Dr Mala Siamptani
Lecturer in Fashion Jewellery Design
London College Of Fashion (UAL)
m.siamptani@fashion.arts.ac.uk

Phygital adornments: exploring new design interactions in an education setup.

Exhibition & presentation

Abstract

Technology today plays a major role in our daily lives, affecting many aspects of our social, professional, and personal environments. The way we live, work, learn, and interact with one another has changed, from our smartphones and smartwatches to social platforms and online communities, to e-learning and digital libraries, and the list goes on. With its ability to combine digital information with the physical world, Augmented Reality (AR) is becoming increasingly integrated into our daily lives by enabling us to view real and computer-generated images within the same field of view (Berry et al., 2006). Compared to other technologies like Virtual Reality, AR can be considered a technology that is easier to integrate into our daily lives because it has been included in commonplace devices like smartphones (Heller et al., 2019). Despite the proliferation of numerous software and hardware developments in recent years, a knowledge gap exists in relation to the influence these digital tools might have on the designer's creative process. Thus, this project focuses on the examination of such digital tool integrations, specifically in the domain of jewellery design through the collaborative project Let's Get Phygital (LGP).

Keywords*:* Jewellery; Augmented Reality; Education; Phygital; Design.

As a field, jewellery holds a distinct position within craft due to its close ties to material value, personal meaning, and technical execution (Untracht, 1982; Bennett & Mascetti, 2010). As Raden (2018) suggests, it has long been a marker of human identity and social behaviour. Its intimacy, worn on the body and often chosen with deep intentionality, offers a unique perspective on how contemporary technologies intersect with concepts of identity, materiality, and human connection. The author argues that while the roles and methodologies of jewellery practice are shifting in response to digitalisation, the power remains with the maker and the wearer.

In line with previously published research, it is clear that digital design and manufacturing tools are used to support the creation, modification, analysis, and optimisation of designs to boost productivity, enhance efficiency, improve design, develop better communication of design ideas, and drastically cut production time (Wannarumon & Bohez, 2004; Bernabei et al., 2015; Brown, 2009). While jewellery design remains rooted in traditional craft, the integration of new tools can enrich both the designer's creative process and the customer experience. In recent years, numerous technological developments have emerged that blend digital and physical experiences. Phygital was initially applied to retail, business, and customer service (Batat, 2022). Even though most phygital approaches have originated outside the jewellery field, the phenomenon is growing quickly.

This project explores how contemporary jewellery, shaped by both tradition and innovation, provides a unique lens for critically examining the digitalisation of craft practices. Drawing on the pedagogical framework of the ongoing project *Let's Get Phygital* (LGP), the author investigates how digital tools like Computer Aided Design (CAD), Augmented Reality (AR) and Artificial intelligence (AI), are not framed as threats to embodied knowledge but as means to question, extend, and reframe what making and design mean today.

Loureiro (2023) explains how AI and VR can enhance customer engagement and operational efficiency in luxury fashion retail through strategic use in personalised marketing. However, as AI becomes increasingly embedded across the creative industries, its potential extends well beyond marketing, warranting further investigation into how it can influence creative processes, design innovation, and artistic expression. This project engages with that potential by encouraging students to critically explore AI and AR as creative tools within the context of digital jewellery design. The author emphasises the importance of teaching younger generations how to critically and ethically engage with emerging technologies and outlines the progress of this international collaborative project, LGP, which examines jewellery in digital and non-physical form using AR as a design tool.

In its four consecutive editions (2021-2025) this exhibition-orientated project invites students from four institutions (London College of Fashion, Estonian Academy of the Arts, PXL-MAD School of Arts and Rhode Island School Of Design) to attend a series of online workshops and lectures where participants learn about and debate the application of CAD, AR, and AI in digital wearable design. LGP attempted to integrate the theory and practice of digital design by combining theoretical discussions with practical applications to ensure students understood the underlying principles of digital design while gaining hands-on experience with CAD/AR/AI tools. Following these online sessions, students were given time to work independently to produce digital designs based on their original ideas and research. The outcomes for each student consisted of a digital presentation (3D & AR software) of an original design project, which was then exhibited in a series of phygital exhibitions (Munich, Tallinn, Hasselt and London). Consequently, the LGP project allowed students to make greater use of this widely accessible technology and forge a stronger bond with their work, thus increasing its potential, outreach, and audience.

Students uploaded their designs as social media filters, accompanied by a 100-word concept description and a reflective statement. To examine how digital technologies influenced their creative process,

qualitative analysis was conducted using these reflections across each project edition. The author has combined the data gathered from each edition and concludes with how to develop a comprehensive experimental digital design short course using Schön's (1992) reflection in action approach. Lesson planning for LGP became a valuable reflective process, offering insights into teaching strategies, student needs, and the role of emerging technologies. This iterative approach deepened understanding, revealed gaps, and helped align pedagogy with real-world practice, turning planning into a meaningful exercise in professional growth and improved learning.

During all LGP project iterations, participants and the teaching team recognised the magnitude and significance of experimenting with new technologies. In an ever-changing and challenging world, the LGP exhibitions provide a dynamic platform for young designers to create, share, and engage with their audience. This engagement was brought to life during the opening events, where attendees could watch videos of the LGP outcomes (Fig. 1), explore the concepts behind each project, and interact with QR codes using iPads or their phones to virtually wear the digital outputs (Fig. 2). It was evident in the project that phygital technologies blur traditional boundaries between designers and users by introducing real-time interactivity, user-generated content, and adaptive systems. Users often become co-creators, shaping the experience through their interactions, behaviours, and data. At the same time, designers must anticipate not just static use cases but dynamic, evolving interactions, making the design process less linear and more speculative. This challenges conventional notions of authorship, intention, and control, positioning design as an ongoing negotiation rather than a fixed outcome.

Figure 1 : LGP audience interaction during the PXL-MAD school of Arts Exhibition, Hasselt (Novembre 2023)

Figure 2 : LGP audience interaction during the PXL-MAD school of Arts Exhibition, Hasselt (Novembre 2023)

The integration of emerging technologies into design practice is largely shaped by a reciprocal relationship between what technology enables and what the field increasingly demands. Contemporary design disciplines, whether in interaction design, architecture, product design, or fashion, are responding to a paradigm shift in how people engage with the world: through hybrid, networked, and interactive environments. As user expectations evolve, so too do the perceived needs of the field, which

now include adaptability, personalisation, responsiveness, and interconnectivity. This was evident in the LGP exhibitions, where visitors accessed digital outcomes through their own mobile devices. By engaging via personal devices, the experience became more intimate and user-centred. This approach not only increased accessibility but also reinforced the field's shift toward interactive and personalised design experiences. The field's needs have expanded beyond the technical or aesthetic to include social, ethical, and experiential dimensions, prompting technologies to be evaluated not only for their capabilities but for their contribution to inclusive and meaningful design.

Students found the experience of learning new digital tools enjoyable yet challenging, facing issues such as file size restrictions, animation functions, and specific technical aspects of 3D modelling. They showed a strong awareness of these challenges and sought solutions through guidance from the teaching team and online resources. As McCullough (1996) notes, mastering digital design tools parallels traditional craft, requiring training, intuition, and the development of tacit knowledge. Although participants across the project editions described the outcomes as highly rewarding, difficulties with the tools persisted. To support learning, each LGP iteration introduced additional tutorials and emphasised active, incremental development. Students reflected on how working in a digital environment expanded their creative thinking, encouraging new ways of producing and understanding the interaction between their work and both physical and digital bodies.

Figure 3: Digital filter designed by student Qiuwen Lyu for LGP (2023).

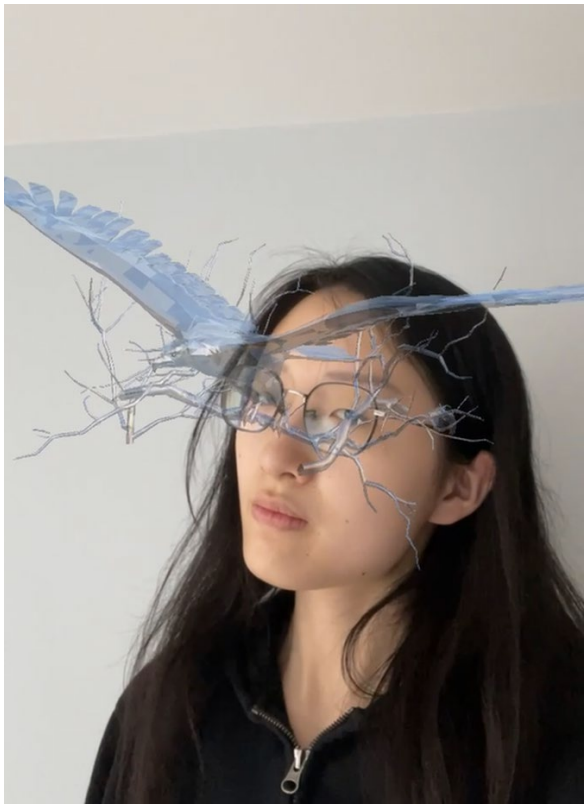

Figure 4: Digital filter designed by student Qiuwen Lyu for LGP (2023).

Breaking free from the physical constraints of physical manufacturing and design is sparking new discussions about the future of digital products. Romanenkova et al. (2022) discuss the inescapable usage of physical labour in jewellery creation because computer technologies cannot replace human labour in some final processes, such as casting or polishing. But what if the object only exists digitally? What possibilities are there? If Hilken et al. (2017) argue that AR boosts users' imaginations, allowing them to visualise a new reality, the same may be stated for designers who create work with AR. This is evident in the work of LCF student Qiuwen Lyu (Fig. 3, 4), who has developed a set of AR glass eyewear to convey a sense of surreal lightness in comparison with the heaviness of glassware in reality.

The phygital operates within a complex sociocultural landscape shaped by digital fluency, platform-based interactions, and hybrid modes of communication. Its design and use are deeply influenced by factors such as accessibility, digital literacy, cultural attitudes toward technology, and the blending of public and private spaces. Through reflections on both design practice and pedagogy, this project positions jewellery as a medium through which alternative approaches to digitalisation can emerge, approaches that value critical engagement, contextual awareness, and future craft thinking. Rather than allowing technology to dictate the direction of craft, it argues for a future where makers shape the tools of their time with intention. The project highlights the transformative impact of such pedagogic initiatives in shaping the skills of future designers while empowering educators with innovative resources to adapt, inspire, and thrive in a rapidly evolving educational landscape.

REFERENCES

Bennett, D., & Mascetti, D. (2010). Understanding Jewellery. Antique Collectors' Club.

Bernabei, R., Cappelieri, A., Tenuta, L., Yavuz, U. S. (2015), CAD/CAM and jewellery design education. Making Futures: Craft and the return of the maker in a post-global sustainably aware society, Vol. 4. https://makingfutures-journal.org.uk/index.php/mfj/article/view/247

Berry, R., Makino, M., Hikawa, N., Naemura, M., Pisan, Y., Edmonds, E. (2006). Programming in the world, Digital Creativity, Vol. 17(1), 36-48. https://doi.org/10.1080/14626260600665728

Brown, P. (2009), CAD: Do Computers aid the design process after all? The Stanford Journal of Science, Technology and Society, Vol. 2(1), 52-66. https://ojs.stanford.edu/ojs/index.php/intersect/article/download/117/33

Hilken, T., de Ruyter, K., Chylinski, M., Mahr, D., Keeling, D., I. (2017). Augmenting the eye and the beholder: exploring the strategic potential of augmented reality to enhance online service experience. J. Acad. Mark, Sci. Vol. 45(6), 884-905. https://doi.org/10.1007/s11747-017-0541-x

Loureiro, S, M, C. (2023) Artificial Intelligence and Extended Reality in Luxury Fashion Retail: Analysis and Reflection, Chapter in the book Augmented Reality and Artificial Intelligence, Springer, 323-348. https://doi.org/10.1007/978-3-031-27166-3_18

McCullough, M. (1996). Abstracting Craft: the practised digital hand, MIT Press, Cambridge.Schön, D. A. (1991). The reflective practitioner: How professionals think in action. Ashgate Publishing.

Raden, A. (2018). Stoned: Jewellery, obsession, and how desire shapes the world. Ecco.

Romanevkova, J., Bratus, I., Gnatiuk, L., Zaitseva, V., Karpenko, O & Misko, N. (2022). The Role of Computer Technologies in Contemporary Jewellery, IJCSNS International Journal of Computer Science and Network Security, VOL.22 (11), 71-76. https://doi.org/10.22937/IJCSNS.2022.22.11.10

Schön, D. A. (1992). The reflective practitioner: How professionals think in action. Ashgate Publishing.

Untracht, O. (1982). Jewellery Concepts & Technology. Doubleday.

Wannarumon, S., Bohez, E. L. J. (2004). Rapid Prototyping and Tooling Technology in Jewellery CAD, Computer-Aided Design and Applications, Vol 1(1-4), 569-575. https://doi.org/10.1080/16864360.2004.10738300

LIST OF FIGURES