Chapter 3
"Doing Science and Mathematics" or "Doing Good Student": The Cultural Production of Young Women in Upper Secondary Science and Mathematics

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ABSTRACT

This chapter explores how young women in upper secondary education navigate the cultural expectations embedded in school science and mathematics. Drawing on the concept of cultural production and identity and gender as performative, the analysis is based on 32 semi-structured individual interviews with self-identifying young women. Four themes are identified: the cultural production of practice, of the sciences, of school, and of gender. The findings are presented through three young women – Sima, Iben, and Elissa – who exemplify different ways of negotiating and making meaning of these cultural expectations. Engagement with science and mathematics was often reduced to reproducing correct answers and performing "good student" behavior or shaped by a sense of disconnection from the subjects. The findings show that the alignment of institutional culture with gender norms limited the possibilities of being recognized as a top performer while performing young woman. Implications are discussed with focus on how gender norms shape access to recognition in science and mathematics.

DOI: 10.4018/979-8-3373-0345-1.ch003

INTRODUCTION

Equitable access to and participation in science, technology, engineering, and mathematics (STEM) education is a matter of social justice (Archer et al., 2015). In a democratic society, meaningful participation requires scientific and technological literacy (Moote et al., 2020), and engagement with STEM can foster individual agency – and potentially reinforce and (re)produce – social inequality (Moote et al., 2021). Engagement with science fosters a deeper understanding of both ourselves and our relationship with the world (Nicolaisen et al., 2023), while also preparing individuals for active civic life (Hasslöf & Lundegård, 2018; Moote et al., 2020). Additionally, the STEM disciplines are widely recognized as crucial not only for current and future economic development, but also for addressing urgent global challenges such as public health, energy sustainability, and climate change (Drymiotou et al., 2024; European Centre for the Development of Vocational Training, 2018). Consequently, creating inclusive and sustainable educational opportunities – where STEM is accessible to all youth regardless of gender, ethnicity, or socioeconomic background – has become a global priority (UNESCO, 2017).

Despite this global agenda, young women – along with minority ethnic and working-class youth – remain underrepresented within post-compulsory science and mathematics (Archer et al., 2016) particular at degree level in the physical sciences, engineering and mathematics (Archer et al., 2015; Francis et al., 2017; Seymour & Hewitt, 1997). Even among high-archiving students, research shows that girls and minority students often struggle to perceive these subjects as something for them (Calabrese Barton et al., 2013; Hill et al., 2010). To understand this underrepresentation, it is essential to examine experiences with pre-college (or corresponding educational level) science and mathematics (Eisenhart & Allen, 2020).

Denmark is commonly perceived as a pioneer in gender equality compared to countries outside of Scandinavia. Formally, this is reflected in legislation such as equal pay laws, protections against domestic violence, and the recent parental leave reform. However, on an informal level, Denmark continues to fall short of achieving gender equality (Thorsen et al., 2025), and both the educational systems and the labor market remain among the most gender-segregated in the world (Bloksgaard, 2011; Emerek & Holt, 2008; Thorsen et al., 2025). Interestingly, the gender balance has tipped in favor of the young women at the general upper secondary level when it comes to graduating with a science and mathematics degree (Ministry of Children and Education, 2024) and the young women perform in general on a par with or better than their male peers (Dansk Erhverv, 2019). Moreover, women in general outnumber men at the higher educational level (Dansk Erhverv, 2023). This implies that even though young women are qualified in science and mathematics

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Roselainy Abdul Rahman, Sabariah Baharun, Yudariah Mohamad Yusofand Sharifah Alwiah S. Abdur Rahman (2015). *STEM Education: Concepts, Methodologies, Tools, and Applications (pp. 557-567).*

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