

Research Article

What Experts Say about (Un)Common Color on Food Packaging (Study Case in Banana Chips Package Design)

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Abstract.

Food packaging design relies heavily on the strategic use of color, as it has the potential to influence consumer perception and buying behavior. An important consideration is whether incorporating uncommon colors in food packaging design is a good strategy. Several research pertaining (un)common colours in food packaging have been conducted. This paper presents the findings from expert validity following the card sorting task that has been done. This expert validation used quantitative and qualitative approaches. The experts were asked to give agreement on each item based on a 3-point scale. They were also asked to evaluate the findings critically and provide feedback. We found the experts agree on all categories, except tasty, which is neutral. This paper describes uncommon color definitions according to experts and the overall evaluation of uncommon color applied on banana chip packaging. Implementing uncommon colors in food packaging design has several benefits for the community, including helping products stand out on store shelves and convey a distinct brand personality or image.

Keywords: colors, expert validity, food packaging, uncommon colors

1. Introduction

Food packaging design plays a crucial role in attracting and influencing consumer behaviour. Therefore, the use of colour in food packaging design is particularly important as it can impact consumer perception and purchasing decisions [1, 2]. In packaging design, there are common colours that congruent with the product, such as red for strawberry cake packaging, and uncommon colours, such as purple for banana chip packaging.

A prior study suggests that using uncommon colours could create a lack of trust or scepticism among consumers [3], which may cause question the product's authenticity or quality. The question arises whether using uncommon colours is a good strategy in

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Published: 8 January 2025

Publishing services provided by Knowledge E

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Selection and Peer-review under the responsibility of the BCM 2023: Sustainable Design Conference Committee.



food packaging design. To explore this question, we conducted several studies pertaining (un)common colour in food packagings such as multiple case studies, interviews, and card sort tasks [4].

In this paper, we present the findings from expert validity following the card sorting task that has been done. The study employs triangulation to ensure the validity of the findings in qualitative research [5]. Several studies have been conducted to research about consumers' perception towards (un)common packaging colours [3, 6, 7]. To the best of our knowledge, this paper is the first to present the expert opinion regarding (un)common colour applied on food packaging.

This paper relates to the conference theme of enhancing arts, design, and craft collaboration for sustainable creative industries. Expert perspectives emphasise design decision-making collaboration. Designers and producers can collaborate to create sustainable food packaging that meets consumer needs and preferences while maintaining product authenticity and quality by understanding expert opinions on (un)common colour options. This research can help develop sustainable creative industries in the food packaging design sector.

2. Research methods

This expert validation used quantitative and qualitative approaches. To validate the finding from previous study (4), the results were shown to the packaging designers and packaging researchers/ educators. The procedure of expert validity was adopted from Yusoff [8], which includes preparing the form, choosing the expert panels, conducting the validity, and reviewing. The document for expert validity was adopted from Elangovan & Sundaravel [9]. First, experts evaluated each item to determine if it represents the theory or field practice. Then they evaluated the mock-up displayed (Table 1) using a 3-point scale and open questions. Finally, a column for open remarks was given for experts to provide feedback at the end of each section.

The number of expert panel members was six as Yusoff [8] recommends that 6-10 experts are acceptable for content validation. The validation was conducted through an online validation form. The invitation was distributed by direct instant messages to the invited panels that met the criteria. Brief instructions were also provided in the online form. In reviewing the items (finding from the card sorting), the experts were asked to give agreement on each item based on a 3-point scale. The scoring options as follow:

TABLE 1: Sets of mock-up.

Functional	Healthy	Tasty	Novel & Modern	Hi quality
Mock-up design				
Emotional	Attractive	Enthusiastic	Pleasant	Nostalgic
Mock-up design				

disagree = 1, neutral (neither agree nor disagree) = 2, and agree = 3. They were also asked to evaluate the finding critically and provide feedback.

Excel Sheet was used for quantitative data analysis. NVivo12 was used for qualitative data to organise the data easily. To calculate the total value obtained for each answer, the formula used is:

$$\text{Total value} = (T_1 \times Pn_1) + (T_2 \times Pn_2) + (T_3 \times Pn_3) \quad (1)$$

T = total respondents

Pn = option value

Because there are six respondents, the highest score for the “Agree” item is 18, and the lowest score for the “Disagree” item is 6. Therefore, the interval score percentage is 33. Therefore, the calculation score of 0%-32% shows disagreement, 33%-65% shows neutral, and 66%-100% shows agreement.

3. Result and discussion

3.1. Mock-up Evaluation

The findings were shown to the experts to increase the validity by inviting six panellists. Table 2 shows the participants who took part in expert validity.

A summary of expert evaluation on each mock-up is given in Table 3. The table indicates that the experts generally agree on the findings from prior study [4], as the cut-off score for 3 points of the scale is at least 66% to show the agreement.

Table 3 shows that the experts show the agreement on all categories, except tasty, which is neutral. The finding provides evidence that those predictions stated in the

TABLE 2: The participants in expert validity.

Expert	Field of Expertise	Affiliation	Work Experience
1	Graphic Designer	individual consultant - INA	12 years
2	Graphic Designer	Wahana Inovasi Design (winde-sign) studio - INA	20 years
3	Packaging design researcher (educator)	Universitas Bunda Mulia - INA	10 years
4	Packaging designer	Jans Enterprises Corp. - USA	5 years
5	Packaging design researcher (educator)	Institut Teknologi Harapan Bangsa - INA	25 years
6	Packaging design researcher (educator)	Universitas Kristen Maranatha - INA	12 years

TABLE 3: Experts' evaluation of each mock-up.

Scale	Likert Scale							
	Healthy	Tasty	Novel & Modern	High Quality	Attractive	Enthusiastic	Pleasant	Nostalgic
Scale 1	0	3	2	1	0	2	1	2
Scale 2	10	6	0	2	0	4	2	2
Scale 3	3	0	12	12	18	6	12	9
Total	13	9	14	15	18	12	15	13
Index %	72%	50%	78%	83%	100%	67%	83%	72%
summary	Agree	Neutral	Agree	Agree	Agree	Agree	Agree	Agree

previous study [4] have high validity. This suggests that the experts' points of view are similar and that the predictions from the last study have been proven right. The additional comments from the experts regarding the functional and emotional value and uncommon colours in packaging can be found in the following subchapter.

3.2. Experts' Significant Statements

From the Likert analysis, we can conclude that experts agree that mock-up #1 expresses a healthy image. Green and yellow are frequently seen in natural products such as vegetables and fruits, giving the impression of health in practice (Expert 3). Only one disagreed with the colour palette on mock-up #1; the designs are usually cleaner for healthy products, and the colours are not pale. Vivid colours should be avoided, but it is also not recommended to use pale colours.

The experts give a neutral evaluation of mock-up #2, which wants to express a tasty image. Red in packaging is too dominant, but brown is too pale. However, we need to pay attention to comparing the colour composition (Expert 5). For mock-up #3, which wants to express a novel and modern image, the experts agree. Colours that do not reflect the product are often used for innovative products. The uncommon colours will affect consumer psychology, such as surprise and create a pleasant experience when the packaging is opened (Expert 4).

For mock-up #4, which wants to express a high quality image, the experts agree, as the colour palette conveys premium. Moreover, elegant or premium usually tends to use simple and dark colours. It shows that the premium tends to have a cool personality. Then muted colours and a monochrome scheme are very suitable (Expert 4). The blue is heavy at the bottom, giving it a premium look (Expert 2). For mock-up #5, which wants to express an attractive image, all experts agree, as it is eye catching. The colour combination has succeeded in displaying a dynamic impression. The foreground and background are visible. The colour palette has already been successfully applied to the packaging (Expert 5). Furthermore, Expert 4 suggests that when we use the colour wheel, it is better to take it from the opposite colour to get an attractive impression.

For mock-up #6, which wants to express an enthusiastic image, the evaluation varies from disagreement, neutral to agreement. Expert 3 agreed because red can have physical effects on humans, such as increased breathing rates and blood pressure, which triggers the impression of enthusiasm. Expert 1 gives a neutral evaluation and suggests that the colours in the design elements can be explored again to make the contrast more visible. However, Expert 5 disagreed and commented that it tends to look spicy. For mock-up #7, which wants to express a pleasant image, the experts agree, as the colours are bright and evoke cheerful & happiness. Yellow makes happiness (Expert 2). However, Expert 5 pointed out that the light colours can be seen from the graphic display and give a pleasant impression, but using it has become common compared to other brands. This colour palette with an analogue colour scheme looks safe.

For mock-up #8, which wants to express a nostalgic image, the evaluation varies from disagreement, neutral to agreement. Dark blue and its derivatives with a complementary scheme are commonly used to give a nostalgic impression (Expert 2). The perception of old-school memories tends to be a bit dark and shady in the eyes, maybe because there are technical factors that are not too complicated with technology. On the other hand, the colour palette is just right for showing a nostalgic impression (Expert 5). However,

Expert 2 suggests nostalgic impressions can be found by exploring textures, colours, and packaging materials.

From the data, we can conclude that according to experts, uncommon colour definitions are rarely used/ applied as food packaging, but the implementation differs from the existing ones. Therefore, uncommon colours should be seen as complementary colours that do not follow traditional colour theory concepts. Instead, they can be complementary in a different interpretation (Expert 2). In addition, uncommon colour defines as colours that are rarely used/ associated with certain products, such as red for non-spicy products (Expert 3). Uncommon colour is a colour combination that makes the audience need more time to digest the image (Expert 4). Furthermore, uncommon colours are colours that attract attention at first glance and have a composition that creates an impressive visual impression (Expert 5).

The data revealed that designing unusual colours involves combining colours that are not commonly used together in a way that catches the viewer's eye. This creates a new colour harmony that goes against traditional colour theory (Expert 2). Using uncommon colours in packaging design can either make the product more memorable for the target audience if done successfully, or create an unrelated and negative perception if done poorly. Therefore, colour alone is not enough to convey the desired message, and it must work well with other design elements in the package to effectively communicate with the target audience. (Expert 3).

Using uncommon colours on packaging can have two possible outcomes. Firstly, it can make the product unique and interesting, catching the attention of potential consumers and leading to a quicker decision-making process if the product meets their needs. Secondly, it can confuse potential customers, resulting in a longer decision-making process. To ensure the success of uncommon colour usage, it is better to support by other information, such as clear product names and other visual elements on the Primary Display Panel (PDP) (Expert 4). Using uncommon colours in packaging design helps draw attention and convey emotional messages effectively. In addition, by relating the uncommon colour to the context of the packaging graphics, it can further enhance the appearance of the food packaging (Expert 5).

4. Conclusion

This study successfully validated the previous findings of card sort tasks. The experts agreed on applying (un)common colors on banana chip packaging in all categories, except for the tasty category, which was neutral. From the qualitative data analysis, it was concluded that uncommon colors were rarely used in food packaging. The experts suggested that uncommon colors could be interpreted as ones that do not follow traditional concepts of color theory. However, the success of uncommon color usage depends on effectively communicating with the target audience. Therefore, the packaging design should include other information, such as clear product names and other visual elements on the primary display panel (PDP), to support the uncommon color usage. Implementing uncommon colors in food packaging design has several benefits for the community, including helping products stand out on store shelves and conveying a distinct brand personality or image. One study limitation is the small number of experts who participated, which may limit the findings' generalisability. Future studies can involve a larger sample size to increase the representativeness of the results. Furthermore, this study only focused on banana chip packaging design, and future research can explore the use of uncommon colors in other food products or packaging types. Finally, this study only examined the experts' opinions, and future studies can incorporate consumers' perspectives to evaluate further the effectiveness of uncommon colors on food packaging design.

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