

This fact sheet presents the results of a literature review on lesbian, gay, bisexual, trans and queer (LGBTQ) people in the fields of Science, Technology, Engineering and Mathematics (STEM), conducted in winter 2018 by Otto Briant-Terlet.

## INCLUSION AND EXCLUSION AT WORK: LGBTQ people's experiences in STEM

Sophie Doucet, candidate in sexology, UQAM and research assistant for the UNIE-LGBTQ project,  
Line Chamberland, Ph. D. sociology, and Otto Briant-Terlet, sociologist, research assistant  
for the UNIE-LGBTQ project and independent researcher

The inequalities experienced by LGBTQ people are widespread in companies and university departments in the fields of STEM, and they persist even in spaces open to sexual diversity and gender plurality (gay and trans-friendly) that already have anti-discrimination policies and resources specific to LGBTQ people (Cech and Pham, 2017; Rumens and Kerfoot, 2009)<sup>1</sup>. In STEM, in universities or in workplaces, a masculine and heteronormative<sup>1</sup> culture dominates, often more entrenched than in other areas of work and research (Patridge, Barthelemy and Rankin, 2014). In the following pages, we will try to shed some light on the situation of LGBTQ people pursuing an academic or professional career in STEM fields.

The technical/social dualism that prevails in STEM, particularly among engineers, appears to work against LGBTQ people who work in these fields. Indeed, activities or topics of conversation that are not related to science and mathematics are discredited and dismissed on the side of the "social", which is less valued than the "technical" (Cech and Waidzunus, 2017). According to Cech and Waidzunus, in this sense, talking about homosexuality or showing one's homosexuality (especially in the most banal ways, such as talking about one's partner) contributes to the discredit of LGBTQ

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<sup>1</sup> The concept of heteronormativity refers to social, cultural and institutional practices that contribute to making heterosexuality the norm for both men and women. The heteronormative model also presupposes a close correspondence between the sex assigned at birth, gender attributes, the social roles associated with the feminine and masculine, and heterosexual desire.

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According to various statistical surveys conducted in STEM fields mainly in the United States (Yoder and Mattheis, 2016; Patridge, Barthelemy and Rankin, 2014; Human Rights Campaign Foundation, 2014; Cech and Waidzunus, 2011), nearly half of the LGBTQ people who work in these fields are in the closet. It is mainly in "feminised" areas such as biology and chemistry that we find people who are not in the closet (Yoder and Mattheis, 2016; Cech and Waidzunus, 2011). However, according to a study conducted among LGBQ academics, not being in the closet does not necessarily seem to be an indicator of an environment open to sexual diversity (gay-friendly). Indeed, LGBQ teachers who are in STEM and who are not in the closet often report feeling less comfortable or uncomfortable in their work environment than teachers in other fields. Moreover, they have more often considered leaving their jobs than LGBQ teachers in STEM that are in the closet (Patridge et al., 2014).

In addition, some LGBTQ people working in STEM sometimes report not having been hired or having been fired because of their sexual orientation (Bilimoria and Stewart, 2009; Cech and Waidzunus, 2011). Some of them also report that they were put out of work for technical reasons and then dismissed shortly after they came out. Not being in the closet does not necessarily break the pressure put on LGBTQ people to conform to the heterosexual norm. In addition, LGBTQ respondents often report that colleagues or supervisors have asked them to keep their homosexuality to themselves, to not to be accompanied by their partner at events, or to not to look "too gay" (Bilimoria and Stewart, 2009; Cech and Waidzunus, 2011).

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In the same vein, the previously cited study by Patridge et al. (2014) conducted on LGBQ academics in STEM fields shows that one in five LGBQ students reported being excluded (being

bully, being harassed, feeling ignored, feeling avoided, etc.) in their work environment, while half also reported they had witnessed this kind of practice. Anticipation of exclusion can create the fear of being "discovered" or being called to order to conform to the heterosexual norm, which can lead LGBTQ people working in STEM to isolate themselves and build tight boundaries between their social and professional lives, especially since there is often no visible LGBTQ community in the workplace (American Physical Society, 2016; Bilimoria and Stewart, 2009; Cech and Waidzunus, 2011; Patridge et al., 2014).

On the other hand, STEM is an area in which group work is frequent. Often, due to their isolation, LGBTQ students in STEM must provide additional academic work to do as much as if they had worked in a group or benefited from peer support. This extra work to achieve better academic results is also necessary to have one's skills recognized, while being identified as LGBTQ contributes to discrediting their scientific capabilities (Cech and Waidzunus, 2011). In addition, the exclusion and isolation of LGBTQ people studying or working in STEM keeps them isolated from the professional networks that are essential in this sector to advance their careers. This exclusion also leads half of LGBQ academics working in STEM and interviewed by Patridge et al. (2014) to declare that they plan to leave their jobs.

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Lastly, it is also important to note that there are few studies on LGBTQ people in STEM and that the population studied by the articles in these fields is overwhelmingly composed of cisgender white people with very high educational capital, in accordance with the predominant characteristics of the population employed in STEM (Yoder and Mattheis, 2016). The educational and professional trajectories of trans people are also poorly documented. In addition, LGBTQ men and women interviewed in these studies report the same types of disadvantages as in other types of professional sectors (e.g., forced to look heterosexual, challenging their skills because of their sexual orientation, prejudice against non-heterosexual sexual orientation, homophobic comments) (Cech and Waidzunus, 2011; Cech and Pham, 2017). In addition, LGBTQ youth working in STEM do not have a substantially higher satisfaction rate than older LGBTQ people working in STEM, suggesting that the disadvantages will not disappear with the replacement of older generations in the workforce by new ones (Cech and

Waidzunas, 2011; Cech and Pham, 2017). Moreover, advancing in one's career and assuming more responsibilities does not improve job satisfaction, suggesting that career advancement or occupying a high position does not eliminate the disadvantages either (Cech and Waidzunas, 2011; Cech and Pham, 2017). It is therefore not surprising that LGBTQ people working in these fields generally have lower job satisfaction than heterosexual and cisgender people (Cech and Pham, 2017; Patridge, Barthelemy and Rankin, 2014; Yoder and Mattheis, 2016). To these results, it should be added that in general, LGBTQ people tend to underestimate the discrimination they experience (Crosby, Clayton, Alksnis and Hemker, 1986; Crosby, Pufall, Snyder, O'Connell and Whalen, 1989).

## Recommendations to promote the inclusion of LGBTQ people in STEM

1

Develop structures such as resource spaces for LGBTQ people in workplaces and in universities where students can meet, create links with graduate LGBTQ engineers (mentoring), and develop their network (Bilimoria and Stewart, 2009; Cech and Waidzunas, 2011).

2

Train students and staff on LGBTQ issues and consult existing resources such as *The Best Practices Guide for the Inclusion of LGBT+ Faculty* (2013) by Atherton, Barthelemy, Deconinck, Long, Parno, Ramsey-Musolf and Simmons (Cech and Waidzunas, 2011; Patridge *et al.*, 2014).

3

Sanction expressions of hostility towards LGBTQ people (Bilimoria and Stewart, 2009).

4

Include sexual orientation and gender identity issues in the anti-discrimination policies of STEM university departments and extend these anti-discrimination policies to the professional world (Cech and Waidzunas, 2011; Patridge *et al.*, 2014).

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For more information on the Understanding Inclusion and Exclusion of LGBTQ People (UNIE-LGBTQ) Project of the Chaire de recherche sur l'homophobie of the Université du Québec à Montréal (UQAM):

[savie-lgbtq.uqam.ca](http://savie-lgbtq.uqam.ca)

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