

# Intervention and Reflective Report

## Introduction

As stated in my intervention outline, I am a white, female, British-born, technician in the 3D workshop at London College of Communication. I predominately teach the students how to use the laser cutting machines, however my role spreads throughout the 3D making space from woodworking to 3D printing. As a member of the technical team at UAL I do not teach one specific course, the workshop is open access for all students and courses within LCC which made it difficult to decide what to focus my intervention on.

From my experience teaching at LCC I decided to develop and expand on the instructional resources for laser cutting we use day-to-day in the workshop and make them more accessible and inclusive for the diverse student body within the university. The current resources (see figure 1) are unclear, very wordy and proven to be hard to understand by the students. They were designed by a previous technician during the COVID-19 pandemic when the students were not physically in the workshop. As this context has changed and we are now back to teaching in person, our resources must change too. We have had feedback that the handouts (which we have onsite in the workshop and online at the 3D workshops website) are hard to follow and the technical terminology is difficult to understand. I aim to transform these resources and make them more inclusive for all students but international students and students with neurodiversity. With help from my colleagues, peers, the Intercultural Communications Team at UAL and data from Dashboard, I will design the resources and trial them both in the workshop with our students and online on our Moodle/website.

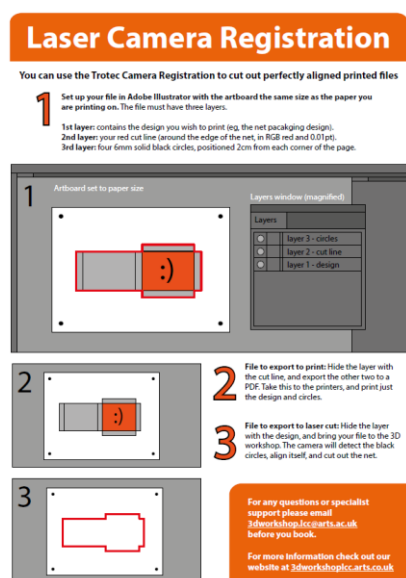


Figure 1: Original Laser Camera Registration Resource created within LCC's 3D workshop in 2020.

## Why and how it is inclusive

Creating an inclusive learning environment in workshops is essential for addressing the diverse needs of all students. This includes accommodating various learning styles, language proficiencies, and socio-economic backgrounds. Visual aids and dyslexia-friendly designs help mitigate the barriers that complex terminology and dense text create, especially for students with learning disabilities or those who are non-native speakers. Cognitive Load Theory (CLT) suggests that our working memory is only able to hold a small amount of information at any one time and that instructional methods should avoid overloading it to maximise learning (J. Sweller, 1988). When modifying the laser cutting resources, I added icons and infographics to replace text to make abstract concepts more tangible and support better understanding for the students. For example, I added icons (see figures 2 and 3) that they would see on design software such as Adobe Illustrator to enforce their existing knowledge and signpost where they need to go when creating their laser cutting files. Originally the resources

received feedback that they were not very dyslexia-friendly in terms of the design. Using clear fonts without serifs, high-contrast colours, non-white backgrounds and structured layouts addresses the needs of dyslexic students making the learning materials more accessible. According to the British Dyslexia Association, “adopting these principles for dyslexic readers has the advantage of making all written communication easier on the eye for everyone”. When observing data on Dashboard (see figure 4), 17% of UAL students declared themselves disabled in 2023/24. Many factors may change this data such as students' willingness to share such personal information. Factors may be influenced by culture as some cultures do not have the same opinions on disability therefore wouldn't divulge this information. Also, some countries have financial restrictions on healthcare leading to many students not being able to afford to get tested for disabilities such as dyslexia.

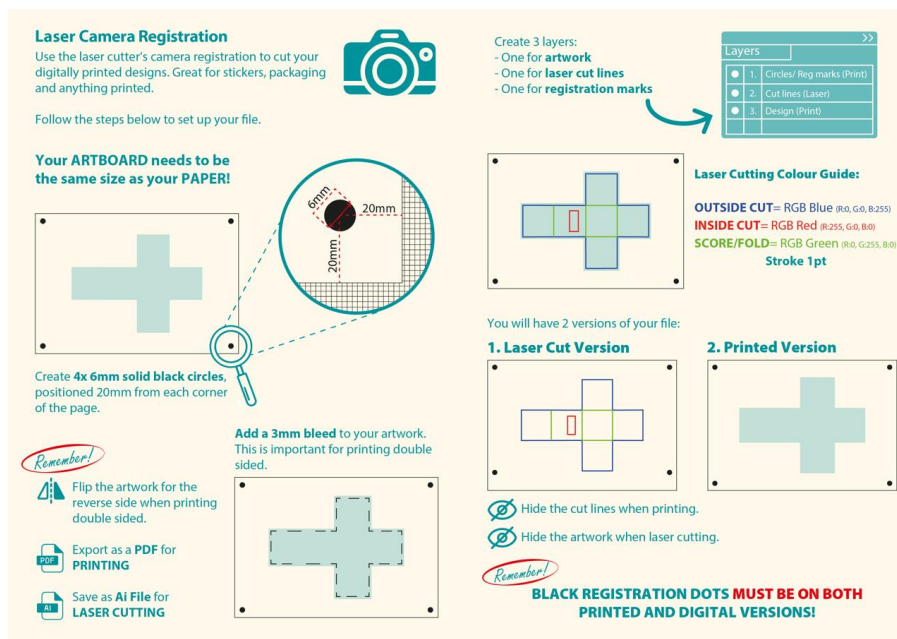


Figure 2: New resource created for Laser camera registration based on Dyslexia guidelines and peer feedback, 2024.



Figure 3: Extract from Camera Registration Resource for Laser Cutting, 2024

2023/24



Figure 4: 2-way Disability Data on UAL Dashboard

Providing materials across multiple platforms ensures that all students, regardless of their socio-economic background or personal circumstances, can access and engage with learning materials. Regarding accommodating different learning styles, our laser cutting resources are displayed as PDFs online at the 3D workshops website and as paper copies within the workshop. This allows students to review the materials at their own pace and as needed, whether this is before their laser cutting appointment or during their session alongside the in-person teaching. In the future, I am hoping to develop the resources further and make them interactive rather than a static piece of reading by creating links to click on with videos and other learning materials and adding mini quizzes throughout resources and inductions. A study by Mayer in 2009 found that students who study and then take a practice-retention test outperform students who study the same text twice (Mayer, 2009). Multimedia platforms promote learning and make it more engaging for the students.

Addressing the attainment gap within the university is another way to promote inclusivity and social justice. The students are from varied socio-economic backgrounds and may have differing exposure to workshop environments, tools and terminology, creating a learning gap. To overcome this, we as practitioners need to recognise the disparities and put tools in place to close the gap. Embracing the notion of difference and viewing the student as a "border-crosser, as a person moving in and out of physical, cultural and social borders" (Giroux, 1997) helps view diversity as a positive attribute that adds to students learning. International students not only bring significant financial contributions (60% of fees in 2021) to UAL but they also bring diverse perspectives which enhance learning for all. Encouraging international students to share their perspectives promotes intercultural understanding and global competency among all students (Carroll & Ryan, 2005). Making learning resources easier to access by all helps to close this attainment gap. Even though student's backgrounds and previous schooling are vastly different, it should not affect the way they learn at university as they should all have equal opportunities to excel.

Alongside my adapted laser cutting resources, I am hoping to produce an interactive glossary of terms related to the 3D workshop. The glossary will contain key terms that relate to the workshop, machinery, UAL and technicians. It will be a multimedia, categorised resource that will help both international and native speakers understand the workshop-specific jargon better. I am hoping to include it within the new 3D workshop induction and have it as an online resource that students can utilise whenever they need it. Language barriers create a huge disparity in learning within a technical space. Words such as "engrave, etch, score" all have a variety of meanings but are vital to understanding within the workshop environment. If English isn't your first language this may hinder your learning experience as you are being introduced to very context-specific jargon that may have a completely different meaning to what you previously thought. These approaches, grounded in critical pedagogy and social justice theories, support a diverse student body and enhance the overall learning experience.

## Feedback

After speaking with colleagues, peers and students I received feedback on the laser cutting resources which was very interesting and insightful. Feedback from my colleagues within the 3D workshop praised the resources for being far clearer and easier to understand, making them more effective tools

for teaching. They said the use of visual cues is particularly beneficial in a busy workshop setting and will help them as technicians to assist the students more efficiently. The feedback I received from my peers within the PgCert stated that making the documents was a good idea. Even though they had no prior experience with laser cutting, they understood the premise of the process and how to prepare for it even just by looking at the handout. This was very reassuring to hear as it gave a similar perspective to some of our students who have minimal experience using this type of equipment. Furthermore, it was discussed that the workshop can be an intimidating place for anyone and that barriers with inductions and resources are another boundary that can get in the way of learning, creating a user-friendly space with clear resources helps make the workshop a more welcoming space. As I ran out of time to trial the resources with BA students due to it being the end of term, I managed to get feedback from some MA students which yielded positive responses. They felt confident using the laser cutters independently with the handout as a guide. The infographics and diagrams were especially helpful in reinforcing the hands-on learning experience, providing visual context alongside the actual machine.

Some considerations and adjustments when receiving feedback from the Intercultural Communications Team at UAL (mainly Karen Harris and Gareth Rees) included looking at visual enhancement of the resources rather than language translation. My initial plan for the intervention was to directly translate our existing resources into multiple languages to make them more inclusive for non-English speaking students. Gareth suggested that enhancing the resources through English with moving images or infographics would be more inclusive. Translating materials could inadvertently single out international students, contradicting the goals of inclusivity and potentially reinforcing implicit biases (Crenshaw, 1991). Crenshaw's theory highlights how systemic racism and implicit biases can influence educational experiences. Providing materials in multiple languages might segregate students rather than support them. Research in critical pedagogy and social justice emphasizes the importance of creating learning environments that accommodate diverse needs without segregating students (Freire, 1970; Hooks, 1994). Using visual aids and clear English can cater to a broad audience while maintaining inclusivity. The reconsideration of translation strategies in favour of enhanced visual aids aligns with critical pedagogy and social justice principles, ensuring an inclusive and supportive learning environment for all students.

## **Conclusion**

A statement that resonated with me during a cross-programme lecture on building inclusive pedagogies with Dr Gurnam Singh stated, "Workshops are more dialogical spaces than lectures". Allowing the students to ask questions and share their knowledge from their backgrounds and experiences is very important. It is why many students prefer learning whilst doing and making rather than a one-way, authoritative style of teaching, especially within the arts. I hope to put this statement into practice when developing the 3D workshop resources further and eventually creating an interactive glossary of terms which I hope to pursue in my Action Research Project.

[1649 words]

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## Illustrations

Figure 1: Original Laser Camera Registration Resource created within LCC's 3D workshop in 2020.

Figure 2: New resource created for Laser camera registration based on Dyslexia guidelines and peer feedback, 2024.

Figure 3: Extract from Camera Registration Resource for Laser Cutting, 2024.

Figure 4: 2-way Disability Data on UAL Dashboard, 2023/24. Found here: <https://dashboards.arts.ac.uk/dashboard/ActiveDashboards/DashboardPage.aspx?dashboardid=5c6bb274-7645-4500-bb75-7e334f68ff24&dashcontextid=638567302305711872>