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Looking Ahead by Looking Back:
The Role of Research in Design for Creativity, Inspiration and Innovation –
A Case Study

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Introduction

Walter Gropius stated that »only the artist is capable of breathing a soul into the inert machine-made object«.¹ Today, artificial intelligence (AI) and machine learning (ML) drive technological development, whereby machines are trained through the data of economically successful examples of art, craft and design. Alternatively, the machines are self-learning, and create their own novel designs, albeit to date based mostly on artefacts created by human artists or designers. While there might not yet be a definable soul in the devices we use, algorithms and agent-based tools have worked their way into the daily life and design processes of creative practitioners and other professionals. A common use of technological support within the design process is to produce visual inspiration for idea generation and design development. Visual research is an important element of the design process in which designers investigate existing designs, artworks, imagery and materials from a variety of media and other sources. With the rise of digital technologies, the focus of inspiration gathering has developed from browsing bookshelves and other non-digital media to inspiration gathering via visually-focused social media. While users of these sites or tools can search platforms using tags or keywords, or follow certain designers to receive high quality examples of design in almost endless numbers, this often leads to direct idea development, omitting the step in which detailed research could add to inspiration and idea generation.

Based on the evaluation of two university design assessment projects as study cases, this chapter endeavours to ascertain whether upfront evaluative, iterative research in design will allow a broader spectrum of ideas, and thus a more focused design phase. The results evaluated in this article are assumed to be valid for research conducted with or without the help of technology, as they describe the importance of primary and secondary research in design, as well as the interconnectivity of research with creativity, inspiration and innovation.

Connecting research in design, creativity, inspiration and innovation

Numerous scholars have reported on research activities in design, design research, creativity, inspiration and innovation. The goal of this article is not to add further definitions, but rather to exemplify the connections between them, and to explain their advantages through the use of a case study.

o Research in Design and Design Research

According to Bayazit, the »objectives of design research are the study, research,

¹ Forgács, Éva: *The Bauhaus idea and Bauhaus politics*, Budapest/London 1995: Central European University Press, 10f.

and investigation of the artificial made by human beings«.² The roots of design research can be found in attempts to methodise design by De Stijl and by the Bauhaus school's design education in the 1920s.³ From the mid-1960s, the evolution of design research increasingly considered human factors, believing that »the designer has to start analyzing the human behavior.«⁴ This attitude was key to the development of methods used in Human Factors, Human Computer Interaction, User Experience Design (specifically User Experience Design Research or User Research) and Service Design. These fields of study, as well as the Design Thinking methodology and industry practitioners, extended the term design research to include human-centred research activities (primary and secondary research), while academia uses a more scientific definition. Grocott would have the academic approaches to design (research-led design) and design practice (design-led research) inspire and benefit from each other, and accordingly proposes a framework that »seeks to model a critical approach to researching that draws on the core abilities of a designer.«⁵

In this chapter the extended understanding of design research is applied, which includes the needs and desires of a product or service's potential users and consumers. It is a generative approach to research in design, »asking questions before coming up with design ideas«.⁶ While in both described case studies, extensive design research was performed, many design projects do not comprise detailed design research activities. Yelavich quotes Grocott: »The problem was that the majority of practitioners do not perceive research as relevant to the professional practice of design«.⁷ One reason design research is often omitted is that conducting research takes time: sources must be found for secondary research, primary research must be planned and conducted, data must be consolidated, and the designer must inform him- or herself about the various contexts and boundaries of the brief.⁸ While it is certainly well invested for a design's success (MacKinnon describes the benefits of doing research

2 Bayazit, Nigan: »Investigating Design: A Review of Forty Years of Design Research«, in: *Design Issues* 20 (2004) 1, 16.

3 Ibid., 17.

4 Ibid., 20.

5 Grocott, Lisa: *Design research & reflective practice: the facility of design-oriented research to translate practitioner insights into new understandings of design*, Doctor of Philosophy (PhD), Melbourne, Australia 2010, 224.

6 Matz, Alexandra/Muraspahić, Ena: Start with questions, not ideas! Why design research matters (15 June 2017) 2017, <http://arhiva.designdistrict.hr/program2017/start-with-questions-not-ideas-why-design-research-matters/> [12 March 2019].

7 Yelavich, Susan: Designerly Ways of Researching: Re-thinking the Design Process. Lisa Grocott's Practice-led Research as a Model for Design Education 2013, <https://designpracticesandparadigms.wordpress.com/2013/06/03/designerly-ways-of-researching-re-thinking-the-design-process-lisa-grocotts-practice-led-research-as-a-model-for-design-education/> [16 March 2019].

8 MacKinnon, Kim: »Context matters: The value of analyzing human factors within educational contexts as a way of informing technology-related decisions within design research«, in: *International Journal of Computer-Supported Collaborative Learning* 7 (2012) 3, 382.

with a higher relevance and usefulness⁹), time might be scarce in some projects, due to resource constraints or time pressures, or other expectations from the client. This case study aims to add to the body of knowledge by enabling practitioners and the teaching professions to demonstrate the added value of in-depth design research to their stakeholders or students. It will outline how time invested in research will add to the design outcome by fostering creativity, widening the horizon of inspiration and bringing new ideas and solutions to the surface.

o Creativity

Creativity has been widely discussed in the field of design, and reports indicate many contributing factors, such as creative environments and diverse teams. This article uses Tapio Takala's definition of creativity: »a person's ability to produce something new and unexpected. [...] Essential in creativity is that something recognizable is produced and that the result is novel«. ¹⁰ Takala adds that the start of a creative process is based on »strong internal motivation«, ¹¹ and that a practitioner will be rewarded with »gratification and satisfaction achieved from successful comprehension«. ¹² This is an important connection to design research: an understanding of materials and contexts can only be achieved when they have been researched. MacKinnon refines the importance of context by highlighting that »design research is much more sensitive to the nuances of context than traditional experimental approaches.« ¹³ Context has been especially important in the approach taken for the case study due to need due to the need to understand the wider historical, political, social and economic contexts, as well as the intricate crafts involved.

o Inspiration

Inspiration is key to creating novel designs based on as many ideas as possible, which are later refined in the design development phase. Gonçalves et al. quote Hornby that inspiration is »the process of being mentally stimulated to do or feel something, especially to do something«. ¹⁴

As outlined in the introduction, social media platforms for creative practitioners are being used increasingly as an inspiration-fusing method on which to base ideas. Sites such as Behance and Dribbble are targeted at creative practices, and are used to present original work upon which to gather feedback, while Pinterest and Instagram

9 Ibid., 381.

10 Takala, T.: »A neuropsychologically-based approach to creativity«, in: John S. Gero/Mary Lou Maher (eds.), *Modeling creativity and knowledge-based creative design*, Hillsdale, NJ: Lawrence Erlbaum 1993, 91.

11 Ibid., 92.

12 Ibid.

13 MacKinnon: »Context matters«, 383.

14 Gonçalves, Milene/Cardoso, Carlos/Badke-Schaub, Petra: »What inspires designers? Preferences on inspirational approaches during idea generation«, in: *Design Studies* 35 (2014) 1, 29.

are more curations of visuals¹⁵, often used as mood boards for design work, or to build original ideas from the curated selection. As such, they can also be seen as supporting the creative process.¹⁶ Instagram is becoming increasingly popular for inspiration gathering, too.¹⁷ Goucher-Lambert and Cagan – in their research¹⁸ for a tool to determine how crowdsourcing can support designers in their ideation process – along with Gonçalves et al., indicate that inspirational stimuli should be correct and applicable, and provided at the right time.¹⁹ The visual stimuli provided by image-driven social media platforms and other pictorial sources do satisfy this, and are – as an important tool – most used by designers. Textual stimuli are under-represented as inspirational sources, even though research has not shown a reason for this.²⁰ Gonçalves et al. contrast the possible negative aspects of pure visual inspiration gathering with a recommendation to broaden inspiration gathering to include more distant domains and areas to avoid narrow minded design outcomes due to building on the visuals or design of others or remaining in a designer's most immediate domain-space.²¹ This case study will describe how the act of moving out of a close domain, triggered by primary and secondary research that followed an initial phase of visuals-based inspiration gathering, created additional inspiration.

o Innovation

The research shows a variety of approaches to defining innovation, as well as proposing models and best practices for applying it. This indicates that it is a difficult term to define, and this lack of a general definition is regarded as an issue.²² Baragheh et al. describe innovation as cross-disciplinary: »Innovation is the multi-stage process whereby organizations transform ideas into new/improved products, services or processes, in order to advance, compete and differentiate themselves successfully in their marketplace.«²³

15 Kim, Nam Wook: Creative Community Demystified: A Statistical Overview of Behance 2017, <http://arxiv.org/pdf/1703.00800v1> [16 June 2019].

16 Scolere, Leah/Humphreys, Lee: »Pinning Design: The Curatorial Labor of Creative Professionals«, in: *Social Media + Society* 2 (2016) 1.

17 Xie, Chunhui »Shay«: *The Instagram Playscape: Designers' Creative Self-expression as Play and Inspiration for Their Professional Practice*. Masters thesis 2018.

18 Goucher-Lambert, Kosa/Cagan, Jonathan: »Crowdsourcing inspiration: Using crowd generated inspirational stimuli to support designer ideation«, in: *Design Studies* 61 (2019), 2.

19 Gonçalves/Cardoso/Badke-Schaub: »What inspires designers?«, 45.

20 Ibid.

21 Gonçalves, Milene/Cardoso, Carlos/Badke-Schaub, Petra: »Inspiration peak: exploring the semantic distance between design problem and textual inspirational stimuli«, in: *International Journal of Design Creativity and Innovation* 1 (2013) 4.

22 Baregheh, Anahita/Rowley, Jennifer/Sambrook, Sally: »Towards a multidisciplinary definition of innovation«, in: *Management Decision* 47 (2009) 8, 1334.

23 Ibid.

In the discussion of how to approach and implement innovation, several authors connect it to design research. Here, the focus is on potential users and consumers, through the creation of a (new) clear »meaning« that these users assign to products or services,²⁴ or through understanding which »job [a client wants] to be done«. ²⁵ In their joint publication, Verganti and Norman differentiate between incremental and radical innovation. They describe incremental innovation as »improvements within a given frame of solutions (i.e., >doing better what we already do<)<²⁶ and radical innovation as being »driven by either advances in technology or a deliberate change in the meaning of the product, rather than being driven by the human-centred design philosophy widely used in product design«²⁷, with both types of innovation complementing and requiring each other. The authors add Dahlin and Behrens' three criteria of what makes an innovation radical: (i) it needs to be significantly different from former innovations as well as (ii) current innovations, and (iii) it needs to impact future innovations. The latter is a success-measured criteria, which can only show results over time.²⁸

While the case study presented aimed to create a novel design, as required by the university's requirements, it did not aim for radical innovation as part of a product market strategy. Yet, due to the design research performed, the results satisfy at least Dahlin and Behrens' first and second innovation criteria and thus can be used as an example for describing its added value.

Case Studies

During the Level 6 studies for the B.A. Graphic Design program at the Interactive Design Institute | University of Hertfordshire, students are tasked to respond to one student design award from a list of proposed briefs, as well as to plan and execute a self-negotiated design project, including the creation of an original design brief based on a theme set by a word (out of five available). Both case studies will be presented as the process of answering these briefs, indicating the value of design research performed. The action of building on prior knowledge and expertise of the subject matter to help create novel designs will be highlighted. In these case studies, factual and visual primary and secondary research (including generative design research) was undertaken to inform the ideation process, and evaluative research allowed feedback on the first design prototypes, thus enhancing the design.

24 Verganti, Roberto: *Design-driven innovation. Changing the rules of competition by radically innovating what things mean*, Boston, Mass.: Harvard Business School Press 2009.

25 Christensen, Clayton M. et al.: »Finding the Right Job For Your Product«, in: *MIT Sloan Management Review* 48 (2007) 3.

26 Norman, Donald A./Verganti, Roberto: »Incremental and Radical Innovation: Design Research vs. Technology and Meaning Change«, in: *Design Issues* 30 (2014) 1, 82.

27 Ibid., 81.

28 Ibid., 82.

The discussion is based on evaluative research, with n=6 experts, and thus does not claim to have proof of a statistically relevant number of participants.

The intent of this chapter is not to rate or detail the design quality of the visual communication results, but to focus on the approaches and interventions taken during the research and design phase, which informed the design. As such, a reflective approach to the case studies has been used.

The design process in both cases followed that proposed by the University, which is, simplified, visualised in fig. 1. The university's assignment documentation strongly encourages students to work iteratively: i.e. not to work in a waterfall process, but to continuously questioning the current state of research or design, and rework prior steps following feedback from peers, tutors or evaluative research.

The above process description might indicate that a waterfall process was used, in which research always needs to precede ideation and design development. In fact, an iterative process was followed, which is especially seen in agile design practices²⁹ and Design-Led Development approaches.³⁰ While both methods access User Experience Design as well as Design Thinking³¹ and Human-Centred Design Toolkits such as IDEOs³², they can be applied to graphic design practice as well. As they were based on industry experience as a User Experience Design Researcher, the design research and development in this study constitute a practice-infused approach.

o Case study one: responding to a student design award brief

The first assignment took place in the weeks of study between February and June 2018. Following an initial evaluation of possible briefs, the student design award Project 2: »Writing Women into History«³³ from the International Society of Typographic Designers (ISTD) was chosen. The ISTD is a not-for-profit company and, as a professional organisation, aims to foster typographic standards, working in close collaboration with the industry and institutions. In the brief, students are required to write »women back into history«.³⁴ The overall challenge of the brief was to promote the life and work of a woman whose reputation and mark on history is not adequately reflected.

29 Brown, Diana DeMarco: *Agile user experience design. A practitioner's guide to making it work*, 1st ed., Waltham, Mass.: Morgan Kaufmann 2013.

30 SAP SE: Design-Led Development Process. SAP Fiori Design Guidelines 2018, <https://experience.sap.com/fiori-design-web/design-led-development-process-external/> [12 March 2019].

31 Meinel, Christoph/Leifer, Larry/Plattner, Hasso: *Design Thinking*, Berlin/Heidelberg: Springer 2011.

32 Luebke, Chris: »Design Is Our Answer: An Interview with Leading Design Thinker Tim Brown«, in: *Architectural Design* 85 (2015) 4.

33 Dowling, John Paul: ISTD 2018 Student Assessment 2018, https://www.istd.org.uk/asset/download/3508/2018_ISTD_Student_Projects.pdf, 8 [12 June 2019].

34 Ibid.

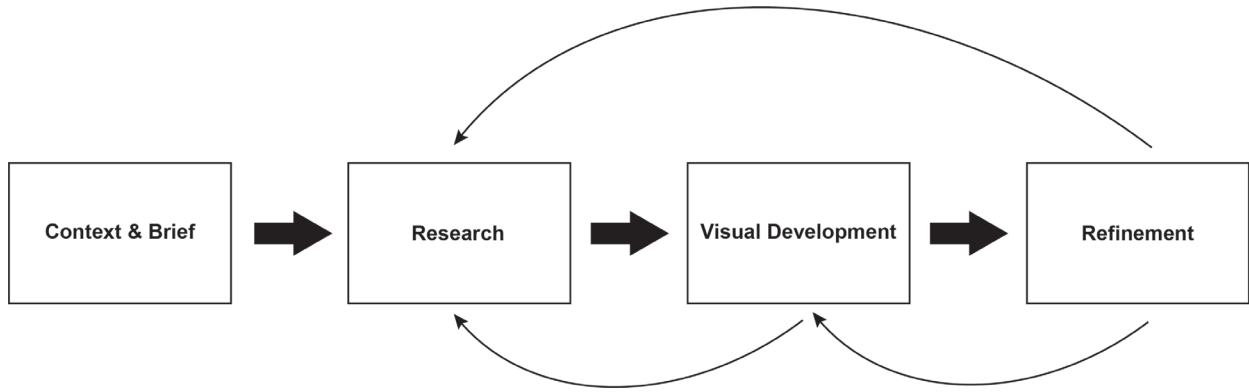


Fig. 1: Design Process (simplified) followed while working on the university's assignment briefs

In the first step of acquainting myself with the brief, I analysed its detailed requirements: a well-researched foundation for the later design through the development of skills in researching primary and secondary sources, and making these available to a general audience. The target group was set: everybody. As the ISTD is a typographer's organisation, the highest level of attention needed to be paid to typographic detail. The design solution needed to be essentially typographic, displaying creativity as well as strategic and innovative thinking.³⁵ As is natural for design practitioners, primary visual research was conducted to learn about how other students or professionals had approached the brief in the past, using platforms such as Behance. Through this analysis, it seemed that prior awarded projects had a strong graphic and typographic focus, but were not necessarily rich in content.

In the first research phase, a subject was to be chosen as the focus of the design, and a selection of local and international women who had gone relatively unnoticed were identified. Although the shortlisted subjects were not completely unknown, they were often known only to experts in their fields. The subject selected was Otta Berger (1898–1944), a Bauhaus student and later teacher in the weaving workshop. Following initial research based on web-articles and a book that included short biographies of Bauhaus women, an interest to learn more about her was triggered. In-depth research of secondary material, such as papers and books by Smith³⁶, Droste et al.³⁷,

³⁵ Ibid., 12.

³⁶ Smith, T'ai: *Bauhaus Weaving Theory*, London: University of Minnesota Press 2014.

³⁷ Droste, Magdalena/Siebenbrodt, Michael/Anger, Jenny: *Das Bauhaus webt. Die Textilwerkstatt am Bauhaus ein Projekt der Bauhaus-Sammlungen in Weimar, Dessau, Berlin*, Berlin: G+H Verlag 1998.

Vargas³⁸ and Mlikota³⁹, followed. This research laid a solid foundation for the evaluation of gathered data, and the start of a phase of lateral thinking and conceptualisation to start a visual exploration of the most interesting themes and topics.

Through studying the literature, detailed findings were revealed about Otti Berger and her work. This enabled the establishment of various contexts, for example, collaborations and friendships made within the Bauhaus weaving workshop, as well as politics and questions of gender equality. The literature provided in-depth information, such as Berger's Vorkurs work in the classes of Paul Klee and László Moholy-Nagy, her cooperation with the textile industry, for example in the Netherlands after having founded her own studio in Berlin after the Bauhaus was closed. Although the studio wasn't a full economic success, it drove Berger to strive for fair acknowledgment of her work, like that attributed to architects. Berger was granted a patent for her innovative material »Möbelstoffdoppelgewebe« in 1932, and applied in vain for an emigration visa to the United States before being deported and eventually killed in Auschwitz in April 1944. Interesting and evocative findings were then consolidated into coded lists, and fused into divergent thinking and creative approaches; drawings and mind maps formed the basis for initial design ideas. It can be argued that the detailed secondary research generated far more inspiration and themes for ideas and visual development than visual inspiration alone.

In the next phase, the initial ideas were developed into more concrete concepts through the creation of mood boards and tone of voice, including choice of colours, materials and typographic thoughts. Based on the contextual inspiration gathered from the research, this included experiments such as with photograms (as developed by Moholy-Nagy), geometric and deconstruction approaches, and stitching.

During the idea development stage, the possibility of visiting Otti Berger's hometown of Zmajevac (Vörösmart), which is today in Croatia, near the Hungarian and Serbian borders, arose. Following an ethics approval by the university, a short visit of a few hours was planned. Even though not much data on or material by Otti Berger exists at this location anymore, the visit revealed numerous facts and inspirations, provided by a representative of the local museum. In the museum, crafts, furniture, tools and textiles were displayed. The region (Baranja) has a long tradition in textiles and weaving, and some of these artefacts found their way into collections before 1900.⁴⁰ While there are no artefacts from Otti Berger in the museum, influences on her work at the Bauhaus could be found in some of the Baranja motifs and ar-

38 Varga, Mária: *Ég és föld között. Berger Otti, a vörösmarti textilművésznő, Pannónia könyvek*, Pécs: Pro Pannónia 2017.

39 Mlikota, Antonija: »Otti Berger - tekstilna dizajnerica, teoretičarka, pedagoginja, inovatorica«, in: Jadranka Vinterhalter (ed.), *Bauhaus – umrežavanje ideja i prakse*, Zagreb: Muzej suvremene umjetnosti Zagreb 2015.

40 Simončič, Katarina Nina: »Influence of Ethnic Style on Croatian Fashion in Clothing in the Period of Art Nouveau«, in: Constanța Vintilă-Ghițulescu (ed.), *From traditional attire to modern dress. Modes of identification, modes of recognition in the Balkans (XVIth–XXth centuries)*, Newcastle upon Tyne: Cambridge Scholars Publishing 2011.

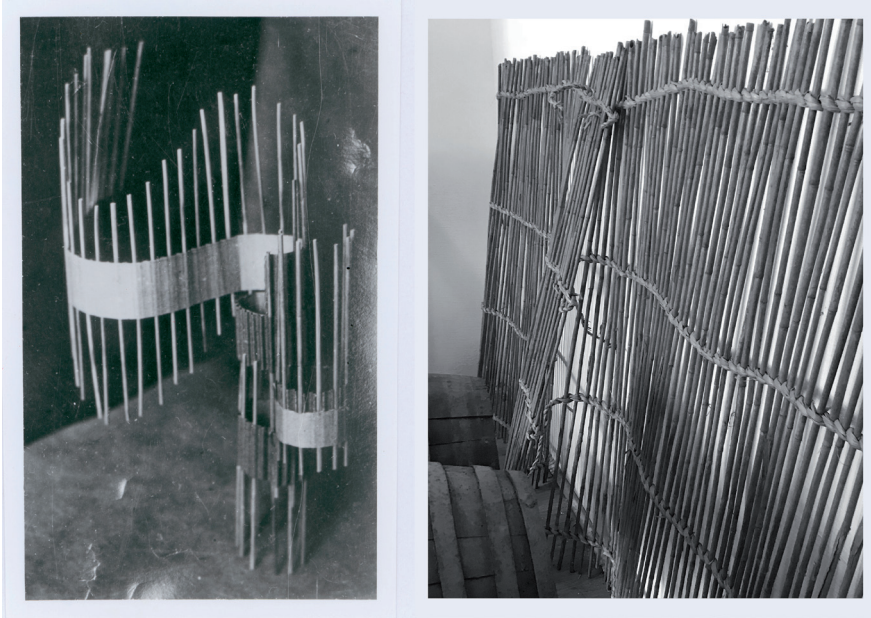


Fig. 2: Otti Berger's *Vorkurs* work, ca. 1926 (left) and a reed-fence in the museum in Zmajevac (right)

tefacts. For example, a *Vorkurs* work of Berger in Josef Albers' class for material and balance studies has similarities in structure and binding to an exhibit in the museum, a traditional reed fence made of bamboo branches, used on the nearby banks of the Danube (fig. 2), although they differ in material (metal in the *Vorkurs* work versus bamboo) and function (exploring balance versus fencing and trapping). A local textile piece with a design typical of the region, including a wavy linehaul of the thread in the embroidery that follows horizontal weft blocks of solid colour, could be seen to be cited in Otti Berger's carpet of ca. 1930 (fig. 3), which shows a similar linehaul yet different techniques and colours, and lacks the floral pattern.

While the many visual inspirations from the village and the region added to the flow of inspiration, the information that later proved to be the trigger for significantly re-thinking the design approach was provided by the representative, in answer to an interview question: while some citizens of the region know an artist born in the region was an important member of the Bauhaus, the younger generation knows hardly anything about her and her heritage. This was evident, in that there was no informative material (such as brochures or flyers) about Otti Berger available in the museum at the time of research. Vargas' notable book about Otti Berger in both languages spoken in this area of the Baranja (Hungarian and Croatian), which in detail reports on Berger's life and work, was purchased and shipped from an online bookstore in Hungary as it was not available in local shops at the time.



Fig. 3: Otti Berger's carpet (left, ca. 1930) and a local textile craft piece with embroidery by Julianna Beke (1928–2009), exhibited in the Zmajevac (Vörösmart) museum

A common step in the design process is to constantly revise and reiterate findings and designs.⁴¹ In this case, having started visual development towards a modern, typographically rich design that would satisfy the award committee, the iteration process led back to questioning this design. It would not comply with the first-hand findings derived from the research, a need testified to by interview participants. This meant returning to the research with the intention of creating a novel design that would (a) appeal to (especially younger) people in Berger's home region, by highlighting the regional connections found in her work and biography, (b) encourage people to read and learn about Otti Berger, acting as an entry point for more detailed readings, and (c) follow similar approaches to those used in her practice, (d) ideally be tri-lingual (Hungarian, Croatian and English) and (e) satisfy the design brief. Out of several ideas, the iteration unveiled a new theme, again based on secondary research: telling a story using collage. Collage was a medium often used by Bauhaus artists, including Marianne Brandt and Moholy-Nagy⁴², as well as by Otti Berger (fig. 4).

41 Grocott: *Design research & reflective practice*, 222.

42 Otto, Elizabeth: »A ›Schooling of the Senses‹: Post-Dada Visual Experiments in the Bauhaus Photomontages of László Moholy-Nagy and Marianne Brandt, in: *New German Critique* 36/2 (2009).



Fig. 4: : One page of a scrapbook with collages, most probably given to Otti Berger as a present (»Ottis Bauhausbilde Buch«, omitting the »r« in the word »bilder« to connote the words to educate, teach

Through experimenting with collages inspired by the aforementioned artists as well as contemporary ones, the tone of voice and design direction were redeveloped. An inspirational and novel point of view was generated, which would not have been possible without the research conducted. The collages help to tell Otti Berger's story with concise and insightful texts as well as visuals, in a way that satisfies both the research results and the design brief. They should attract young Baranja residents by showing links to the region where possible, yet also follow the design brief's target group of »everyone«. Original photography, classic collage materials (such as newspapers and advertisements), as well as authorised material (especially photographic material kindly provided by the Bauhaus Archive in Berlin), formed the basis of the design experiments, and for the textual documentation of the final print medium: a brochure (fig. 5) celebrating the life and work of designer, inventor and entrepreneur⁴³ Otti Berger. While the paths discovered, explored and discarded, were not quantified or measured, both in the research as well as in the visual development

43 Mlikota: »Otti Berger – tekstilna dizajnerica«, 64



Fig. 5: One spread of the pre-final brochure design by the author in English language, showing Ottilie Berger's tactile board («Tasttafel») created in 1928 during the Vorkurs lessons taught by László Moholy-Nagy (left, ca. 1930)

phase, the graphic (fig. 6) visualizes, in a simplified way, the potential unveiled by the unexpected findings during primary research:

The visit to Ottilie Berger's home town at a time where visual development already had started (1) led to re-iterating and -consolidating the prior research (2) and opened new research directions (3). These, as described, led to a revised, target group driven change in the design direction (4) which again triggered numerous new design experiments (5) which led to the final design outcome.

o Case study two: responding to the theme »fragment«

The second assignment was conducted in part-time study between October 2019 and March 2019. In contrast to the design award brief, in this case students were tasked to choose one of five themes, one of which was »fragment«. Based on this theme, an original brief was to be created, including specific final outcomes, a target group, design practice sector(s), and plans for how to evaluate and test the design.

As previously outlined, the process involved approaching the brief through constant diverging and converging cycles. Multiple themes were briefly evaluated before one was chosen for further development. Again, multiple ideas were initially sketched to build the brief of the self-initiated project. Amongst other connotations, »fragment« as in fragments of tea leaves was chosen. The initial goal of the brief was to create a fictive tea brand and package design, which could translate to several kinds of tea on

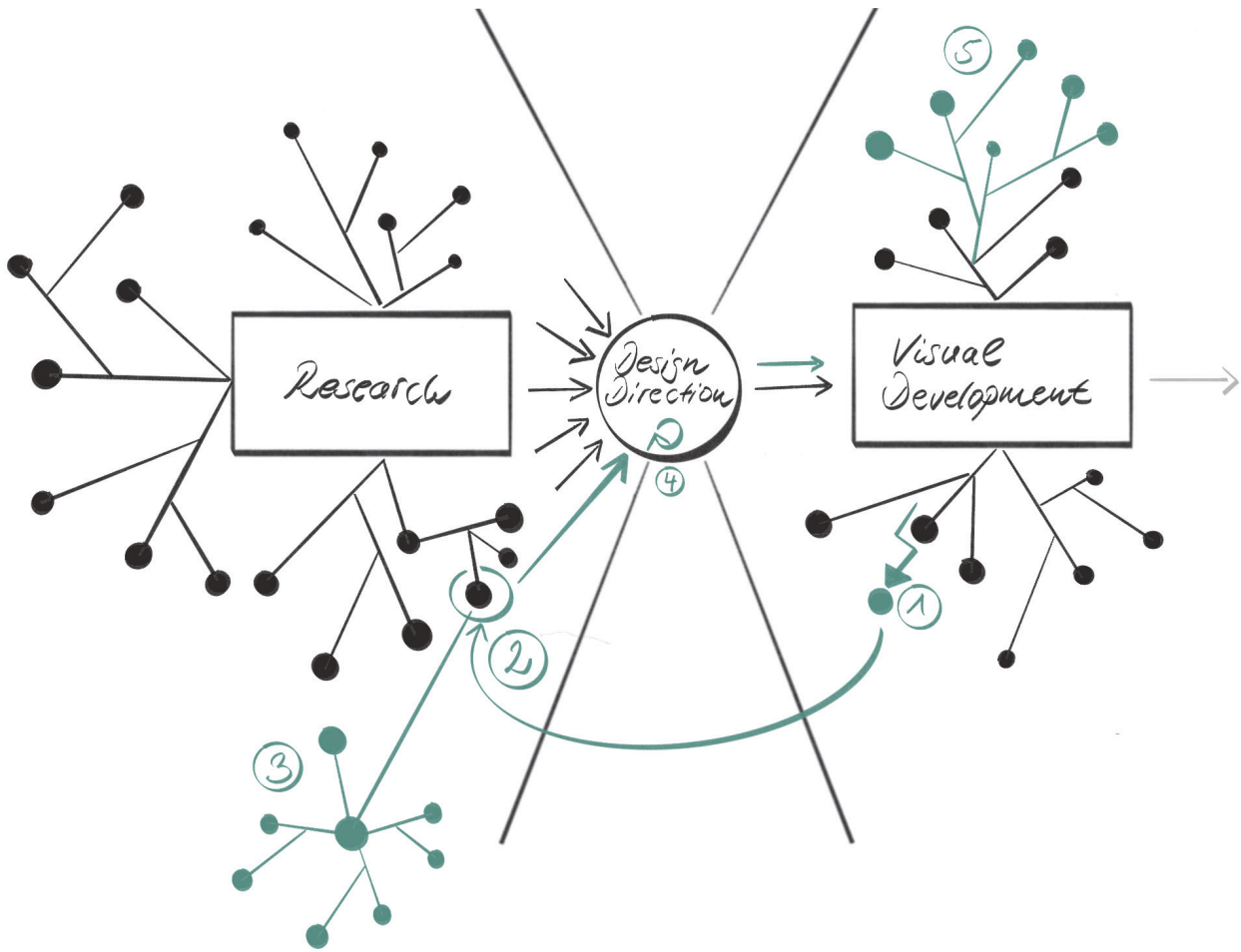


Fig. 6: Simplified visualization of research and visual development paths explored in case study one, shown in black colour. Also highlighted is the process of converging (consolidation of many data items and deciding for one design direction) and diverging (creating as many ideas as possible, based on the design decision taken). The nodes which were triggered by the research visit to Zmajevac (Vörösmart), are shown in green colour

offer. Visual research online and in shops uncovered plenty of beautiful and functional designs for tea packaging, e.g. in ornamental or illustrative style, which provided a large base of inspiration on which to build original ideas. The task was to come up with a novel design that set itself apart from existing ones. The development of ideas into designs could have started here. Yet, again, the funnel of ideas sparking from the visual research would have limited the design result, neglecting the valuable inspiration or even innovation the assignment could hold.

To broaden the range of ideas, secondary research was initiated to understand the history of tea, its various origins, and the processing of the tea plants, from plantation to shop. Learning about the Japanese tea ceremony and the tea regions of India and China led to a solid creative foundation, but the source that changed the flow of inspiration and the subsequent design was Edit Tóth's article about the architectural work of Iwao (1898–1987) and Michiko Yamawaki (1910–2000).⁴⁴ Iwao and Michiko Yamawaki, a married couple from Japan, were students at the Bauhaus between 1930 and 1932. Iwao studied architecture and Michiko textile design in the weaving workshop. Tóth describes Iwao Yamawaki's concept of »kuzushi, meaning taking apart (or formal and structural deconstruction)«, which for him »consists of disassembling, testing, and reformulating«.⁴⁵ These keywords resonated strongly with the theme of »fragment«. The article revealed several details that pointed the way ahead: inspirational details about Japanese architectural and interior design and their relation to aesthetics philosophies, such as Wabi Sabi,⁴⁶ and a discussion of light and shadows⁴⁷, which proved helpful in the later definition of the tone of voice. The article connected to initial research ideas about tea through a discussion of the Yamawakis' architectural design of a tea ceremony room in a house in Tokyo.⁴⁸ It also included the fact that Michiko Yamawaki's father was a master of the tea ceremony, a skill she acquired from him⁴⁹, and provided a general link to the Bauhaus and its teachings in Japan, as well as on the influences Japan had on the Bauhaus. Based on these findings, the secondary research branched off into further exploration of the Yamawakis, as well as of the links and influences between the Bauhaus and Japan, including Japanese architecture and design, and tea. Helena Čapková⁵⁰ observed this as »mutual transnational exchanges«⁵¹: She noted that there was a »perception of the Bauhaus as a place for tea, with the professors as tea-ceremony practitioners and tea masters«,⁵² and that for Michiko Yamawaki »the world of tea« was all present at the Bauhaus and that the »concept of tea aesthetic resonated with the idea of the contemporary Modernist Gesamtkunstwerk (total work of art)«⁵³. This research also

44 Tóth, Edit: *Design and Visual Culture from the Bauhaus to Contemporary Art*, London: Routledge 2018.

45 Ibid., Pos. 2871.

46 Koren, Leonard: *Wabi-sabi for artists, designers, poets & philosophers*, rev. Point Reyes: Imperfect Publishing 2008, 1994.

47 Tanizaki, Jun'ichiro: *In Praise of Shadows*, London: Random House 2001.

48 Tóth: *Design and Visual Culture*, Pos. 2874–2955.

49 Ibid., Pos. 2808.

50 Čapková, Helena: »Transnational Networkers – Iwao and Michiko Yamawaki and the Formation of Japanese Modernist Design«, in: *Journal of Design History* 27 (2014) 4.

51 Čapková, Helena: »Bauhaus and Tea Ceremony. A Study of Mutual Impact in Design Education between Germany and Japan in the Interwar Period«, in: Carolien Stolte/Yoshiyuki Kikuchi (eds.), *Eurasian encounters. Museums, missions, modernities, vol. 2: Asian heritages*, Amsterdam: Amsterdam University Press 2017, 104.

52 Ibid., 106.

53 Ibid., 112.



Fig. 7: Otti Berger in the studio apartment at Bauhaus Dessau (1930; photo by Gertrud Arndt)

uncovered connections to Otti Berger beyond the fact that both Yamawaki and Berger were members of the weaving workshop: Otti Berger was a teacher to Michiko Yamawaki⁵⁴, and consequently appears in photographs by Iwao Yamawaki. These connections started to consolidate a direction involving tea, the Bauhaus and its weaving workshop, and photography; it thus built on the research done in case study one. It revealed, for example, a special kind of teapot (a »Kippkanne«, or tipping pot, which infuses the tea-leaves in lying position), manufactured by German company Rosenthal⁵⁵, visible on the table in a photograph of Otti Berger taken by Gertrud Arndt (fig. 7). Arndt (1903–2000) was a student in the weaving workshop at the same time as Berger and took several photos of her. Notable are Arndt's photos of Otti Berger dressed in (folk) costumes, and of her in the Bauhaus Dessau building

54 Yamawaki, Michiko: *Bauhausu to chanoyu*, Tokyo: Shinchosha 1995, 89.

55 Horstmann, Mikael G. B.: Die Kippkanne 2014, <https://herr-mika.tafelkultur.eu/die-kippkanne/> [25 February 2019].

just before its closure. While the installation of one of Arndt's carpets in director Gropius' room at the Bauhaus in Weimar in 1924⁵⁶ could be seen as a successful study result, she initially wanted to study architecture rather than weaving⁵⁷. After the Bauhaus, Arndt did not weave, but created a series of 43 self-portraits, called »Maskenportraits«, ⁵⁸ in which she wears various costumes. We can partially see some of these draped over a suitcase in the photograph of Otti Berger in the Dessau studio apartment (fig. 7).

Gertrud Arndt's photography, and the fact both that both her and Iwao Yamawaki took photographs of Otti Berger, created a link between the three of them. Further strengthening the link of Bauhaus and tea ceremony, a photograph documents Ise and Walter Gropius participating in a tea ceremony with their Japanese hosts, taken during a trip to Japan. While the hosts obviously showcased western style tea cups, a traditional Japanese setting is visible, also with Ise and Walter Gropius both wearing a kimono (fig. 8).

After pulling together the strings of the research findings, a consolidation and synthesis step was required to pave the way towards a final design direction. Consequently, a phase of broad material and design experimentation began picking up on all the inspirations gathered in the research. The tea ceremony room design by the Yamawakis (with its wooden post and Michiko Yamawaki's rectangular checkered sliding panels,⁵⁹ as well as her bark-like patterns on the living room panels⁶⁰) triggered experiments with woodcut-printing, drawing, painting on rice paper, or typographic experiments with loose tea (fig. 9). Many more directions were taken before prototypes were produced for the tea packaging design.

Yet something was missing; the feedback gathered in the evaluative research confirmed this, as it was not completely positive. Participant statements ranged from »nice approach but too commercial«, to »the woodcut prints are too close to Yamawaki's design on the panels«, and »I do not understand the concept, are you promoting tea or are you trying to sell Bauhaus?«

The challenge to be tackled was to find a way of communicating the exceptional design and artistic qualities of the three women, combined with the aspects of fragments and tea, and a link to Japanese aesthetics needed to culminate in a new outcome. It should extend the packaging design towards what a tea ceremony stands for: hospitality, the selection of excellent ingredients, and a combined flow of perfectly executed actions and movements. This should involve all the senses, as outlined in the 16th century by Sen no Rikyū, who is regarded as the spiritual leader of the

56 Smith: *Bauhaus Weaving Theory*, 42.

57 Ibid., 49.

58 Wolsdorff, Christian: *Eigentlich wollte ich ja Architektin werden. Gertrud Arndt als Weberin und Photographin am Bauhaus 1923–31*, Berlin: Bauhaus-Archiv Museum für Gestaltung 2013.

59 Tóth: *Design and Visual Culture*, Pos. 2000.

60 Ibid., 2580.

Japanese tea ceremony: »See with your eyes. Hear with your ears. And smell the incense. While asking questions. Arrive at understanding.«⁶¹ The importance of the senses connects with Gertrud Arndt's use of unusual, muted, colours in her weaving and her (self-) portraits (Arndt's and Lucia Moholy-Nagy's photographic works were assigned to the movement of »Neues Sehen« [New Vision].⁶² And it also connected to Otti Berger: in her 1930 article »Stoffe im Raum« (Fabrics in Space), Berger stressed the importance of the tactility of fabrics. Smith documents Berger's words: »for one must listen to the fabric's secrets, track down the sounds of materials.«⁶³ She also highlights Berger's use of the German word »begreifen« which connotes »grasping« as well as »understanding«.⁶⁴ Michiko Yamawaki as well emphasises the senses, the tactile sense as being the most important, when deriving the concept of beauty in the tea ceremony and linking it to the human senses: the need for paying attention to the human senses as her general principle of approaching a design.⁶⁵ The importance of the relationship between Michiko Yamawaki and Otti Berger is documented in Michiko's autobiography: Yamawaki describes how she hands Berger a large red Kakefukusa (cloth, scarf) as a goodbye present when leaving Dessau in 1932. She further noted that, while pointing out Berger's hearing impairment and that she spoke with a slightly strange voice, Berger, »constantly blinking with her eyes, took her own hair jewellery, a red rose made of Celluloid, pointed at my chest and gave me a beautiful necklace as a present«.⁶⁶

Realising and understanding these connections was the Eureka moment, which, as Takala described in his definition of creativity, was the start of a novel design, which could not have been anticipated. The missing connection was the focus on the tactile, and on the senses: The design would need to enable users to see something, to grasp something: to smell it, and to understand and learn. Another iteration of brainstorming began, but this time the results were clear: the design should include a visually appealing, consistently designed package, with additional content that progressively unveiled its elements. The content would be loose tea to taste and smell, a piece of textile to touch and use (e.g. as a placemat), and a teacup that connects touch, smell and textual material to promote understanding and questioning.

The concept of »3t – tea text textiles« was born (fig. 10). It is the idea of a tea ceremony for one person (or more), getting in touch with what the three women created and stand for in the history of design by using all the user's senses. An experience

61 Odin, Steve: »Blossom Scents Take Up The Ringing: Synaesthesia in Japanese and Western Aesthetics«, in: *Soundings: An Interdisciplinary Journal* 69/3: Penn State University Press 1986, 258.

62 Geissler, Lukas (ed.): *Bauhaus und neues Sehen. Fotografien von Lucia Moholy, Gertrud Arndt, Elsbeth Juda*, Kunsthalle Darmstadt, 23.04.–04.08.2013, Darmstadt: Justus von Liebig Verlag 2013.

63 Smith: *Bauhaus Weaving Theory*, 101.

64 Ibid., 97.

65 Shyoji, Akiko: »Yamawaki Michiko: the Common Concept -Bauhaus and Tea Ceremony«, in: *Special Issue of Japanese Society for the Science of Design* 1 (1993) 1, 41.

66 Yamawaki: *Bauhausu to chanoyu*, 89–90.



Fig. 8: Ise and Walter Gropius drinking tea with Japanese hosts (1954; unknown photographer)

of tasting tea, reading text about the weavers, and grasping textiles, a possibility to retreat from the busy days in today's life and revoke the human senses in a slow, non-digital process. »3t« would act as a fictive brand and design concept for the university assignment, but could also work as a basis for other communication forms, such as events (e.g. tea tastings with readings and a textile exhibition). This experience is a dedication to Otti Berger's constant search for concrete meaning through matter (fabrics), which was keener and more tactile as a consequence of her hearing impairment.⁶⁷

Although textiles and pottery are not the main expertise of Visual Communication students, it was decided to follow this path and create ceramic and textile artefacts. This was a decision taken in order to have a similar experience to that of the three Bauhaus students in their Vorkurs studies at the Bauhaus: experimentation with

67 Koščević, Želimir (ed.): *ivana (koka) tomljenović. bauhaus – dessau, 1920–1930*, 315. edn., Zagreb: galerije grada zagreba 1983.



Fig. 9: Design idea development and experimentation based on initial research findings

materials, colours and different crafts. In several day-long classes with a weaving master, three small woven pieces were created on a handloom, each referencing, but not copying, the Bauhaus artists. The first is a cloth dedicated to Otti Berger, drawing inspiration from one of her last letters in 1941, in which she writes Ise Gropius about a carpet she has started working on. She describes the colours: »first I started really dark and later the colours of spring and summer will end up in it«. ⁶⁸ Gertrud Arndt's textile was inspired by the unusual colours in her weaving work (orange colour in specific) and elements of her costumes in the »Maskenportraits«, and by mimicking the shiny fabric of her Kimono with a golden wire in the woven piece. The fabric dedicated to Michiko Yamawaki was woven from Japanese paper thread, airy and simple like her designs and design philosophy. The purpose of the textiles was intentionally left open for the user to experience and decide themselves. They could be both a wall hanging or a table runner to place a tea set on. After much experimentation with different forms and patterns, the cups were designed. Studying different types of tea cups, the decision was taken to follow the classic form of a flatter, wider

68 Bauhaus Archiv Berlin: Letter of Otti Berger to Ise Gropius (Bauhaus Archiv Berlin, Inv.nr.: 2108), 1–2.



Fig. 10: Details of the »3t tea text textiles« design work. Upper left: The three editions of the 3t set (outer packaging box; raw prototype mockup file; upper right: the folded booklets with texts and a backside full-page poster about the three designers: Gertrud and Alfred Arndt (1928), Gertrud Arndt in a kimono, self-portrait »Maskenphoto« Nr. 4 (1930), Ottilie Berger in her studio in Dessau, photo by Gertrud Arndt (1930), Baby Blanket by Ottilie Berger (ca. 1930–1934), Ise and Walter Gropius drinking tea with Japanese hosts (1954); lower left: the three handwoven textiles, dedicated to the artists; lower right: an overview of all elements of one edition's box (here, edition 3, dedicated to Gertrud Arndt. Tea pouch raw mock-up file by Raul Taciu)

cup, a Chawan (in contrast Yunomi forms that are rather taller than wide)⁶⁹. Learning about the craft of pottery, especially the firing techniques (raku) from a master potter, quickly it was realized that it is a very complex process and is based on years

⁶⁹ Boeschoten, Anne: Tea bowls, <http://kaolin.nl/tea-bowls> [6 March 2019].

of expertise of the craftspeople. Pondering time investment to learn and to work with a master potter to create cups in traditional Japanese way, the university assessment timeline could not be held. Thus, the design decision was to keep the cups mainly in white colour, yet with small details of references to the women artists. While for the edition dedicated to Michiko Yamawaki, an important element of the Japanese tea ceremony was fused into the design, the last drop of tea from the cup, which needs to be carefully extracted⁷⁰, for the edition of Gertrud Arndt, a recurring detail of her self-portraits was the base for the design: a band which is bound to a bowknot. The process of weaving, along with the painting and firing of the cups, created a strong momentum of learning and appreciation to the crafts. Completing the set content, a multi-page folded brochure (referencing the Japanese Origami technique) was created for each artist, to explain the 3t concept, the relationship between Bauhaus and Japan and the tea ceremony, and details about the artists. The box design finds its inspirational roots in the simplicity and clear aesthetics of Japanese design, while encapsulating an impression of Bauhaus textiles, and playing with the concepts of presentation and unboxing in Japanese packaging design⁷¹, which resulted in a sliding box design for the outer packaging which allows a slow and careful unveil of the inner content. While the outer box very well could stand with no pattern at all to keep the design as simple and reduced as possible, referencing Japanese design, images of the woven textiles were added to the front side of the box. It should directly be visible that there is strong connection to textiles and weaving and that, just as each type of green tea has its own character, each edition celebrates its individuality while being connected in the series of three editions. Clean typography, referencing the Bauhaus lowercase style, was used, with red colour in the logo and headlines, citing Michiko Yamawaki and Otti Berger's gift exchange.

Conclusion

This case study uses two design projects for university assignments, in which detailed primary and secondary research was conducted alongside visual research. Through documenting the research and ideation process, it can be seen that the basis for creative interventions and inspiration can be extended by adding sources from literature, as well as from archives and interview data, to visual research. During the execution of these design projects, the number of ideas and experiments brainstormed were not recorded, in order to allow a metrical analysis. Yet in both cases landmark resources visibly triggered a change in the design direction, initiating further ideation that led to additional creative outcomes and new inspirations: there was a definite »process of being mentally stimulated«.⁷² Additionally, the definition

70 Kusaka, Hiromi: *PRIME JAPAN – Japanese Tea 1* (2017).

71 Oka, Hideyuki: *How to wrap five eggs. Traditional Japanese packaging*. With photographs by Michikazu Sakai, New ed., Boston, Mass.: Weatherhill 2008.

72 Gonçalves/Cardoso/Badke-Schaub: »What inspires designers?«.

of creativity is validated by the case studies, as the research triggered »something recognizable [...] and [...] novel«⁷³ Both cases showed that the research undertaken resulted in a higher time investment than proposed in the university's study guide, and as such might appear to confirm a common view about the time-consuming nature of design research. However, the case study proves this to be a misconception, as it significantly reduced the number of iterations in the design development process. Further, to address the prejudice that design research is not relevant to design practice:⁷⁴ case studies documenting effective design research fused into successful design outcomes is a helpful tool to convince the design community otherwise. While the first case study's design outcome (a brochure visually and textually reporting on the life and work of a woman), may not at first glance satisfy the innovation criterion of being »a radical novelty«, the number of additional, new ideation nodes that opened up as divergent corridors following the on-site, primary research were essential to the design outcome. Novelty can arguably be found in the method of visual communication for the specific subject matter and target group: by understanding the lack of appealing and concise material available (especially for young people) in Otti Berger's home region, the problem statement could thus be answered. Following Christensen's jobs-to-be-done⁷⁵ framework, it can be argued that the product's »job« was determined, which consequently enabled an innovative design for an editorial product.

The second case study might also be regarded as an incremental innovation at first glance. It builds on elements previously designed and produced, such as tea packaging, woven textiles and ceramic teacups. The difference is in its combination of several new ideas and designs into a new experience that tells a story in a novel way: through artists, materials, design practices and design history, brought together in an experience of senses and understanding. In the evaluative research, using the design outcome as study objects, one participant could be observed grasping the textile while reading the brochure.

Scholarly novelty can be claimed, too, as the research and the design experiments unveiled findings and connections not previously documented, which add to the body of knowledge. This case study is limited by reporting results only from a reflective approach with (statistically irrelevant) elicitation of feedback through evaluative research. Actual numbers of ideas (ideation nodes) were not recorded during the execution of the case studies. Methods exist for »assessing design creativity«⁷⁶ and for quantifying to what extent (if at all) an ideation process is effective, as proposed

73 Takala: »A neuropsychologically-based approach to creativity«, 91.

74 Grocott: *Design research & reflective practice*, 224.

75 Christensen et al.: »Finding the Right Job For Your Product«.

76 Sarkar, Prabir/Chakrabarti, Amaresh: »Assessing design creativity«, in: *Design Studies* 32 (2011) 4.

by Nelson et al.,⁷⁷ or Verhaegen et al.⁷⁸. However, the design projects to be evaluated need to be cautiously tracked, and all ideation nodes recorded, to receive justifiable results. Consequently, this article will not use final design outcomes as a basis on which to evaluate the level of innovation, as the designs were not brought to market to evaluate market success. These limitations offer opportunities for further research: in further design projects (be they university assignments or professional practice), the number of ideation nodes could be tracked and reported over a longer duration, and correlated with evaluative research data from a statistically relevant number of participants. To raise the required data through evaluative research, methods such as creating a semantic differential could be used, with bipolar word-pairs, in which study participants answer (e.g.) whether a design is creative or innovative. The semantic differentials could be used during a survey, when testing design prototypes or when the subjects are experiencing a final design.

The findings suggest that practitioners who make the additional effort to undertake initial, rigorous design research will benefit from the knowledge and inspiration gained. Visual research and inspiration gathering via visuals are strongly complementary to design research in order to extend the base of creativity, inspiration and innovation. The uncovering of information and contexts, as well as the analysis of what could be revealed from the researched data, will help add capabilities to enable artists (and designers) to breathe a soul into machine-made objects.⁷⁹

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77 Nelson, Brent A. et al.: »Refined metrics for measuring ideation effectiveness«, in: *Design Studies* 30 (2009) 6.

78 Verhaegen, Paul-Armand et al.: »Refinements to the variety metric for idea evaluation, in: *Design Studies* 34 (2013) 2.

79 Forgács: *The Bauhaus idea and Bauhaus politics*, 10–11.

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Fig. 5: Photo by Atelier Schneider, Bauhaus Archive Berlin

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Fig. 10: Design and craft work, and photography by the author. Upper left: Outer packaging box; raw prototype mockup file © Creatsy via Creative Market; upper right: photo credits from left to right, then down: Gertrud and Alfred Arndt (1928, Bauhaus Archive, ©VG Bild-Kunst Bonn, Gertrud Arndt in a kimono, self-portrait »Maskenphoto« Nr. 4 (1930, Bauhaus Archive, © VG Bild-Kunst Bonn), Otta Berger in her studio in Dessau, photo by Gertrud Arndt (1930, Bauhaus Archive Berlin, reprint by Markus Hawlik, © VG Bild-Kunst Bonn), Baby Blanket by Otta Berger (ca. 1930–1934, photo by Ernst Nipkow, Harvard Art Museums/Busch-Reisinger Museum, Gift of Mrs. Walter Gropius, © President and Fellows of Harvard College), Ise and Walter Gropius drinking tea with Japanese hosts (1954, Bauhaus Archive Berlin); lower left: the three handwoven textiles, dedicated to the artists; lower right: an overview of all elements of one edition's box (here, edition 3, dedicated to Gertrud Arndt. Tea pouch raw mock-up file by Raul Taciú).

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