

# **MATCHSTICK MEN - TEACHING 1ST YEAR DESIGN STUDENTS' EMPATHY THROUGH DESIGN FOR PRISON LIFE**

**Emily Elizabeth BROOK and Max John POWNALL**

Product Design Department, School of Architecture Design & The Built Environment,  
Nottingham Trent University, United Kingdom

## **ABSTRACT**

How can we teach empathy to design students? How might we encourage them to consider people beyond their own perspectives? Can Product Design students be empowered to make a positive change in the life of another? Here we propose a way to start the conversation, using matchsticks. This project challenges universities to beyond the obvious ethical and social issues framed around sustainability and asks Undergraduate Design Students to engage with a demographic that is typically underrepresented both in society and in design intervention, Prison Offenders. In order to encourage a more empathic approach to Design, working in collaboration with a UK Prison, First Year Product Design Students at Nottingham Trent University were set a Design Project that challenged them to improve life within the confines of a prison cell. Over the course of 2 weeks, student groups were tasked with creating products that improved quality of life within a prison cell, utilising matchsticks, and construction techniques available to inmates. Guided by an expert Custodial Educator, students collaborated to generate visual, wordless guides that would enable any inmate to generate their products.

Overall, the project was a success, with a number of innovative outcomes being produced, and empathetic skills being developed, however, there are areas for improvement which we discuss. The results were confirmed via an anonymous end-of-project questionnaire with students commenting that the experience was immersive and designing from the perspective of a Prison Offender being a truly unique opportunity.

*Keywords: Human centred design, design for under-represented perspectives, empathy, product design education*

## **1 INTRODUCTION**

Empathy within design is a fundamental component of Human Centred Design and Design Thinking, considered by many to be the fundamental bedrock of Modern Design Education [1][2][3]. Often, we ask our students to empathise with the user, to 'put on their shoes' in order to see how their lives could be improved through design. Various tools for this exist already such as Interviews, User Journey Mapping and 5 Whys [4] and these allow students to begin the path to true empathy, but what about when we start to ask students difficult social questions or challenge them with users beyond their easily accessible parents or roommates? Is it possible to empathise with a user so different from yourself? Someone whose wants and needs perhaps fundamentally contradict your own. What about Prison Offenders?

*'Producing thoughtful, talented graduates is not a matter of focusing on market-ready skills. It's about giving students an opportunity that most of them will never have again in their lives: the chance for serious exploration of complicated intellectual problems, the gift of time in an institution where curiosity and discovery are the source of meaning.'*[5]

This project set out to explore the depths of empathy and push Undergraduate students to think about bigger societal issues. It challenged them to think about Sustainability beyond recycling and upcycling, into empathy for nature and others. To build a social consciousness that goes beyond sympathy and

compassion.[6] In addition to encouraging empathy and a human-centred design approach, this project allowed students to reflect on the designer's role, giving space to contemplate their own purpose and role within the design industry. Typically, university projects are driven towards work like experience and portfolio building, meaning projects are often commercially motivated. This project allowed students the opportunity to work outside of their commercially driven comfort zone and presents them with a real-world opportunity to make a positive impact on the lives of others.

It was useful to consider the ethical impact of Design for Offenders, and the effect this may have on them and our students. The Prison engaged with in this research is a Maximum-Security Centre, with inmates having a minimum of 10-year-long sentences. As such, and due to the project being run over a small time period, direct contact between students and inmates was not possible.

## 2 APPROACHES

The project was undertaken due to a perceived lack of empathy from the students studying in the first year. From previous work on Personas and Design Thinking workshops, it was clear that students were struggling to empathise with those beyond their typical frames of reference. It was felt that in order to make students better Designers, and people, a project working with unexpected clients would help to push them beyond their comfortable routines. There is also a tendency within UK HE Design Education to focus on London-centric Design, producing conceptual visuals for the affluent, and tending to the needs of blue-chip clients. This project aimed to demonstrate to students there are other people to design for, and that Design can be a force for meaningful change within society. Through discussion with a Custodial Educator (CE) working within a local Prison, a project to highlight these opportunities and inequalities was formulated, that would challenge the students to think beyond themselves.

Collaborating with the CE, we looked to simulate the environment of the Prison within the University Studio. A mock-up cell was constructed within the Studio space, to allow the students to empathise with the environment they were set to create for. The intention was to create a sense of immersion within the prison world, to help students better understand the constraints placed on creativity, and to build on the concept of 'learning through doing' [7].



*Figure 1. Mock Cell Set Up & Demonstration*

This immersion was further developed by limiting the creation tools to those available within the prison. The students were limited to designing and creating only with Matchsticks, as this is a popular pastime within Prison and a widely accessible resource to Offenders. No scissors, knives, or hot glue were made available, and any tools required had to be created by the students.

The prison cells were marked out and left up in the studio for the remainder of the project for students to refer back to. In addition to an alteration of the physical environment, students were communicated with as though they were Offenders and had access to personal belongings (including phones) limited throughout the day.

The students first undertook a Workshop with the CE, to understand the viewpoint of an Offender in a cell, and the resources available to them. This workshop focussed on basic Matchstick Art techniques,

as well as highlighting some of the unique tools and methods the Prisoners utilise in their process. Student groups then had 2 weeks to ideate around the Matchsticks to generate useful cell objects and produce instructions to disseminate the knowledge. The project culminated in testing these instructions on other groups, to see how successful the transfer of knowledge had been.

Whilst it is important to acknowledge the reasons behind Offenders' incarceration, it must be remembered that Prison's main purpose is rehabilitation. As such this project was built around the idea of potentially educating Offenders with new skills and opportunities, to improve their lives within the Prison whilst showing how practical skills can be applied in the world after Prison. This is similar to the work of the Koestler Arts trust who aim to '*reward achievement, build self-confidence and broaden horizons for some of society's most disadvantaged and marginalised people.*' [8] The workshop was built around existing Offender art conventions, and the tools/resources available to them. This provided useful constraints to the student ideation, whilst providing skills that were somewhat useful to Offenders, without providing an opportunity for misuse. For the Offender, the project would allow a new perspective of design, and therefore creativity as often these are not seen as useful skills, '*...design, as applied creativity, might prove attractive to those who feel that 'arts' practice is too far away from vocational values to merit investment.*' [9] Whilst the scope of this project did not extend into interaction with Offenders in this instance, it was important to also have this discussion with the students throughout the project, to ensure not only the learning and HCD approach were fully applied, but that their personal criticality was challenged.

### 3 DISCUSSIONS

#### 3.1 Set Up and Project Introduction

The limitations placed on the projects were the key drivers to developing empathy in the students. This was demonstrated through observation of student conversations where they reminded each other of the limitations of tools/space throughout the project. For many student groups, this was the driving factor behind their work, with a clear emphasis on what could and could not be achieved within the typical prison cell.

Limiting access to personal belongings during the day heightened immersion in the experience by replicating a sense of isolation from the outside world. Upon being told they could not use personal belongings for the day by the CE, there was a clear sense of unease within the student cohort. This challenged them to think and work outside of their usual comfort zone and to consider how this challenge could impact daily life, particularly when being asked to complete a task.

Although the initial Cell room set-up gave valuable insight into resources and space available, its full effect was limited due to students not being able to fully understand the isolation of a prison environment. After completing the project, it was clear that access to personal belongings should have been limited across the whole project, rather than just for one day. Not only would this have served as a reminder of resource limitations, but removing personal belongings for the whole project may have encouraged students to think more creatively within the confines of the Cell.

#### 3.2 Working with Limited Materials

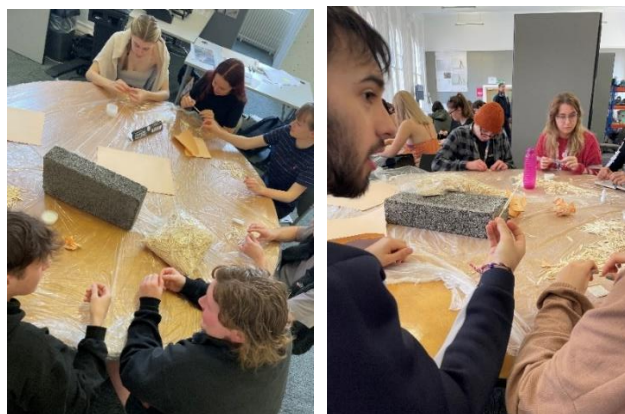


Figure 2. Students working with limited materials

To give students as close an experience as possible to prison life, only materials available within a prison cell were made available, meaning students predominantly only had access to PVA glue, matchsticks, and paper/card. Due to the limited time frame for the project and a lack of familiarity with the material, students were able to access an unlimited amount of these across the two weeks, in contrast to Offenders who have limited supply. Offenders often spend months working on their matchstick creations, generally with no time constraints, working slowly and methodically. In doing so, they become very familiar with the material and work thoughtfully to create intricate, personal objects. Our students were challenged with being introduced to the material and coming up with a tangible output within two weeks. This meant having to work quickly to understand the potential of the materials.

To alleviate the unfamiliarity with materials, students had unlimited access to them. However, providing this free access meant students weren't necessarily thinking carefully about how to use them, juxtaposing the realities of a prison environment. Students highlighted in particular that the PVA glue was difficult to use alongside the matchsticks. Ideally, students would have left more time for the matchsticks to dry before moving on to the next steps of their build, however, there was a clear awareness amongst the cohort that they needed to work relatively quickly and so these steps were often rushed.

In future iterations of this project, it is important to consider how we might facilitate a greater level of confidence in materials usage, potentially by giving students more time to become familiar with materials prior to the project itself. This would allow the project to align itself more accurately with the prison experience by limiting the number of materials used, without sacrificing student ability to experiment and familiarise themselves with materials.

### **3.3 Project Outputs**

The brief tasked students to produce and deliver an innovative product made from matchsticks, presented as visual instructions, which had a positive impact on Offenders' lives within their cells. The instructions needed to demonstrate the key steps within the construction and allow another person beyond their team to construct the solution successfully.

Overall, all teams produced viable project outcomes, however, the realisation of the visual instructions was limited. All groups came up with a matchstick product that would be suitable for the prison cell environment, however, the final visual instructions generally lacked refinement and appropriate detailing. One key consideration for these instructions was that they should not rely heavily on written language, given that according to the Shannon Trust "over 50% of people in prison have a literacy rate below that of an 11-year-old".[10] Whilst most student teams had omitted any vocabulary from their instruction manuals, the visual communication of their ideas lacked thorough explanation. Predominantly, this can be put down to the time constraints of the project, and the difficulties caused by student group work dynamics. Whilst the time frame allowed student groups to empathise with the inmates in terms of making ability, material constraints and tool availability, the lack of literacy skills of Prison Inmates seemed to be overlooked. Had students been given more time to focus on this towards the end of the project there may have been more suitable instruction manual outcomes. For future projects, this should be taken into consideration and emphasised by staff as a clear priority for the final outcome.

Whilst instruction manual outcomes were not as successful as expected, the main aim of this project was to give students a chance to work with underrepresented groups and to consider the alternative user, outside of their typical university experience. Based on the success of the matchstick products themselves, it is clear that students were able to develop enough of an empathetic perspective to deliver appropriate physical outcomes.

### **3.4 Working in Groups**

Whilst Inmates would typically work on these projects individually, the decision was made for students to complete projects in groups, predominantly due to time constraints and a lack of familiarity with materials.

Student feedback indicated that this could have been an individual project, with some commenting that they felt held back by group collaboration and progress. Given that Inmates usually produce matchstick models independently, this is not a surprising finding, however, the two-week time frame meant students would have experienced an even steeper learning curve had they been tasked to work individually.

Furthermore, the authors themselves noted that the matchstick modelling was fairly small-scale and complex for a group of 5/6 students to be working on at a time. However, working within a group setting allowed students to divide and delegate jobs between themselves, meaning that those with more CAD / Graphic Design interests could focus on the instruction manuals and those who were more interested in modelling could focus on the matchstick products themselves. Overall, the group-working nature of this task was imperative due to the limited time frame, however future iterations of the project could look at giving individual students a longer time, in order to achieve more personalised and empathic outcomes.



Figure 3. An example product created during the project

### 3.5 Time Frame

It would have been beneficial to give the students more time to reflect upon their experiences and receive feedback from their intended user. Final instructions were tested between groups in the class with some feedback from the CE, but a deeper learning experience could have been created if more time was given to iterate based on the feedback received. As such, the single test run highlighted gaps in the instructions that would need addressing before they could be real-world tested. To address some of the earlier issues, perhaps adding a test point after the first week would have helped to improve the quality of Instructions, and thus force the teams to work more effectively. But this would have led to a lack of development time with the Matchsticks themselves. This is a key area where the project could be improved and provide the possibility of real feedback from the Prisoners. A build/test/refine model could help to validate the instructions before they were tested out in the true environment.

### 3.6 Student Perception of Project

*Very engaging and fun project, I loved the fact that we were working within a very different context. It was very immersive!* (Student Participant 16)

Overall, the project can be viewed as a success, with students developing their knowledge of unusual materials, visual communication and their perceptions of who a user can be. A post-project anonymous questionnaire was employed to gather views and opinions on the project, with 27/28 respondents stating positive feelings towards the project (50% total response rate from the cohort). Students praised the input of an Expert in the CE to bring a level of realism and insider insight to the project, and they enjoyed the opportunity to design for someone very different.

*It was really interesting trying to design for prison inmates given their truly different experience as a user* (Student Participant 5)

The aim of the project was to develop the student's empathy skills, and the Authors believe this was successful within the constraints discussed above. The input from the CE was vital to the success of the project, and the Authors encourage an Institution looking to replicate a similar experience to ensure they contact a local expert. The CE input helped provide a level of realism to the experience that would be

impossible to replicate with teaching staff. Their insight and tacit knowledge of the environment and users, combined with a hard-line approach to discipline and education, promoted an active learning environment, unlike a typical University Design Studio.

#### **4 CONCLUSIONS**

Overall, the project can be deemed a success, with opportunities for further development to be discussed and implemented in the future. The nature of empathy is not fully quantifiable so is difficult to measure completely, however the opportunity for students to develop their empathy was presented, and there is clear feedback that the project had a meaningful impact on the students. Consideration needs to be made to the use of materials and the outputs possible within tight timeframes, as well as the typical dynamics of student group work going forward. Generally, it can be considered that projects of this nature present novel opportunities to promote empathy, and we encourage other Academic establishments to build upon our work.

#### **5 OPPORTUNITIES FOR FURTHER RESEARCH**

This project and its topics present key areas of opportunity for the empathetic growth of students. Our project acts as a trial study for this and could be built upon for further impact. More integrated collaboration would be a key factor for developing the project, with the ultimate iteration being full interaction between Students and Offenders, within a Prison setting. Clearly, this poses safety, ethical and logistical issues, but presents opportunities for co-design and meaningful impact in severely marginalised people's lives. This could be scaled back to Offenders who have been rehabilitated visiting Universities, or deeper integration of a CE or other Prison Staff to the projects. A deeper level of immersion could also help to activate empathy, perhaps with the construction of Prison cells to ideate in or simulating, to a degree, some of the pressures created by incarceration. As mentioned, the key aspect for developing empathy within students is providing time and space for them to discuss and reflect on their work and personal points of view. Any project that helps to develop these skills will impact our students to make sustainable, ethical choices in their projects and their future Design careers.

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