

# IS IT A BAG OR A BOTTLE; THE APPRECIATION OF DIFFERENT LEVELS OF TRANSLATION IN STUDENT'S DESIGN WORK

**Maaïke MULDER-NIJKAMP and Wouter EGGINK**

Industrial Design Engineering, Faculty of Engineering Technology, University of Twente, The Netherlands

## ABSTRACT

Within the design course Methods of Form, situated in the first year of the Bachelor Industrial Design Engineering, we developed a design tool to help students to design more meaningful products. The core element of this tool is a set of translation levels, which helps designers with the translation of meaningful associations into design features. These levels are structured from easy to more difficult. Students who use a higher level of the tool are receiving a higher grade, because they are able to integrate meaning and forms in a more abstract way. To measure if this grading approach is fair, we wanted to know more about the effect of using different levels in the design on the perception by consumers. Therefore we set up a test, where the results of one of the assignments of the course are proposed to a group of random consumers. It shows that the levels according to the design tool, are also perceived by consumers. It seems that consumers are able to rate the concepts in the same order, but they focus more on the categorization process of a product. When a concept is recognisable as the stereotype of the designed product, the design is perceived as more interesting. We can conclude however, that according to the test, our grading method is still fair.

*Keywords: Design tool, design education, design methodology, activating students, design semantics categorization, brand extension*

## 1 INTRODUCTION

The design of each product acts as a carrier of different symbolic meanings [1, 2]. As designers we can identify those associations and recognise and understand certain social & cultural patterns which help us to create new designs. This ability is the main learning goal of the course "Methods of Form", situated in the first year of our Bachelor curriculum Industrial Design Engineering. However, creating a meaningful design by anticipating associations is quite difficult, especially for beginning design students. Therefore we developed a method that will help beginning students to design meaningful products by using different translations levels [3]. Students are practising with those levels of translation in different assignments. During the course students become aware of the fact that using a higher translation level in their designs will create more meaningful and interesting designs. The students that use a higher translation level in their design are also receiving a higher grade in the end of the course, because they can use the method on a more advanced level. In order to know whether this grading method is 'fair', we wanted to investigate if consumers also experience the same hierarchy. Therefore this paper will focus on the appreciation of using those different levels of translation in the design, by consumers. The main question is: "Will consumers also experience the concepts using a higher level of the tool as more meaningful designs?"

We designed a test, where the results of an assignment from the course Methods of Form are proposed to a group of random consumers. If consumers also rate the designs using a higher level of the tool as more interesting designs, we can conclude that the grading method is fair. In the next chapter we will introduce the design tool first.

## 2 DESIGN TOOL

To support the young designers in the design process, we developed a practical tool for translating social cultural patterns into new designs, based on an input-translation-output model (figure 1). The

method starts with a starting point, for example a certain style. After that a goal has to be defined, for example designing a certain product that will fit the style of the starting point. The core element of the tool is the translation. The students learn several ways to translate symbolic meanings into products. This can take place on four different levels; regenerating style characteristics (1), transforming style characteristics (2), shaping the human-product interaction (3) and creating a metaphor (4).

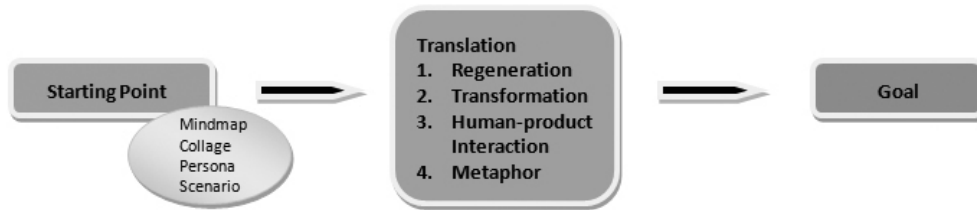


Figure 1. Input-translation-output Design tool [3]

During the course, students practice with different starting points and different goals. In the beginning of the course the input and the goal of the assignment are pre-defined, in the end the students can develop their own starting point and goal. An important factor is that the translation levels are organized from easy (level 1) to more difficult (level 4) [3].

The first level of the design tool is regenerating style characteristics. In this process, style elements are often “copied” one on one. The students receive an assignment to design a product that fits a certain style. To make it easier we will provide a mood board which is the starting point of the assignment. The students have to analyse the products in the mood board and regenerate the explicit style characteristics. This can be supported by drawing products or product details from the mood board. By doing this the students become familiar with the style and its design characteristics.

The second level of the design tool is going beyond merely copying style elements from the mood board towards creating new forms that match the mood board on a different level. For this the students need a deeper understanding of the language of forms. The items in the mood board should therefore be used in the design by “transforming” them into something new.

The third level of the tool is about integrating human product interaction. By analysing the target group the student will think about the interaction of the user with the product in a more meaningful way. A certain behaviour and associated style of the target group can be integrated in the new design.

The last translation level is about using a metaphor in the design. Students are encouraged to think on a different level by trying to design objects that evoke associations in a figurative way. This level is the most difficult one, because the students have to design in a more abstract way.

### 3 GRADING

The students that use a higher translation level in their designs are receiving a higher grade in the end of the course, because they show that they can translate associations in a more abstract way. By showing this ability, these students are already working on a more advanced design level [4]. It appears that students who use a higher level, are also integrating the other levels of the tool in a more intuitive way. We then would like to validate our grading method, by evaluating the different concepts using different translation levels with random consumers. Will consumers also see the better integration of design skills of those more advanced design students? The next chapter will explain the assignment that was used as a basis for the consumer test in more detail.

### 4 ASSIGNMENT

One of the assignments during the course is focusing on the design of brand extensions, where the students have to design a product for a specific brand or style. They have to design a suitcase or bag-concept based on the style of a given input product, which they can use as an inspiration source for their design. First they have to analyse the style of the input product and try to define the most characteristic elements of the object. After that they have to design their bag or suitcase concept, using the identified characteristic features of the design style.

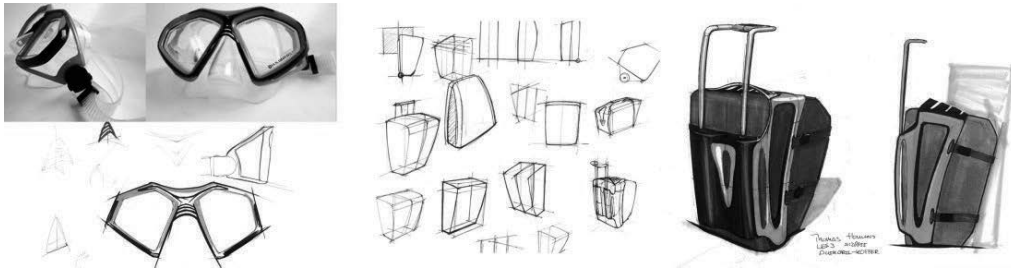


Figure 2. Example of Design process for the selected assignment

Figure 2 shows an example of the process of designing a suitcase, based on the design of a diving goggle. In the end, the design of the suitcase has to fit the original design of the analysed product the best. To make sure it will fit the product, the student can use the different translation levels as mentioned before. In this part of the course the students are not familiar with the level of creating a metaphor yet. So they will only use the first three translation levels of the tool. In the example of figure 2 the student has used level 1 and 2 by translating the orange and black framework of the goggle (transforming the identified style characteristics) and repeating the nose of the goggle on top of the suitcase (regenerating style characteristics).

## 5 TWO MAIN MECHANISMS

There seems to be two important mechanisms to be aware of, when designing a brand extension. The first one is the resemblance with the input product, and because the input product is alien to the product type to be designed, this is referred to as 'novelty'. The other mechanism is the categorisation process, which is about knowing in which category the product is placed. The extent to which the design is fitting the product category is referred to as 'typicality' [5]. A chair exists of four legs, a seat and a back. We will classify a product that will have the same properties into the category "chair" to simplify our lives [6]. In the end our mind forms a stereotypical design of the object which we will be reminded of, when seeing another object that looks the same. The visual similarity of products determines the categorization of the concept. If the design differs a lot from the stereotype-product, this can lead to indistinctness by the consumer. The consumer will not recognise the function of the product anymore and can't categorize it. Consumers prefer an optimum between innovation and categorization [1] as explained in the MAYA principle. This acronym stands for 'Most Advanced, Yet Acceptable' and claims that products have to be both innovative to be interesting, but also recognisable for people to let them be able to categorise the object easily [7].



Figure 3. Left: incongruent water kettle; Right: congruent water kettle

In some cases the categorisation process is not being performed well; figure 3 shows us two designs of water kettles. The design on the right is the more stereotypical product type in comparison to the left one. This water kettle does remind a lot of people of a toaster instead of a water kettle. When students design their bag or suitcase, they also have to make sure they think about the categorization process of the new designed product.

Figure 4 shows two examples of fragrance bottle designs for the brand Ray Ban (brand extension). Both designs use characteristics of the brand to be recognised by consumers more easily, the difference is in the categorisation of the concepts. One is focusing more on the stereotypical fragrance bottle, the other one is quite close to the original form of the input product; sunglasses.



Figure 4. left: brand Ray Ban; middle: design based on the stereotypical sunglasses; right: design based on stereotypical fragrance bottles

In theory, the concept of the fragrance bottle with the more typical form will be a more credible result. Following the joint concept of typicality and novelty by Hekkert et al. [5], we believe that these two mechanisms are to some extent independent variables. So for a good design, both the resemblance with the unfamiliar input product (novelty) as the credibility of the concept in the category of the goal product (typicality) should be maximized [8, 9].

## 6 CONSUMER TEST

Based on the previous, a successful brand extension has to fit the input product *and* should have a connection with the stereotype product. To investigate if students used both mechanisms in their designs a consumer test is developed. In total three input products (a tape measure, a baby bottle and a nutcracker) were tested, and four different bag concepts per product were evaluated. Thirty consumers without design background were asked to give their opinion about the different bag concepts. The respondents were first asked to classify the four different bag concepts according to their similarity with the input product (novelty). They also had to classify the four designs according to their recognisability as a bag or a suitcase (typicality). Finally they had to judge the concepts on their 'realism'. In figure 5, a typical setup with one of the input products and the four associated bag concept designs is shown.

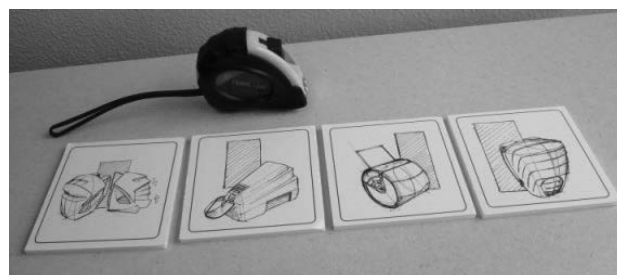


Figure 5. Consumer test setup; one of the analysed products and four cards depicting the associated bag concept designs

The drawing skills of the students that made the original concepts were very diverse, so the bags were redrawn by a student assistant to make sure the respondents were not influenced by the way the concept is drawn. In the drawings we have also eliminated colour, because colour seems to have a very dominant impact on the recognisability of products. The main question of the consumer test was divided into two sub questions: a. "Which designs are fitting the original product better" and b. "Which designs are also a credible result compared to the assignment the students started with". The results of the consumer test can be plotted in a graph which displays the typicality of the product on the horizontal axis and the similarity with the input product on the vertical axis. The designs plotted in the right upper corner of the graph are then perceived as better designs. Those designs resemble the design of the input product *and* are also recognisable as a bag or a suitcase. Furthermore, the students that used a higher level of the tool have to be positioned here to make sure our grading method is fair. The designs plotted in the left lower corner of the graph are the results that are perceived as less good designs. These concepts do not correspond with the input product and are not recognizable as a bag or a suitcase. The concepts of the bags using a lower level of the tool have to be positioned here. A diagonal line depicts the transition between the 'good' and the 'bad' results.

## 7 RESULTS

Figure 6 summarises the consumer test for the four bag concept designs, based on the design of a tape measure. The numbers of the concepts are in order of the grades which the students received for the assignment. The first bag is using the first level of the tool and is graded as lowest. The fourth bag concept is really transforming the design of the tape measure into a shape that resembles a backpack. This student received the highest grade, because he used the second and third level of the tool. At the left side figure 6 the graph is plotted which shows the appreciation of the four concept bags according to the respondents. On the horizontal axis the typicality of the product is depicted (the respondents had to classify the designs according to their recognisability as a bag or a suitcase, the most credible results are positioned at the right side of the graph). The vertical axis shows the similarity with the input product. According to our theory, the concepts above the diagonal line should be the most meaningful designs. In the graph the first bag is plotted below the diagonal line, which means that the respondents agree with the grading. This concept is not being recognized by the respondents as a bag and does not have the same style as the core product. The respondents mentioned that this design reminds them of a roller or a lawn mower instead of a bag. Some people even mentioned, exactly conform our design tool, that the students translated the form too literal in designing a round form and placing a handle on top. The concepts 3 and 4 are plotted in the upper right corner of the graph. Those designs are perceived as much more typical, because they remind the respondents of a bag. Both designs used transformation level 2 to transform the input products' style characteristics into new design features.

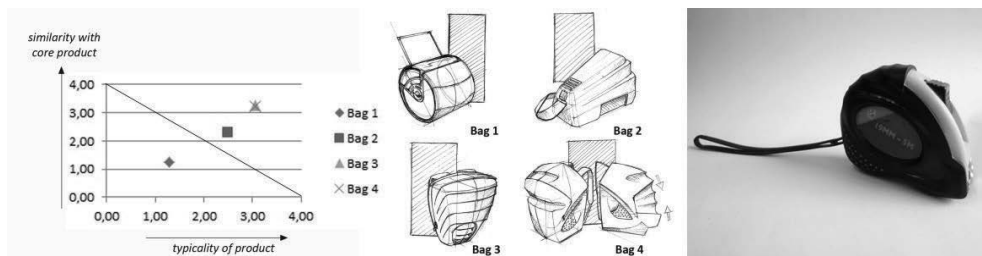


Figure 6. Plot of the consumer appreciation of the bag concepts based on the tape measure

The results of the consumer test related to the baby bottle are summarised in figure 7. Bag 2 is placed under the diagonal line and will not be perceived as a bag or a suitcase by consumers. This design is also not appreciated by the consumers because of the contradictory form according to the input product. The student who designed bag 1 received also a lower grade, because this design is a literal copy of the babybottle (level 1), with handles to make it a bag. In contrast to our gradings however, the consumer respondents graded this bag above the diagonal line, merely because of the relatively high resemblance with the input product. On the other hand the concept is placed more in the left corner, hence the concept is not quite recognizable as a bag. This could indicate that random consumers do not have the capability to score the bag concepts in a more abstract way. The question about matching with the input product seems to be conceived quite literal.

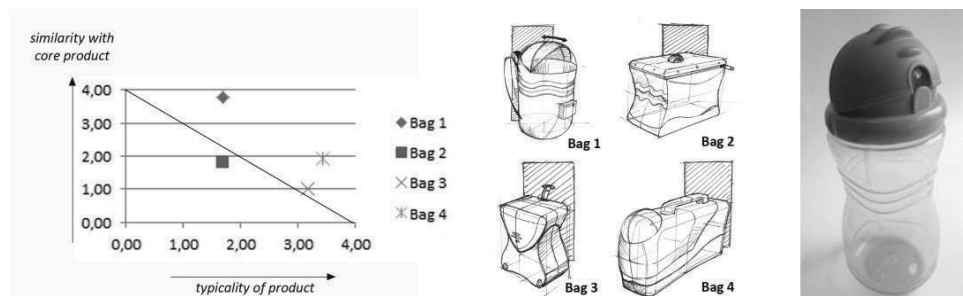


Figure 7. Plot of the consumer appreciation of the bag concepts, based on the baby bottle

To test this effect, an extra question was added. The respondents had to rate the different concepts on 'realism' also. In figure 8 the realism is plotted against the typicality of the concepts, and it shows that concepts 1 and 2 are regarded less realistic. Bag 3 and 4 are the most realistic concepts. This confirms our presumption: consumers are responding quite literal to the question about the similarity with the

input product, but the respondents are capable of judging the realism of the concepts according to the intended product category.

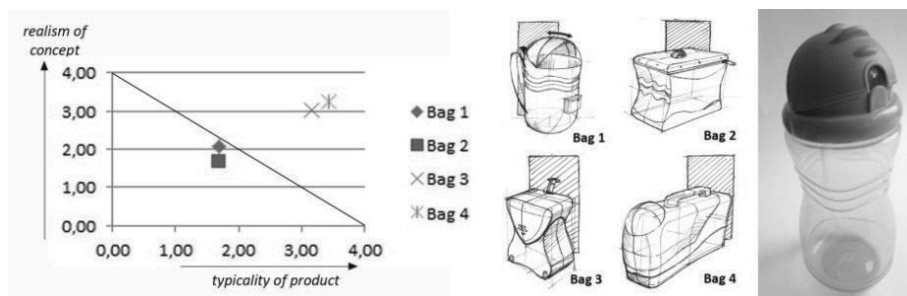


Figure 8. Plot of 'typicality of product' against 'realism of concept' based on the baby bottle

## 8 DISCUSSION

In spite of the fact consumers could not always observe the more abstract way of designing the bags, the respondents were indeed able to indicate the interesting and more meaningful designs. The literal bottle bag design illustrates this perfectly; it is indicated as a concept that fits the input product, but it is also judged as a less realistic concept. A point of discussion is that we do not exactly know why people judge the designs as realistic or not. Some of the respondents may have thought about how to manufacture the designs responding to the question, while others thought about the marketability of the concepts. A second point of discussion is the applicability in real life; as the tests are solely performed with students' work, more research is needed to confirm our theoretical approach with real successful products.

## 9 CONCLUSION

It seems that consumers are able to rate design concepts in the same order, but they focus more on the categorization process of a product. People tend to compare designs with their stereotypical 'brother'. Designs that do not fit the stereotype product are perceived as less interesting (typicality). On the other hand, the designs have to resemble the input product in a realistic manner, to be judged as a credible result (novelty). Furthermore, concepts that use both mechanisms are appreciated higher by the respondents. The students that integrated a higher level of the design tool, are also positioned high in the graph and scored with both mechanisms in their designs. To conclude this paper we can say that our grading method comes close to the appreciation of random consumers in judging the designs.

## REFERENCES

- [1] Crilly, N., J. Moultrie, and P.J. Clarkson; Seeing things: consumer response to the visual domain in product design. *Design Studies*, 2004, 25, pp.547-577.
- [2] Norman, D.A. *Emotional Design; Why we love (or hate) everyday things*, 2004 (Basic Books, New York).
- [3] Nijkamp, M. & J.A. Garde; A Practical Approach to Translating Social Cultural Patterns into New Design, *International Conference on Engineering and Product Design Education*, 2-3 september, Trondheim, Norway.)
- [4] Dorst, K.; Design research: a revolution-waiting-to-happen. *Design Studies*, 2008, 29(1), p. 4-1
- [5] Hekkert, P., H.M.J.J. Snelders, and P.C.W. van Wieringen; 'Most advanced, yet acceptable': Typicality and novelty as joint predictors of aesthetic preference in industrial design. *British journal of Psychology*, 2003, 94(1), pp.111-124.
- [6] Antonides, G. & W.v. Raay *Consumer Behaviour, A European Perspective*, 1998 (John Wiley).
- [7] Loewy, R. *Never Leave Well Enough Alone*, 1951 (The Johns Hopkins University Press, Baltimore and London).
- [8] Eggink, W.; The Reinvention of the Ready Made, *7th conference on Design & Emotion*, 4-7 October, Chicago. (Design & Emotion Society, Chicago IIT Institute of Design).
- [9] Eggink, W.; The Rules of Unruly Design, *IASDR 2011, Diversity and Unity*, 31 October - 4 November, Delft. (International Association of Design Research Societies).