

INDUSTRY BRIEFING:

INCLUSION AND GENDER DIVERSITY IN VIRTUAL PRODUCTION



What can we learn from
the music industry?

Dr Nina Willment and
Professor Jude Brereton
2023



UNIVERSITY
of York

Executive summary

Virtual production is an emerging technology in the film and TV industries. It uses virtual environments and is dramatically changing how screen content is produced.

Some say that virtual production gives us the chance to **improve gender diversity** across the film and TV industries.

To ensure virtual production really does achieve gender diversity and inclusion from the start, we can draw lessons from the music industry. This briefing draws on ongoing research by the authors and highlights transferable insights into:

- digital technological developments
- accessibility
- skills
- inclusion

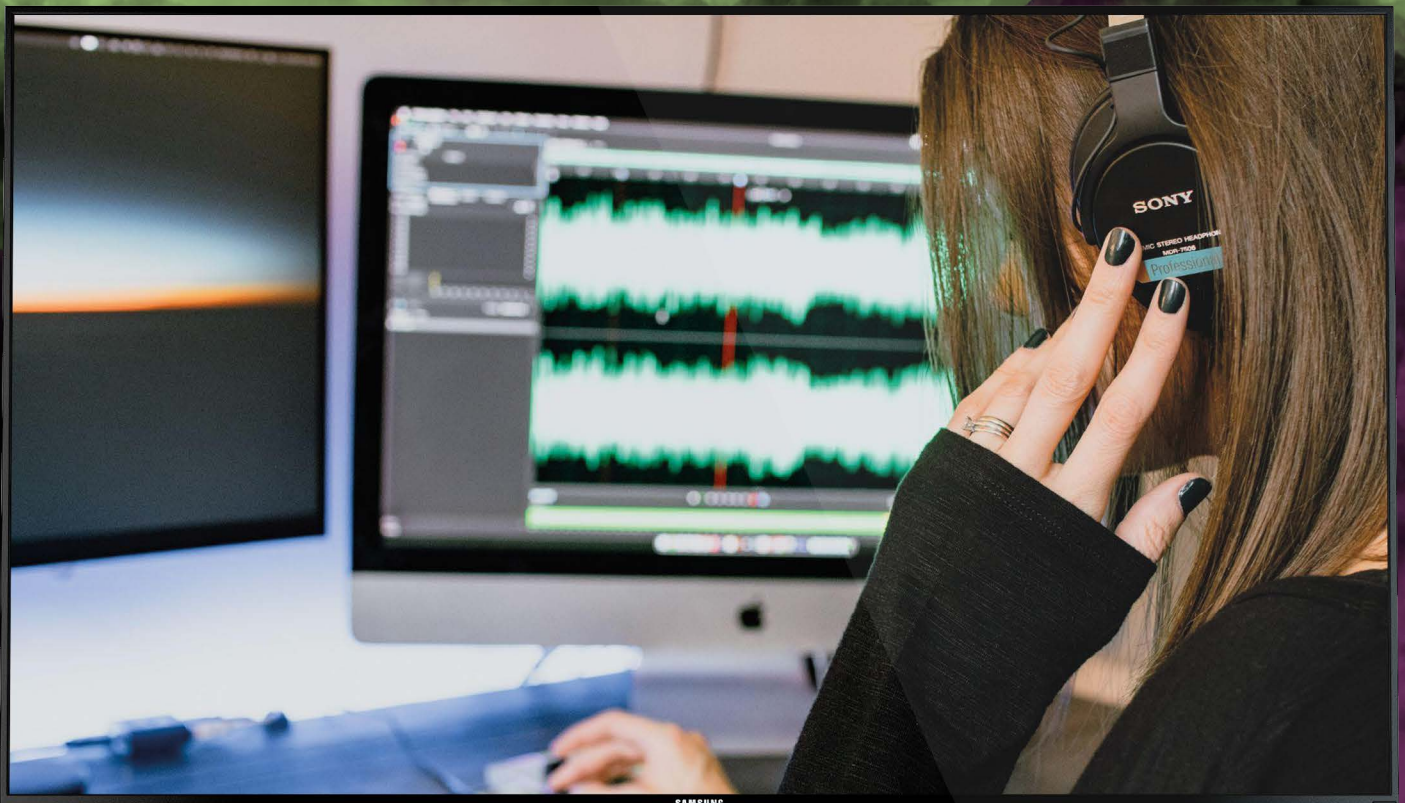


Photo by Kelly Sikkema

New research and evidence

It is estimated that the global virtual production industry will grow by

17.8%

annually from 2022 to 2030

In the film and television industries, virtual production uses **computer-generated content** that allows practitioners to visualise and control digital environments in real time during pre-production and shooting.

The virtual environments are captured 'in camera', rather than being added in post-production.

It's estimated that the global virtual production industry will grow by **17.8% annually from 2022 to 2030** (Grand View Research, 2021). This will require **new technical and artistic skills** and the associated development of **new job roles and opportunities** in the film and TV industries.

As the industry develops, virtual production technologies are also becoming **more affordable and accessible**.

This background is leading to suggestions that virtual production could enable **improved gender diversity** in the film and TV industries.

These industries already have a significant problem with gender diversity: **men have made up 69% of credited crew in off-screen roles over the past ten years of production** (BFI, 2022).

In certain sectors, such as the VFX sector, this gender disparity is even starker. A recent report by Women in Animation and the USC Annenberg Inclusion Institute (2021) found that only **2.9% of all visual effects supervisors were women¹** and only **0.5% were women of colour**.

¹ In the briefing, we use the term 'woman' inclusively to refer to anyone who identifies as a woman.

Credited crew roles off screen (2011 to 2021)



69%

Male crew members



31%

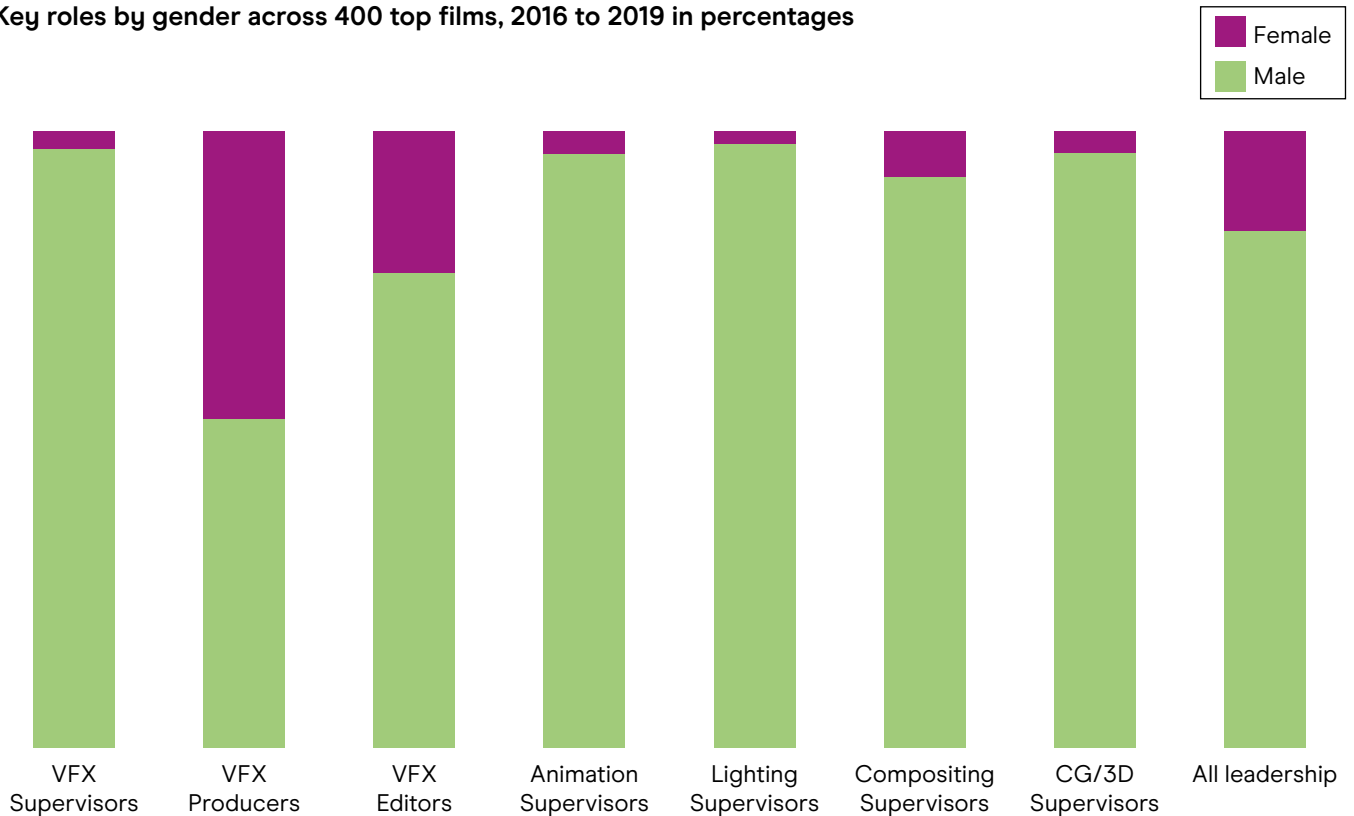
Female crew members

British Film Institute Filmography

Image from [Kindred](#)

Gender Gaps in VFX Leadership roles

Key roles by gender across 400 top films, 2016 to 2019 in percentages



Leadership roles include 5,515 credits spanning all listed positions, and appearing in any credit location.

Image from the report [Invisible in Visual Effects](#) by USC Annenberg Inclusion Initiative and Women in Animation (WIA)

Currently, there is a **lack of data** on gender diversity in the virtual production industry, perhaps because of the newness of the industry and the lack of definition of its job roles and workflows. However, industry participants in our research suggested that virtual production continues to be male-dominated. Participants believe this is because people move into virtual production from sectors such as video game development, which are already heavily male-dominated. Participants also perceived a lack of education for female students about the technological roles available to them in virtual production (Willment and Swords, 2022).

Comparisons can be drawn with the early 1980s, when many heralded **new digital technologies** as a key driver of **gender diversity in the music industry**.

But technology-based roles in the music industry continue to be **heavily male-dominated**. For example, women make up only 3% of audio engineers/mixers in popular music. And on higher education music technology courses, only 16 to 25% of students identify as female (Brereton et al., 2020).

Although women are gradually becoming more represented in the music industry workforce, they also still face challenges such as **entrenched sexism, a lack of female role models, and multiple barriers to entry** (Smith et al., 2019).

Currently there is a
lack of data
on gender diversity
in the virtual
production industry

What next / action points?

What can we learn from the music industry about how virtual production can best promote gender equality? Here are five key recommendations:

- **Commit to gender-inclusive recruitment packages and ensure that women's career progression is continually nurtured.**

Gender-inclusive recruitment packages include the promotion of *job-sharing* to allow those with caring responsibilities (predominantly women) to enter and stay in the workforce. Women should also be supported through schemes such as *mentorship* to progress in their careers. During *recruitment*, all person specifications and interview processes should explicitly include a commitment to improving diversity and inclusion more generally.

- **Adopt a zero-tolerance approach to sexual harassment and gender micro-aggressions: implement a robust reporting mechanism and handle reports sensitively.**

Following the 1752 Group recommendations, *an enforceable code of conduct* that makes professional boundaries clear should be developed for both on-set and off-set work (Brereton et al., 2020). Also needed are *robust mechanisms* for reporting gender microaggressions and sexual misconduct, so that those who experience any form of sexism are confident about reporting it.

- **Do outreach work in education settings to show that careers in virtual production are viable for women.**

Gendered perceptions of subject disciplines affect the number of women entering careers in both music technology and virtual production. *Outreach activities* in schools and other educational institutions that focus specifically on students who identify as female can encourage women to enter industries such as the virtual production industry. These outreach activities should also *raise the profile* of women already working in the field, who can then be role models to future generations.

- **Make open, honest and proactive efforts to increase diversity and inclusion, including implementing LGBTQI+ positive interventions.**

Businesses, organisations and individuals working in the virtual production industry need to be *open and honest* about the current state of the industry and the need for greater diversity. It is also important to be *realistic about the challenges* involved in addressing the gender disparity of the wider screen industries. Organisations should ensure that they create a safe space for discussion to ensure all voices are heard, and any resulting strategic changes or interventions must be *LGBTQI+ inclusive*.

- **Collect baseline gender data for virtual production and examples of interventions that improve gender diversity in the industry.**

Every organisation in the sector should gather and publish *data* on women's participation in virtual production, and more *research* must be conducted and published on why women are underrepresented in the industry. Challenging *targets* should then be set for organisations working in virtual production and related education. Examples of *best practice* are important: effective interventions for improving gender diversity across the screen industries more broadly, and virtual production specifically, should be collated and published.



commit to
**gender-
inclusive**
recruitment packages

About the authors

Dr Nina Willment – Research Associate for XR Stories at the University of York

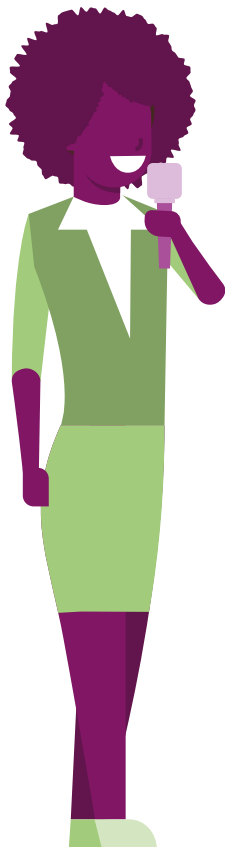
Dr Nina Willment is an economic and cultural geographer with expertise in newly emerging forms of work in the cultural and creative industries. She graduated from Royal Holloway, University of London, with a PhD funded by the Economic and Social Research Council. As part of her role with XR Stories, she is currently working on a project exploring the geographies of virtual production.

nina.willment@york.ac.uk

Professor Jude Brereton – Co-Director and Skills and Training Lead, Screen Industries Growth Network (SIGN), University of York

Dr Jude Brereton is Professor of Audio and Music Technology at the University of York. Her research investigates musical performance in virtual environments, and diversity and inclusion in creative technologies.

jude.brereton@york.ac.uk



Links / further reading

Read What is Virtual Production? An Explainer & Research Agenda:

<https://xrstories.co.uk/publication/what-is-virtual-production-an-explainer-research-agenda/>

Read the report Fix The Mix from We Are Moving The Needle, examining gender representation among people receiving production and engineering credits across the music industry:

<https://www.wearemovingtheneedle.org/fix-the-mix>

Read a report on the intersection between gender and work in VFX – Invisible in Visual Effects: Understanding the Prevalence and Experiences of Women in the Field:

<https://assets.uscannenber.org/docs/aii-study-women-in-visual-effects-2021-11-04.pdf>

Use our specially commissioned Inclusive Recruitment Toolkit to guide your action planning for inclusive and equitable recruitment practices.

<https://screen-network.org.uk/publication/inclusive-recruitment-toolkit>

Disclaimer

This brief does not represent the views of the University of York as an institution.