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When Design Is Inspired by Theatre: Acting Techniques as Prospective Design Methods

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Abstract. In acting training, psychophysical exercises are used to strengthen the relationship between mind and body, thus fostering a deeper understanding of the character [1]. Intrigued and inspired by the potential value of these techniques in design contexts, we explored their application for interaction designers as research methods in a pedagogical setting. To do so, we first created a single-session workshop that introduced design students to basic actor movement techniques in the winter of 2019. The goal of the workshop was to help students empathize with their users and discover solutions when designing digital products. Later, in the fall of 2020, we used reflections from the first activity to develop two longer workshops; both consisted of three sessions and were carried out consecutively in two different universities. In this article, we present a case study of those three workshops. After discussing considerations for the evolution of the workshops, we describe how each was conducted. Finally, we share our findings and insights that arose throughout the process.

Keywords: Interaction design, acting techniques, prospective ergonomics, design methods

1 Introduction

Over the last decade, interaction designers have been creating an increasing number of new digital products that people can interact with at all times and in all places (smartphones apps, wearables, connected objects, etc.). Creating useful innovative digital products for such varied contexts requires a deep understanding of human characteristics relevant to design, such as users' anthropometrics, behavioural aspects, cognition and social factors [2]. To do so, interaction designers have at their disposal a multitude of user research methods [3] [4] [5]. Most of these methods originate from the social sciences, more specifically from disciplines such as cognitive psychology, sociology and anthropology [6] [7]. Due to their disciplinary and academic origins, several of these methods lead the designer to base their understanding of the user on an intellectual construct. Although essential, this cerebral approach only allows limited access to the knowledge derived from the human body, and leads to creating a valuable but incomplete depiction of the user.

In acting training, psychophysical exercises are used precisely to strengthen the relationship between mind and body, thus fostering a deeper understanding of the character [1]. Engaging the body helps actors gain insights about a given character; insights they may not have gotten from a purely intellectual analysis. Intrigued and inspired by the potential value of these techniques for prospective design contexts, we explored their application for designers in interaction design courses.

This case study is based on workshops conducted in academic settings. A first version of this workshop was conducted in winter 2019, while the second and third versions were conducted consecutively in fall 2020. We adopted an iterative process so the results from the winter 2019 workshop informed how the fall 2020 workshops were conducted.

2 Research Goals and Questions

By adapting and using these acting techniques for a design context, we wished to examine first the **acceptability** of these acting techniques to designers. Were designers ready to step out of their comfort zone and fully engage in playing a role? Would they easily integrate these techniques into their current design project? Then, we were interested in investigating the **feasibility** of this approach. Were designers able to get intuitive insights about a user by applying acting techniques? Would the exercises used by actors to empathize with their characters also help designers do the same? Finally, we were interested in reflecting on the **relevance** of these activities in the design process. Would they reveal useful information to designers? Would it allow designers to enrich their understanding of the user and their context? Would it help them develop empathy for the user?

3 Workshop version 1

3.1 Context

The first version of the workshop (Winter 2019) was conducted in an interaction design class with undergraduate design students (n=12). The two-hour session was led by one interaction design and one acting professor, and took place in a theatre studio. Prior to the workshop, the students had designed a product in the form of a rudimentary physical prototype as part of the “develop” phase of the design process (see Fig. 1). The workshop was divided into three parts: Observe & Analyze, Embody, and Improvise. During each segment, students explored various acting exercises to help them engage with their products as if they were potential users.

3.2 Debrief and Reflection

The feedback we received from the student indicated that most of them could see where these techniques could prove useful when developing digital products and suggested potential future applications for design practitioners. While the workshop had

positive outcomes, we identified various areas for improvement. First, we realized that a single two-hour session was too long and in-depth for design students; it did not feel well integrated in their design process. We discovered that the two stages (Observe & Analyze and Embody) should be expanded to provide more time for deeper learning, but that the third one (Improvise) should be removed as the necessary skills to improvise at a high enough level were too advanced for most of the design students. Also, it did not seem clear to some students how to concretely use the acting techniques in their project, possibly because some of the insights gained were unrelated to their projects at hand, and the analysis questions were not targeted enough. It is also possible that the workshop was presented too late in the project, so students were not able to fully incorporate the method in their design process.

4 Workshop versions 2 and 3

4.1 Context

The second version of the workshop was held in fall 2020, and conducted in two interaction design classes at two Canadian universities. Participants of the second version of the workshop were graduate students (n=22) while participants of the third version of the workshop were fourth-year undergraduate students (n=11). Students in both classes had started their projects but were at a very early stage of the design process, namely the “discover” phase (Fig. 1). At this point, students received the design brief and started conducting user research.

The design problem was still ill-defined and they had no clear idea about the product or service they were going to build. By introducing acting techniques in the first design phase, we wanted to empower the students to benefit from these tools early in the process and apply them independently in subsequent phases (e.g., designing a persona or prototyping an experiment).

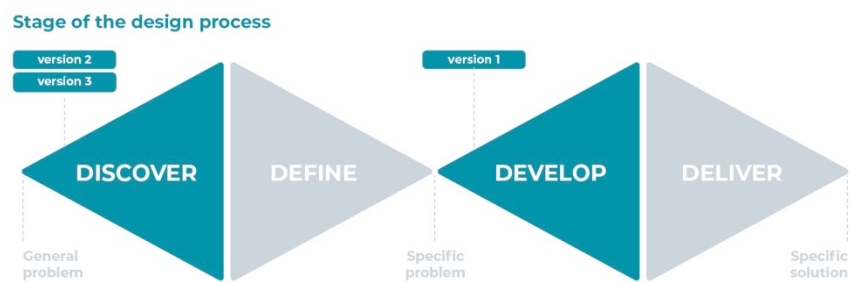


Fig. 1. Double Diamond Model (adapted from the UK Design Council)¹

The second and third versions of the workshop were divided into three sessions that took place over three consecutive weeks. Acting assignments were given between

¹ Design Council. (2015). *The Design Process: What is the Double Diamond?* Design Council. <http://www.designcouncil.org.uk/news-opinion/design-process-what-double-diamond>.

the sessions in order to reduce the effects of the time gap between sessions and to encourage students to integrate these acting techniques into their design research process. All three sessions were led by an acting professor in collaboration with a design professor. After each session, each professor involved in the exercise completed an observation sheet in which they noted their thoughts and comments about the activities that were carried out. In the second version of the workshop, a second design professor took part in the sessions as a participant and filled a self-assessment questionnaire. Due to the particular context of the COVID-19 pandemic, all workshop sessions were held online.

Session 1: Observe & Analyze. The goals of the first session were to introduce design students to character movement, one of the main areas of acting training [8], and to provide them with tools to help develop the observation skills necessary to grasp the intricacies of someone's posture and movement. This introductory session lasted 75 minutes and consisted of lectures interspersed by practical exercises. During the session, the students explored three key concepts: psychophysical connection, observation, and movement analysis.

Psychophysical connection. Character movement is a core component of acting training. In this area of study, students learn how to create the physicality of a character using various techniques. Character Movement is based on a concept called psychophysical connection [1], which proposes an interrelationship between mind (psycho) and body (physical). A person's psychology affects their physicality, and their physicality affects their psychology. In other words, what's inside affects the outside and vice versa. There are thus two main ways of approaching acting work: from the head and from the body.

After we introduced this fundamental concept, the students put it into practice by performing two psychophysical exercises. To help the students experience how emotions manifest themselves in the body, we asked them to work from the inside out, and create the physicality of someone who is depressed (Fig. 2a), shy (Fig. 2b), confident (Fig. 2c), etc. Next, we asked the students to take an outside-in approach, and stand in a physical pose associated with a specific emotion (e.g., high-power pose and low-power pose) and describe how it made them feel.



Fig. 2. Psychophysical connection exercises

Observation. An important step in acting training is the honing of observation skills [9]. To create an authentic character, the actor must first be able to accurately see the minutiae of human behaviour. Since observation is an essential skill that is developed through practice, acting students perform various exercises to become better “investigators of the ordinary” [10]. After a brief discussion about the importance of observation in acting training, students engaged in a series of warm-up games intended to sharpen their skills in this area.

Movement analysis. Actor movement training involves a detailed study of posture and movement habits. This training helps the actor analyze and imitate the physicality of another person [11]. After an introductory lecture on movement analysis, the students examined their personal posture and movement habits. Using this analytical framework, they investigated the relationship between their physicality (posture and movement) and their psychology (emotions and thoughts). The students then shared their insights with a partner and participated in a debriefing about the exercise with the group.

To conclude this first session, we gave the students a homework assignment to analyze a user’s posture and movement habits. They were also asked to include it in their design project as an additional user research method.

Session 2: Embody. The second session focused on a single central theme: character embodiment. The goal of this 75-minute workshop was to introduce designers to the theory, and to practise character embodiment.

Actors often use embodying techniques to create believable characters. These techniques include imitating strangers, photographs, paintings, and even animals [12] [13]. Recent neuroscience research suggests that this kind of gestural mimicry, even at a subtle level, “has an impact on brain areas involved in self-processing [which] supports the contention of acting theorists that gestural and psychological approaches might be related paths towards achieving the same goal, namely the embodied portrayal of a character. It also lends support to theories of embodied cognition, which argue that a change in gestural expression can influence the way that people think and the emotions that they feel” [14]. Following this thought, we hypothesized that de-

signers could also benefit from using gestural techniques to both develop empathy for a user and improve their acting skills in roleplaying and bodystorming work.

To help establish a footing for more complex embodying techniques, an acting professor led students through a series of basic warm-up exercises (Fig. 3). Students were then asked to apply their completed user movement analysis homework by embodying their user’s personal movement habits. After moving like their user, the students answered a short series of questions in character to gain insights into their user’s physical and psychological characteristics.

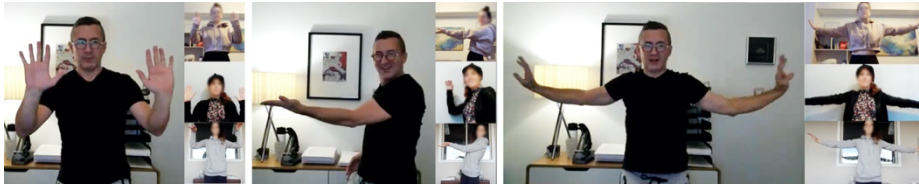


Fig. 3. “The Mirror Game” used as warm-up exercises

This second session’s homework assignment was adapted from an exercise called “Emulating a Walk” from *Movement Training for Actors* by Jackie Snow [8]. As the name suggests, students had to watch their user at a safe and respectful distance, analyze their movement habits, and then move like this person for 15 minutes. Additionally, they were to reflect on insights they gained about their user by moving like them, and explore how they might apply these discoveries in the design process.

Session 3: Workshop debriefing. During Session 3, we conducted a group debriefing in which design students exchanged views about their workshop experience of the last three weeks. This third session lasted about 30 minutes. No additional content (theoretical or practical) was presented during this meeting. The two main goals of this last session were to first find out if students had managed to integrate this method into their current design project and, if so, find out which facets of the method had been the most useful in their design process—we also discussed the types of insights gained with these techniques—and second, gauge the students’ appreciation for and interest in using embodied acting techniques to collect data in design research. To do so, we asked specific questions regarding feasibility, acceptability (by designers), and relevance.

4.2 Reflection and Discussion

Observe & Analyze. During the exercises performed, the majority of students experienced the concept of psychophysical connection and thus understood that a person’s

body is a source of information about their state of mind and vice versa¹. For them, this opened a door to a different way of accessing user knowledge².

Embodiment. While most students found the embodying exercises more challenging than their usual design activities, many commented on their usefulness and relevance, and on their potential outcome for their project². By imitating (physically acting out) their users, most students discovered intuitive information about their psychological states¹. Most students also considered using these techniques as an additional tool to get inside their users' heads, and foster a more holistic understanding of them. It is interesting to note that these techniques resulted in the most substantial insights when the users' characteristics (e.g., age, physical and mental abilities) were very different from those of the designers³.

Integration in the design process. The activities carried out during the workshop didn't have the same impact on both groups (second and third versions) regarding how students integrated the workshop outcome in their design process. Although both workshop versions were conducted at the same stage of the design process, there were two main differences. In the second version of the workshop, students had as yet no clear idea of their targeted users, but in the third version of the workshop, students knew precisely who they were designing for. Also, the homework assignments were optional in the second version of the workshop, but mandatory in its third version. These differences had a major impact on how the techniques were used by the students in their projects. Indeed, in the second version, students experienced the workshop as a novel learning experience, which was abstract and more detached from their project.⁴

As for the third version of the workshop, these sessions acted like "seeds" planted at the beginning of a project that allowed the designers to gradually perceive the user in a richer way as the project progressed. Most of the students who participated in the third version reused the knowledge acquired during the workshop in the subsequent stages of their design project (e.g., while designing personas and carrying out user testing, creating videos of themselves, acting as their users, to use the product they designed)⁵.

Overall, design students appreciated the creative and practical nature of the proposed method. It gave them a certain amount of freedom that they do not usually find in conventional research methods².

Online delivery: Benefits and Challenges. Online delivery made some of the techniques more difficult to teach, especially the embodying techniques. However, stu-

¹ In accordance with our research goals and questions regarding **feasibility**.

² In accordance with our research goals and questions regarding **relevance**.

³ In accordance with our research goals and questions regarding **feasibility**.

⁴ In accordance with our research goals and questions regarding **relevance**.

⁵ In accordance with our research goals and questions regarding **acceptability**.

dents encountered some benefits with online delivery that we did not foresee. During the online sessions (workshop versions 2 and 3), some felt more comfortable than during the face-to-face sessions (workshop version 1). They enjoyed being alone behind their screens, with the possibility of turning off their camera to do the exercises free from self-consciousness. While actors need to play their characters in front of an audience, designers don't need to develop this skill; for the latter, the endgame is knowledge, rather than performance. It is important to take this distinction into account between designers and actors in this type of workshop.^{1,2}

In a future version of this workshop, we envision designers observing and embodying more than one user (as they would usually do with other methods). Also, these acting techniques should be used in conjunction with other design research methods to allow triangulation with other data in order to provide a more complete understanding of the user.

5 Conclusion

While these workshops were conducted in only a few classes, we think these embodied acting techniques could benefit ergonomics and design education. This may be especially true for prospective ergonomics, which looks for new methods of anticipating future needs and triggering responses to them. We believe teaching students fresh ways to observe, analyze and imitate their users compliments traditional head-centred design research methods by offering valuable body-based insights, thus providing a more holistic view of the user.

6 Acknowledgment

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