equality and contribute to gender education. The study found GTN materials have exclusion of people from marginalized subgroups in the society, such as those with disabilities and from minority ethnic groups. People with other disabilities such as visual impairment etc are also not considered in the modules. Content structure and content delivery methods were gender responsive. Content was structured in simple, small sections, easily achievable within a short time. This made it accessible to all learners. This mode had a strong potential for promoting gender equity and gender equality. The fact that content was open to all reflects a great opportunity for gender mainstreaming. The modules, however, did not include concrete measures to consider the needs of girls and boys for learning/teaching and measures to prevent gender discrimination.

TLRs and curriculum design and materials presentation must take into account the experience and needs of all potential learners. The materials must demonstrate relevance and functionality, incorporate cultural/local context (eg in the choice of examples and case studies and the presentation of role models, regional and community variations), use gender inclusive language, balancing visual representations (eg by gender and races) and avoiding unnecessary stereotypes.

These resources left out:

- concrete measures to consider needs of girls, boys for learning/teaching,
- how to create equal opportunity,
- how to involve them equally in learning activity and
- how to prevent gender discrimination.

Based on these weaknesses, it can be concluded that the GTN TLRs are not gender transformative, they are gender accommodating.

### **Conclusions and Recommendations**

Curriculum design and materials presentation must take into account the experience and needs of all potential learners. The materials must demonstrate relevance and functionality, incorporate cultural/local context (eg in the choice of examples and case studies and the presentation of role models, regional and community variations), use gender inclusive language, balancing visual representations (eg by gender and races) and avoiding unnecessary stereotypes. It is also observed that there is male dominance in pictures, texts and citation used in these materials. The survey evidences show that there is need to address the issue of unequal representation or imagination of men and women in the resources. For all modules and handbooks it was observed that among material developers, facilitators and GT program coreteam, none has received training on gender & gender analysis; none is a gender expert or has gender expertise. They have lack of awareness and experiences in gender responsive pedagogy. The findings present a need to raise awareness on gender equity in general and prepare facilitators well on gender responsive pedagogy. The reviewed resources do not have concrete approaches and solutions to be responsive to girl and boy's needs, interest, gendered differences in learning process. Therefore, these resources tend to be "neutral" and in "general" term, focused on setting gender equity, however, there is no concrete measures that include actions reflecting gendered needs and differences to contribute in building gender equality. In terms of design, the stated objectives didn't consider any gender themes directly, that would contribute positively for gender education. In terms of content, the GTN program and resources didn't directly consider knowledge on gender. Key ideas related to gender in the content include sustainable development. Along gender continuum, these materials fall at level of gender sensitive, gender accommodating and gender aware. The challenge is on how to make the resources gender transformative.

To make the resources more gender responsive, it is recommended that the number of females across all texts, illustrations, stories be increased to give equal representation of both genders across all stories and text in materials. Illustrations depicting female and male characters in comparable roles be included. Include characters from marginalized groups in stories, case studies and examples. Make 15% of characters to be people with disabilities, ideally with a range of types of disabilities portrayed (e.g., individuals with mild to severe physical disabilities). Illustrations should proportionally represent characters from different ethnic and religious groups. Added to these resources should be that men/boys and women/girls are clearly visible in the content in equal representation, and in both traditional and nontraditional roles. Equal opportunities should be provided for male and female to be involved in developing learning materials. It is recommended that gender-responsive illustrations, charts, pictures and diagrams are used to fill the gender gap in these resources. These images can also be posted on classroom walls or shared via technology to help create a gender-responsive environment. In addition it is recommended that there should be strategies for immediate awareness raising and training on gender issues among teachers, parents, and communities that have an immediate impact on creating more inclusive, gender sensitive learning environments. Include illustrations depicting female and male characters in comparable roles. Include characters from marginalized groups in stories, case studies, examples.

While acknowledging that TLRs produce their effect in a mediated way, it is nevertheless important to stress the importance of developing high quality TLRs in compliance with clear and relevant quality criteria, among which the promotion of gender equality and the avoidance of gender biases should play a central role. Learning materials, as well as learning processes that are free from gender biases and promote gender equality are both a good practice in education and may contribute to more inclusive and cohesive societies in the long run.

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