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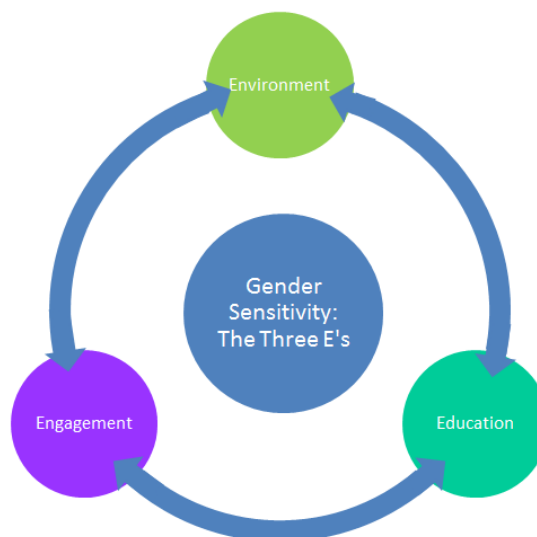
## **The Gender Sensitivity of the BoxGirls South Africa Tutoring Program**

The underrepresentation of women in Science, Technology, Engineering and Mathematics (STEM) degrees and professions has persisted in most nations, including South Africa. A qualitative empirical study was undertaken by a UCT postgraduate student who focused specifically on primary school mathematics by exploring gender-sensitivity as one response to gendered differences and underrepresentation of females in mathematics. The BoxGirls Mathematics Tutoring program, run in South Africa was used to frame the discussion of gender sensitivity.

The study argued for the importance of increasing gender sensitivity in mathematics teaching which can be achieved with the assistance of gender sensitive indicators. Three broad indicators of gender sensitivity were put forward by the study: Environment, Education and Engagement (The Three E's). These indicators relate to the structure of the tutoring program, the style of learning that takes place and the engagement between the pupils and the tutors as well as among the pupils.

Used together the Three E's establish a proposed foundation for looking at gender sensitive practices within mathematics tutoring programs. They can be used as an aid to reflect upon and assess gender sensitivity in individual tutoring programs.

The study understood the relationship between the Three E's to be circular and multi-directional as shown in the diagram below:



### **BoxGirls and the Three E's**

#### Environment

Environment as an indicator of gender sensitivity refers specifically to the whether the learning environment is safe, less-hierarchical and inclusive. The study found environment to be an essential consideration when working towards gender sensitivity. The BoxGirls tutoring program was found to be a useful example of a

safe, non-competitive, less-hierarchical learning environment for the young girls who attend. In BoxGirls there is mutual respect between the tutors and the learners. When applying this indicator to the BoxGirls Mathematics tutoring program therefore it was apparent that the environment established by this program aims at being gender sensitive.

### Education

Education as an indicator can be used to reflect on whether the curriculum and teaching encourages a less mechanical and gender stereotyped style of learning. A gender sensitive tutoring program will adopt a form of education that encourages inquiry-based learning, co-operative groups and a more non-competitive environment. The promotion of group work and the ability of girls in BoxGirls to learn from their peers as well as their tutors, serves as evidence that BoxGirls works at promoting a more gender sensitive style of learning. Additionally, BoxGirls aims to go beyond gender stereotypes, validating the realities of the young girls who live in Khayelitsha. Through the application of this indicator to the BoxGirls Tutoring Program the study found the education style and subject content to be gender sensitive.

### Engagement

The final gender sensitive indicator the study presented was that of Engagement. Engagement was understood in the context of tutoring programs as being multifaceted, meaning both participation and communication. Firstly as it refers to participation, a gender sensitive tutoring program is concerned with establishing an environment in which the learners are willing to participate. This includes learners attempting an answer to a problem, helping peers with work and broadly engaging with the learning material. A more gender sensitive approach is also concerned with communication and is one in which the tutors communicate with the learners in a respectful manner, accounting for the learners' agency. The learners in BoxGirls willingly participate in the sessions and the tutors communicate with the learners in a respectful and encouraging manner. BoxGirls was thus found to be gender sensitive through the application of the engagement indicator.

### **Final Reflections**

These indicators are qualitative and do not aim to quantify gender sensitivity or enable the ranking of a tutoring program based upon a degree of gender sensitivity. Through the initial application of these indicators to BoxGirls South Africa their tutoring program was found to be gender sensitive. BoxGirls successfully illustrates how gender sensitivity can be used to begin to address the challenges and stereotypes young girls face when participating in mathematics lessons. Gender sensitivity remains a work in progress and BoxGirls should continue to reflect on the gender sensitivity of their program.

By addressing gender stereotypes at a primary school level and encouraging the achievement of girls in mathematics, BoxGirls works so as to include the voices of females within more historically male-dominated degrees and fields. BoxGirls, in working in a more gender sensitive manner, empowers not only young girls but their communities as well. Their tutoring program combats gender stereotypes and in doing so helps to pave the way for the young girls who participate in their program, to achieve their full potential.

Overall the study found BoxGirls to be a useful example to other tutoring programs. Other tutoring programs can learn a great deal from BoxGirls' meaningful and gender sensitive program.

The research for this report was conducted as an Honours study based on a request for such research by BoxGirls SA.

**The UCT Knowledge Co-op facilitated this collaborative project.**

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