DESIGN FOR NEXT
EAD12-ROME

doi: 10.1080/14606925.2017.1352971

Design for Next

12th EAD Conference
Sapienza University of Rome
12-14 April 2017

Strategies for synergies. Working in interdisciplinary teams

Hannah Glatte[a*], Marie Heidingsfelder[a], Franziska Brodack[a]

[a]Fraunhofer Institute for Industrial Engineering IAO, Center for Responsible Research and Innovation
*Corresponding author e-mail: hannah.glatte@iao.fraunhofer.de

Abstract: This paper presents the approach and results of our workshop *"Strategies for Synergies*" hold at the 12th EAD Conference. The main aim was to develop innovative ideas to establish interdisciplinary working in the education of designers and researchers. In this context, we wanted to elaborate which competences are necessary to work in interdisciplinary teams and how these competences could be integrated in design and research curricula. Our results show, that empathy, emotional intelligence, and communication skills, are identified as key capabilities for the success of interdisciplinary work. Educational formats, fostering those competences, are focused on practice-oriented experiential learning, to prepare students with first hand experiences.

Keywords: interdisciplinary teams, design education, education formats

1. Introduction

Interdisciplinarity has attained a heightened significance in research and research policy (Metzger & Zare 1999; Blackwell et al. 2009): Processes of boundary-crossing, mutual learning and co-creation are supported and funded to harness grand socio-technical challenges or specific problems that go beyond the boundaries of one discipline. In these contexts, interdisciplinarity, and the integration of different kinds of knowledge, are often considered as key drivers for innovation (Blackwell et al. 2009). In recent years, the design research community has increasingly discussed this nexus of interdisciplinarity and innovation. In this context, many researcher emphasize designers' ability to facilitate and argue that the integration of designers and design methods foster processes of knowledge production and innovation (e.g. Sanders & Stappers 2008; Christensen & Junginger 2014; Sanders & Stappers 2014; Heidingsfelder et al. 2015).

However, when it comes to building and managing interdisciplinary teams, methodological challenges arise: People with different educational backgrounds and professional experiences in one discipline have learned specific terminologies and language styles (e.g. Wear 1999; Bracken & Oughton 2006); their needs and requirements deviate (e.g. Brewer 1999); and, moreover, they often try to achieve different objectives within joint projects (Blackwell 2009: 4). These differences often

result in communication barriers and unbalanced power structures (Stember 1991; Pellmar & Eisenberg 2000).

Against this background, our workshop primarily aimed at increasing awareness with regard to the opportunities and challenges of interdisciplinary work. Secondly, it aimed at initiating an exchange of ideas, perspectives and strategies. For this purpose, we invited researchers and practitioners from design education and design research, to discuss the opportunities and risks mentioned above; and to develop strategies for interdisciplinary projects. In the second phase of the workshop, we aimed at developing innovative ideas to establish interdisciplinary collaboration in the education of designers and researchers: We wanted to discuss necessary competences for interdisciplinary working with researchers and practitioners and develop strategies to integrate these competences in design and research curricula. Beyond that, the workshop provided a space for exchanging experiences and practical advises.

2. Workshop Setup

The 60-minutes-workshop had two parts: A theoretical input and a hands-on session in which participants worked on new education concepts. First, we compared typical research and design processes and compared similarities and differences. Based on examples from our work in an interdisciplinary research team, we showed strategies and challenges for interdisciplinary cooperation.

In the following hands-on session, we aimed at answering the following questions: “What can researchers and designers learn from each other”; and “How can interdisciplinary synergies be addressed and trained in education?”

As warm-up and introduction, we asked the participants to locate themselves on a scale between research and design to visualize their professional background and to develop a common understanding of both terms. We expected most of the participants to be designers, but the majority positioned themselves in the field of research: Most of them were trained as professional designers and changed their focus to design research later on in their career.

In the following session, participants worked on three different stations that represented the exploration, development and dissemination phase of research and design processes. Within this session, each participant could bring in his or her expertise at each station. Considering that design methods can be used to facilitate between different disciplines by providing effective tools for interdisciplinary, solution-oriented collaboration (Lindberg et al., 2016; Sanders, 2014), we deliberately used methods from design in every round. For this purpose, we prepared different materials and templates to support the interdisciplinary work during the co-designing process.

2.1 Round 1: Competences

In the first round, we focused on defining competences of the different disciplines and their impact on research and/or design processes. Questions were: *“Which competences are important for the exploration, development and dissemination phase?”;* and *“What can designers and researchers contribute to a research and/or design process?”*

To support the participants in exploring necessary competences we used simple illustrations that present relations and power structures between two (or more) entities. These illustrations are characterized by two qualities: On the one hand, they are simple and easy to understand, and on the other hand, they are ambiguous and open to different perspectives. Combining those apparently

opposite properties, they function as boundary objects: They are plastic enough to adapt to different contexts, yet robust enough to maintain a common identity (e.g. Star & Griesemer 1989; Ewenstein & Whyte 2009; Klerkx et al. 2012). We asked participants to choose one illustration and to connect it with a competence or some typical habit of a researcher or designer. The illustrations and the description of the competences were placed on a template.

Using simple and "ready-made" illustrations helped participants to articulate their thoughts, and to generate new ideas. Hence, their ambiguity hindered some of the participants. Based on this learning, we will adjust this method for future workshops.

2.2 Round 2: Education Formats

In the second round, participants were asked to develop educational formats to foster interdisciplinary approaches and methodologies. The leading question was: "*How can we make sure that future designers and researchers get to know and value each other's' competences?"*

Based on the discussions of the previous round, the participants created educational formats and documented them on templates, as visualized in picture 2.

Most of the developed formats aim at design education, but some also address formats for the cooperation of professional designers and researchers. As empathy, emotional intelligence and communication skills were identified as key skills, most formats aim at fostering either one or all of these competences.

To prepare design students for working in interdisciplinary teams, participants proposed formats such as tandem projects with other disciplines, work shadowing or group works with distributed roles. One participant also proposed to integrate studies of other disciplines into the design education. Another suggestion was intended to foster university-industry projects in order to prepare design students for working in interdisciplinary teams within real-life situations.

To enable and enhance professional designers' and researchers' capacities for interdisciplinary cooperation, participants also suggested to work in tandems. Additionally, they developed a *"break out workshop"* for researchers: This workshop should make use of speculative design to make researchers think about future scenarios and *"out of the box"*.

2.3 Round 3: Future Scenarios

In the last round there was time for discussion and evaluation of produces ideas and concepts. All participants presented their ideas for new educational formats. To conclude, we asked participants to write down their visions for interdisciplinary working in the year 2025 – whether for designers, for researchers or for both of them.

The developed scenarios illustrate a great interest in breaking and blurring the borders of disciplines, as illustrated in these statements:

> *In 2025, the collaboration between design and research will look like an equal relationship where both are purpose-driven, rather than "discipline-driven."*
>
> *In 2025, all designers will learn to teach others how to design.*
>
> *In 2025, all researchers will use design to innovate their methodologies.*

3. Outlook

Reflecting the workshop and its results, our workshop provided a good format to initiate a discussion on opportunities and challenges of interdisciplinary work. Secondly, it opened up a space to create ideas and strategies for a cross-disciplinary education of researchers and designers. In order to explore the topic of interdisciplinary teamwork, and to enlarge our findings, our aim is to repeat the workshop at further design conferences. Since the participants had similar backgrounds and experiences in working interdisciplinary, it would be valuable to widen the scope in future workshops. Thus, our aim is to include participants who position themselves clearly on the research or the design side of our scale, for instance artists and natural scientists or engineers that have no previous experiences in working with either designers or researchers. Furthermore, lecturers and people in charge of creating curricula could add useful perspectives and insights to explore impeding institutional barriers. Future results will be accessible by further publications and on our website.

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About the Authors:

Hannah Glatte is research fellow at Fraunhofer CeRRI. Current projects focus on radical innovation and participative research methods. With her training in Design Thinking she is experienced in conception and execution of ideation workshops. Hannah holds a Master in Cultural Engineering.

Marie Heidingsfelder is research fellow at Fraunhofer CeRRI. Current projects focus on technology and knowledge transfer, design methods for public engagement and RRI. In her PhD project, Marie explores the potential of design fiction for science communication.

Franziska Brodack is research fellow at Fraunhofer CeRRI. Her current research projects focus on the utilization of inter- and transdisciplinary teams for technology and knowledge transfer at research institutions as well as academic spin-off creation. Franziska holds a Master in Business Administration.

Acknowledgements: The authors wish to thank Sandra Riedel for her support in planning the workshop.