Aalborg Universitet

AALBORG UNIVERSITY

Challenges of Collaborative Product Styling in Design Teams

Ovesen, Nis

Published in:
Design Education: Collaboration and Cross-disciplinarity

Publication date:
2016

Document Version
Publisher's PDF, also known as Version of record

Link to publication from Aalborg University

Citation for published version (APA):
Ovesen, N. (2016). Challenges of Collaborative Product Styling in Design Teams. In E. Bohemia, L. Buck, K. Eriksen, A. K., N. Ovesen, & C. Tollestrup (Eds.), *Design Education: Collaboration and Cross-disciplinarity: Proceedings of the 18th International Conference on Engineering and Product Design Education* (pp. 316-321). Design Society.
https://www.designsociety.org/publication/39085/challenges_of_collaborative_product_styling_in_design_teams

General rights
Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

- Users may download and print one copy of any publication from the public portal for the purpose of private study or research.
- You may not further distribute the material or use it for any profit-making activity or commercial gain
- You may freely distribute the URL identifying the publication in the public portal -

Take down policy
If you believe that this document breaches copyright please contact us at vbn@aub.aau.dk providing details, and we will remove access to the work immediately and investigate your claim.

Downloaded from vbn.aau.dk on: May 17, 2025

INTERNATIONAL CONFERENCE ON ENGINEERING AND PRODUCT DESIGN EDUCATION
8 & 9 SEPTEMBER 2016, AALBORG UNIVERSITY, DENMARK

CHALLENGES OF COLLABORATIVE PRODUCT STYLING IN DESIGN TEAMS

Nis OVESEN
Aalborg University, Denmark

ABSTRACT
Apart from a long list of advantages, design students face certain challenges when working collectively in groups on form, styling and aesthetics. An investigation about these challenges has been carried out and a number of challenges have been identified. The most apparent challenges relate to different aesthetic preferences, lack of tools and methods, and difficulties in establishing form related requirements. The challenges are presented and design quality, as well as some solution strategies, is discussed.

Keywords: Product styling, aesthetics, design teams, collaboration, design education.

1 INTRODUCTION

Product design and development are highly collaborative activities, most often with many partners and stakeholders with various backgrounds involved. But despite different attitudes and views among members of such design and development teams, everyone ultimately has to act in concert in order for projects to be successful. This also means that modern product designers rarely act as all-powerful solo guitarists 'with license to decide,' but instead have to learn how to argue their case as part of a team. In order to prepare design students to a professional life in such cross-disciplinary settings, some design educations turn towards a larger degree of team-based design projects and away from individual-focused student projects [1], [2]. One important reason for this is to strengthen the students' competences connected to collaboration, communication and argumentation in relation to design in development projects.

But reaching unity and agreement in design related matters can be tricky, and several studies have already investigated various aspects of communication and collaboration in design teams [3], [4]. This witnesses a continuous interest from the design research community in the topic. However, little research has been made in relation to one specific and important aspect of team-based design projects, which is the aspect of working collaboratively on form.

This present study revolves around communication and collaboration in design teams, but with a specific focus on exactly the part of the collaborative process that has to do with the form, styling and aesthetics of the product in development. This part in the design process can often be characterised by strong individual opinions, partly due to the fact that it is difficult to establish fully unambiguous product requirements in that area. But also because – to many designers – the aesthetics and styling of a product are considered fundamental aspects of their profession and professional pride, and therefore difficult to discuss without bias.

The study in this paper is based on an investigation of design students across several semesters at Aalborg University and seeks to describe the challenges met when collaboratively working on the form, styling and aesthetics of products. The study also seeks to create an overview of the strategies and techniques that design students use to overcome these challenges, and how different team members take on different types of roles in the process of styling the products.

The data in the investigation originates from surveys and interviews with students and reveals a series of challenges present across most design teams.

With the main research question being *"What are the main challenges of working collaboratively on form in teams?"* the present paper is structured as follows: Section 2 presents a deeper insight into the background and motivation for this research as well as the research setup used. Results are presented in section 3, and following this, the analysis and discussion of the results are presented in the 4th section. Finally are concluding remarks and perspectives presented in section 5.

2 BACKGROUND AND RESEARCH METHOD

Battles about dominating values and weight of various aspects, such as the importance of form and styling, in development projects are often present in the cross field between design and engineering. At Aalborg University, we have purposely stepped directly into the lions cave by insisting in good product design being a well-balanced combination of form, function and technique. Based on this believe, the design education is established as an engineering education in design with an array of courses spanning broadly from design sketching to classic engineering disciplines. This approach distinguishes the education from other design educations in the country that typically lean more towards the arts and craft tradition.

This broad approach to design means less attention solely on form, and that is arguably the Achilles heel of such setup. Consequently, we have yet to see a distinct design profile like Dieter Rams, Bill Mitchell, Castiglioni (speaking of Achille) or Sir Jonathan Ive graduate from this university. The students' design solutions are rarely particularly distinct, and most often they are without any clear aesthetic values.

Figure 1. Product designs made by student groups are typically well developed in terms of functionality and technical detail, but often lack attention to the aspects of form and design.

The lack of distinct and excellent form in student projects might be explained primarily by the broad and multi-facetted scope of the projects (or simply by lack of talented teachers), but some students also points towards especially one other reason that hampers their effort to excel in this matter. That reason is *group work*. It is this reason that has initiated the present investigation, but before going into depth with its results, a brief description of the research setup is presented.

2.1 The Setup

In order to get insights into the students' perceived challenges when working collaboratively with form, the questionnaire was distributed to students across all semesters. A total of 194 responded to the questionnaire that consisted of approximately 20 questions of various kinds ranging from multiple choice to written answers. The questions all revolved around the students work with form in groups, what they found most challenging, and how much the form aspect motivates them in relation to other aspects of design. The most significant results are presented in the following section.

3 RESULTS

The total of 194 respondents comes from a series of different design related educations in one department. Most of the figures in this section only show the part that attends the industrial design education, as these students are the focus of the investigation. However, the whole group of respondents is sometimes referred to in order to include a more general picture. The results are divided into two parts that respectively relates to *the individual* and *the group*.

3.1 The individual in the group

The following diagrams presents how the individual group member feels about own competencies and role in the group.

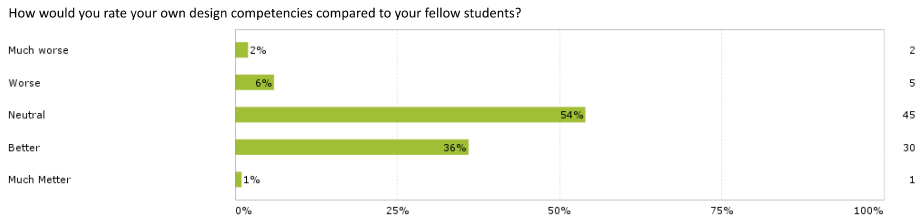

Figure 2. Judgment of own design competences compared to fellow students

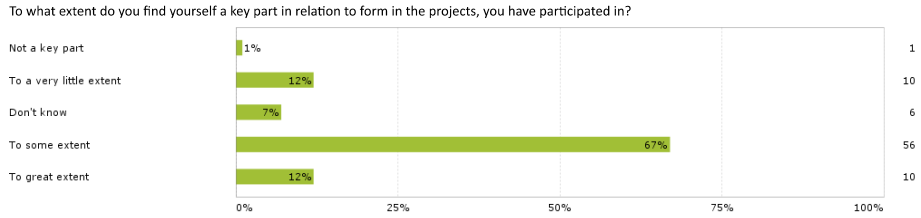

Figure 3. Own role as key in relation to form in projects

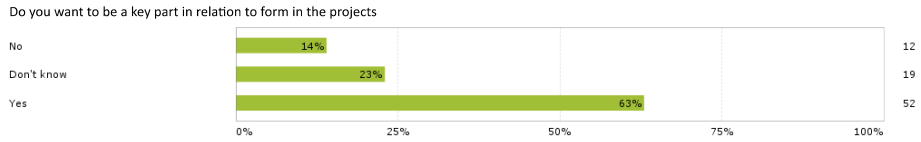

Figure 4. Own aspiration to being key in relation to from

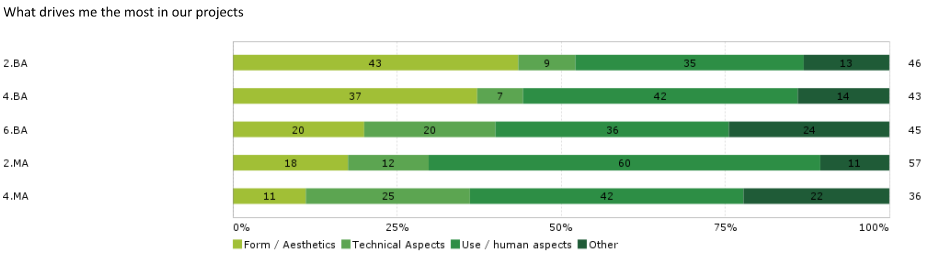

Figure 5. Personal drive in projects (all respondents)

From figure 2 to 5 it is possible to see that more than 90% of the respondents find their own design skills equal to (54%) or better than (36%) their fellow students, which indicates that they probably find themselves capable of making decisions related to form. Almost four out of five see themselves to some extent (67%) or to great extent (12%) having a key role in their groups when it comes to form. Whereas figure 3 is an indication of the present, figure 4 shows that almost 2/3 of the students want to have a key role in form matters. Lastly, figure 5 shows that, when looking at the design educations in general in a time perspective, aspects related to form drives the students lesser the longer they get into the education. 43% of the first year students say that they are driven primarily by form, whereas this number decreases to 11% of the final year students, leaving room for interests like technical skills and other aspects to grow equally.

3.2 Group related issues

In this sub-section answers to three questions related to working with form in groups are presented.

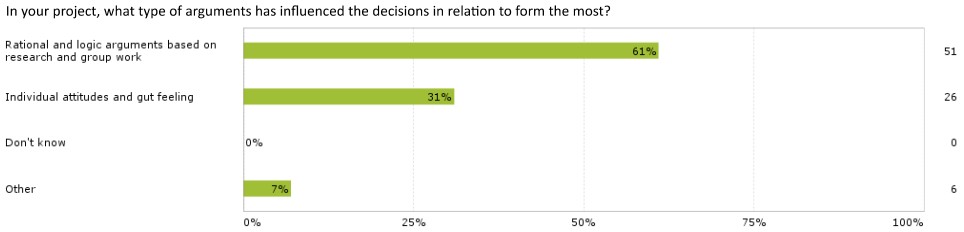

Figure 6. Type of arguments influencing form related decisions

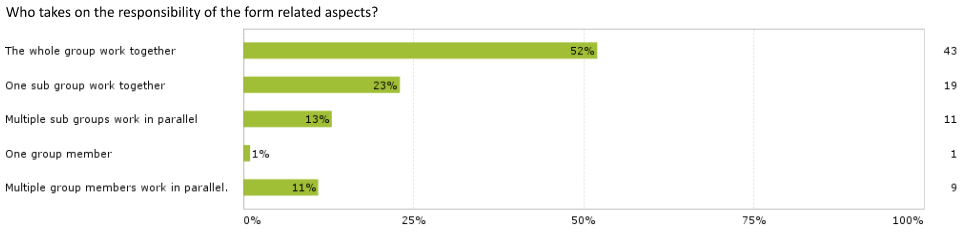

Figure 7. Responsibility of form related aspects

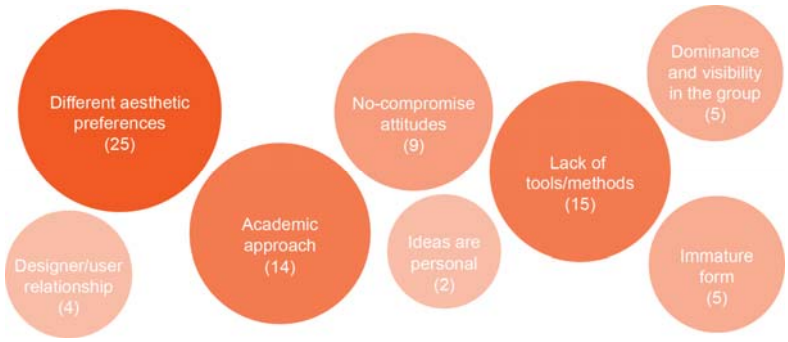

Figure 8. Challenges of working with form in groups. Parentheses indicate occurrences

From figure 6 and 7 it is possible to deduce that the majority of the respondents (61%) feel that sane and rational arguments dominate the discussions about form related aspects in the groups. There is, however, still almost one third (31%) that finds individual attitudes and gut feelings to exceed the rational arguments. Despite the different types of arguments it seems like the majority of the respondents (75%) finds that responsibility for the form related aspects of the group projects sits with the whole group or a sub group appointed to the do the job. One single question that more than any other question resonated with the group of respondents was the one reflected in figure 8. This figure presents the main challenges of working with form in groups compiled into 8 themes. The most present themes – together with student quotes – are discussed further in the following section.

4 ANALYSIS AND DISCUSSION

Some of the main results from the investigation have now been presented. This section will try to relate these results to the driving question about what are the challenges of working with form in groups. To do so four different topics and perspectives are covered. These are 1) Students' attitude towards working with form in groups; 2) The identified challenges; 3) A reflection about the qualitative values of collaborative form; and finally 4) Some strategies for handling form in groups.

4.1 The Students' Attitude Towards Form in Groups

The individual student's attitude towards form is important as it, together with the attitudes of fellow students, is the basis for how form is handled collectively. Perhaps most interesting is the students' shift from being highly form-driven in the first year to becoming less form-driven as they move towards their final year. Students might enter design educations because of a strong wish to create visually impressive products, but as they go along, they seemingly discover other aspects that fascinate them just as much. In an educational setting based on group work, this is probably a healthy development, as too many strong individual attitudes towards form might challenge the group work.

This also resonates with the fact that more than 2/3 of the respondents find that the form and aesthetic qualities of their projects become better when working in groups.
When looking at the students' self-images, they seem to regard their own design skills on at least the same level as their fellow students. In general, they also feel that they personally influence the decisions related to form in the groups, and quite importantly: they want to influence the decisions.
So, when looking separately at these results from the investigation, we *could* get the impression that students, in general, develop a more balanced and collective-oriented approach to design projects. An approach where form is just *one* of several important aspects, and where there is a clear value in enduring the difficulties of working in groups, as this results in a better project outcome. Some of the difficulties, they have to endure, are discussed in the following section.

4.2 A Look at Four Main Challenges

Eight main challenges were earlier presented in figure 8. From these eight there seems to be four challenges that are especially present. These four are discussed in the following.

4.2.1 Different Aesthetic Preferences

Different aesthetic attitudes or preferences seem to steal a lot of attention when trying to agree on form related aspects in groups. Almost one third of the industrial design students answering the questionnaire wrote this almost identically in a free-text box. Even thought this might not come as a surprise, we *could* ask ourselves whether or not these students have forgotten their own roles as designers. From an engineering perspective, decisions and arguments should be rooted in facts and knowledge, and not personal preference or gut feelings. Shouldn't they remove themselves from the equation and only base their discussion about form related aspects on research, product requirements, and user studies? They seemingly cannot.

4.2.2 Lack of Methods and Tools

One defence could be claiming a lack of methods and tools for handling form. Several students mention that they lack a detailed language about form as well as lack in knowledge about how to formulate and discuss requirements to form. But also basic sketching, ideation, and design skills are mentioned as something the students are missing.

4.2.3 An Academic approach

As good engineering students, the respondents strive to keep an academic and professional approach to form in their projects. Among other things, this means that they try to quantify the form related aspects in order to fit them into their list of requirements. The third most mentioned challenge is regarding this. A student puts it this way: "*The aesthetics ends up becoming secondary after aspects like construction and production. It's a big challenge to formulate requirements to the product about aesthetics.*" Other students mention that, whereas form with a functional meaning can be translated into unambiguous requirements, form without this cannot, and they find it problematic to make decisions based on vague arguments rooted in personal attitudes or gut feelings.

4.2.4 No-compromise attitudes

Almost everyone has tried it. Working with narrow-minded and stubborn people is just not fun. In other words, no-compromise attitudes often challenge decision-making and the group dynamics of a team. "*In the end it is not about having the best idea, but about your abilities to present it and argue for it. And also how long you want to keep alive the power struggle about earning your right to the design. It ought to be a group process, but it hasn't been that, so far."* Another respondent puts it fairly blunt: "*The one yelling the loudest, win."* Obviously, form related matters should not be settled in this way, and that apply to all other aspects of sound group work.

4.3 The Truth from the Trenches

From the above, we have a good indication that students actually value the output of group work. Even despite the challenges, just mentioned, which they have to overcome. But, perhaps the students are not the right ones to evaluate their own output themselves, and what is at risk, when we try to educate the students to better performing and communicative team members? There is no doubt that they get better at arguing their cases, and thereby projects in general tend to become more robust. However, we also hear that group work can be something of a power struggle when it comes to form, and do we

then end up educating Masters of Compromises? A couple of students mention this concern: *"I often think it ends up with pragmatic or democratic solutions and expressions, but sometimes it could be good with more edge to the projects."* Aalborg University is not an art school and the industrial design program is not educating artists, but engineers. It is, nevertheless, a goal that the students – besides everything else they have to learn – become able to create excellent and affecting designs with distinct aesthetic values and edge, and not only compromises of collective opinions. Maintaining this goal is perhaps, above all the identified challenges, the biggest challenge of working in groups on form.

4.4 Strategies for working with form in groups

Concerns about aesthetic quality aside, the students *do* seem to overcome the challenges identified in the investigation. On a question about what methods they use to make decisions on the final concept, they mention various benchmarking techniques; evaluation based on requirements specification and test of physical and digital prototypes, and finally so called democratic mechanisms. Whereas these methods and techniques are excellent for general concept evaluation and decision-making, none of the students mentioned any approaches on how to practically handle form related aspects with them. One improvement worth arguing for could be refining the language used in relation to this topic. The students participating in this investigation seem to use them interchangeably, but terms like *form*, *styling* and *aesthetics* are all distinct words and can with great benefit be used as such. For the purposes of improving the form related considerations in groups, discussions could be narrowed down to only cover one of these aspects at a time. Form, styling and Aesthetics are briefly outlined in Table 1 and may assist in clarifying the discussions.

Table 1. Form, styling and aesthetics

Form	Styling	Aesthetics
The bare geometric or spatial specification of something. Proportions, composition, size, balance etc.	Refers to value-laden context of style and fashion in contemporary context. Often commercially motivated (Form follows fashion).	Important part of Greek philosophy. The artistic or beautiful qualities of something (and ethical considerations).

An improved awareness of the various nuances of form (the general term), and keeping these apart, could help students in maintaining an arms length to the otherwise sometimes engaging discussions on the topic.

5 CONCLUDING REMARKS

In this paper a series of challenges in relation to collaborative form making has been identified. The students taking part in the investigation have pointed towards several challenges such as different aesthetic preferences and difficulties in formulating unambiguous requirements on form, styling and aesthetics. But despite challenges, the students seem to accept, and even prefer, the team-based setting with the – at times – lengthy discussion based on both reason and gut feeling. This paper has also briefly touched on the discussion about form, styling and aesthetic quality of the team-made solutions, and just as with other aspect of the projects, these should ideally improve when students work in groups. However, from the investigation it has also become apparent that some students find that solutions are often too much of a compromise without any "designerly edge". This is a concern worth taking seriously. The present investigation has just scratched the surface of this specific part of group work. Further work should be done in order to get deeper insights to the challenges and a better understanding of how students can improve their communication about form related aspects.

REFERENCES

[1] Bell S. Project-Based Learning for the 21st Century: Skills for the Future. *A Journal of Educational Strategies, Issues and Idea*, 2010, 83(2), 39-43.

[2] Dym C. L. et al. Engineering Design Thinking, Teaching, and Learning. *Journal of Engineering Education*, 2005, 94(1), 103-120.

[3] Pinto M.B. and Pinto J.K. Project Team Communication and Cross-Functional Cooperation in New Program Development. *Journal of Product Innovation Management*, 1990, 7(3), 200-212.

[4] Sosa M., Garguilo M. and Rowles C. *Inter-Team Technical Communication in Complex New Product Development Projects, Working Paper*, 2012, (Insead).