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Perception Management of Product Photography through Digital Channel Modifications

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Abstract: Product photography conveys information and influences consumer perception, and today, most product photographs are created through the reproduction of digital image data. The digital file—i.e., the product photograph—as a medium for transmitting information based on visual assessment, is something consumers tend to trust. Each reproduction of a digital file consists of blue, green, and red channels. This research paper explores the possibility of managing the perception of product photography by altering the blue, green, and red channels of the digital file, as well as the impact of these changes on the perceived acceptability of the product image. It also aims to determine the boundaries within which the realistic appearance is preserved and how these boundaries can be interpreted. The study is conducted on two groups of participants: expert evaluators and regular consumers, both of whom assess the acceptability of the images through visual evaluation. In addition to participant-based assessments, characteristic color tables are defined for each type of promotional photographic image, and CIE Lab color values and overall color differences (ΔE00) are determined. The research demonstrates that by intervening in the blue, green, and red channels of the digital file—i.e., by modifying them—it is possible to influence the perception of product photography. The results of the evaluations show varying thresholds of acceptability for changes in individual color channels of the digital image.

Keywords: digital image file; product photography; RGB channels; visual evaluations

1 INTRODUCTION

A photographic image as a medium can also be defined as a representational image that expresses a certain aspect of reality, i.e., it represents a sign that denotes a specific object. The fundamental classification used today regarding signs and their meanings is the one that divides them into iconic, indexical, and symbolic signs [1].

A type of photography that distinctly uses semantic properties and is considered a specific form of illustrative photography is advertising or promotional photography. Its primary role is to attract the attention of the consumer and, along with conveying information, to encourage the consumption of a particular service or product. As the most effective method of capturing attention, promotional photography often employs close-up shots, direct gaze, distortion of reality, and shock.

Types of promotional photographic images include: mood photography, persuasive photography, explanatory photography, and product photography [2]. As previously stated, product photography is one form of promotional photography that conveys information to the consumer and influences their perception. Naturally, the quality of visual information transmission is crucial, as influencing perception directly affects the consumer's decision-making process regarding the promoted product. Based on the promotional message, the core concept of integrated marketing communication is aimed at encouraging consumers to engage with a specific product. In order to present product photography of desired items in a more acceptable and informative manner through various promotional channels, image processing and reproduction standards emerge as key elements. The visual expression captures the viewer's attention and emotionally engages them, while product photography itself is essential for presenting different products that attract consumer attention and guide them in making decisions. The goal of reproducing a photograph—in this case, specifically product photography—is to achieve sales, considering that consumers spend 80% of their time focusing on the image and only 20% on the textual content [3]. The objective of product photography is to evoke specific emotions in the consumer that would lead to consumption, making clear communication between the reproduced image and the consumer highly important. We can agree that photography is the ideal medium to evoke a reaction in the viewer—in this case, the consumer—because it offers excellent possibilities for expression and, therefore, for conveying information and eliciting emotions. Product photography captures attention, establishes communication, and transmits information. Properly reproduced product photographs can encourage consumption and create a better user experience.

Research shows that by intervening in the red, green, and blue channels of the digital image file—or by manipulating them—it is possible to influence the perception of product photography [4]. The results of evaluations of product image files show varying thresholds of acceptability for changes in individual channels in relation to their impact on perception. The obtained results confirm the hypothesis regarding the importance of product photography and its role in attracting the consumer's attention [5]. The authors in this study analyse product photography and explore the limits of acceptable channel manipulation within a digital image file while maintaining a realistic representation of the product, as well as the possibilities for perception management.

2 EXPERIMENTAL PART

The aim of the experimental research is to explore the possibility of managing the perception of product photography through changes in the red (R), green (G), and blue (B) channels of the digital file of the promotional photographic image. The authors also investigate the impact of changes in individual channels on the acceptability assessments of the product photograph and establish the limits for maintaining a realistic representation, i.e., the iconic character. The iconic character of the promotional

product photograph is defined in relation to the product photograph defined as the original [6].



Figure 1 Product photograph original

For the purposes of the research paper, a product photograph was created and captured. The photograph was taken with a Canon EOS 5D Mark III photographic system, and its digital recording is defined in the finest JPEG format in the Adobe RGB color space. The digital file of the captured product photograph is then transferred to the reproducible sRGB color space for perceptual rendering, thus defining the original product photograph [7]. The digital file of the original product photograph is processed by changing the values of the RGB channels in the range of ±12%, with a step of change or degradation of 3% over the entire image, using Adobe Photoshop image editing software (Fig. 2).

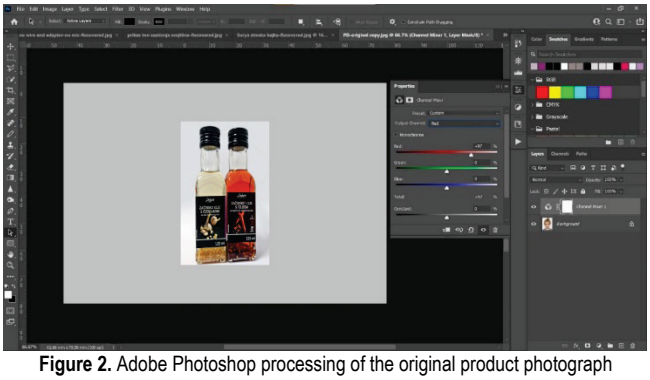


Figure 2. Adobe Photoshop processing of the original product photograph



Figure 3 Degraded product photograph of the original within a range of ±12% with a change step of 3%.

After degrading the original product photograph for each individual RGB channel within a range of ±12% with a change step of 3%, we obtained 24 degraded photographs (Fig. 3).

All photographs were prepared on a neutral gray background adapted to the screen format on which the promotional product photograph assessment took place. To ensure the best possible reproduction quality, the dimensions of the photographic images were adjusted to fit the format of the monitors used in the study, TCL 55"P615 4K Android TV. Each degraded product photograph was assigned a code consisting of a combination of letters and numbers, so that when comparing, we could accurately determine which photograph met the given criteria [7]. After defining the original product photograph and creating the set of degraded images, the experimental research was conducted on two groups of participants. The first group consisted of experts with experience in creating and selecting promotional photographs, specifically product photography, while the second group consisted of consumers of promotional photographs who had less professional knowledge, namely students. The expert group consisted of 5 participants, while the consumer group consisted of 44 participants with an average age of 21, with 22 males and 22 females. All participants underwent the Ishihara color recognition test [8]. The interpretation of the degraded product photograph samples was carried out using the method of simultaneous comparison for experts and memory comparison for consumers with less professional knowledge. Participants assessed the product photographs on a scale from 1 to 5, indicating which of the degraded photographs was considered least acceptable (1) to most acceptable (5), where a highly acceptable product photograph was rated as 5 [5]. The online questionnaire was created using Google Forms, and participants accessed it via a link sent to their mobile devices. During the evaluation of the product photographs, data were recorded on a server and were subsequently used for further processing in the research.

In the course of the study, a characteristic color table for product photography was created, which identified three specific colors marked with red dots and one white dot, indicating the specific locations for measuring and taking the specific colors, as shown in Fig. 4.



Figure 4 Display of the measurement locations for specific colors in product photography.

In addition to the three specific colors of the product photograph obtained by measurement at specific locations, named "Oil 1," "Oil 2," and "Glass," the color table also contained standard primary and achromatic colors from the standard color table (Fig. 5).

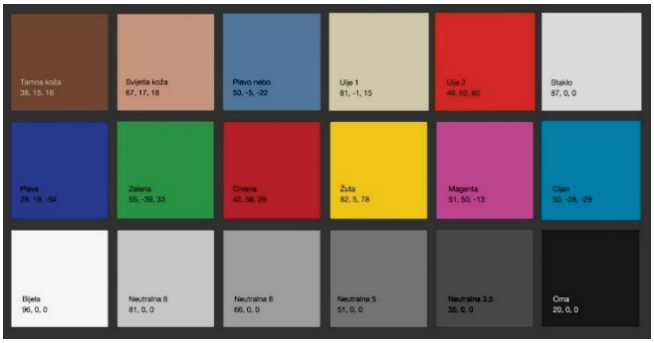


Figure 5 Characteristic color table with the three specific colors from the product photograph and other standard primary and achromatic colors.

The characteristic color table for product photography was then degraded in the RGB channels by ±3 to 12% for each channel individually, meaning the R channel from ±3% to 12%, followed by the G channel from ±3% to 12%, and the B channel from ±3% to 12% [9, 10]. In the next phase of the research, color changes in the digital files of the characteristic color tables previously defined for product photography are determined. Based on the determination of CIE Lab* values in Photoshop 2020, the total color differences ΔE00 for each field of the characteristic color table are calculated [11, 12].

3 RESULTS AND DISCUSSION

The results of the research conducted by the authors on expert participants, using the method of simultaneous comparison of the original product photograph and the degraded product photographs, were rated by the participants on a scale from 1 to 5, where 1 represents a completely unacceptable reproduction and 5 represents a highly acceptable reproduction. These results are presented in Tab. 1. The evaluation results of the research conducted on consumers with less professional knowledge, who used memory comparison [13] to compare the original product photograph with the degraded product photographs, are shown in Tab. 2.

As shown in Tab. 1, the assessments from five experts under standard observation conditions using memory comparison reveal varying acceptance thresholds for changes in individual channels of the digital file for the observed photographs. These results strongly correlate with the findings from the consumer study, presented in Tab. 2, conducted on consumers with less professional knowledge.

For the characteristic color table created for the tested product photograph (Fig. 5), Lab values were taken, and the average ΔE00 was calculated. In this research, the tables showing the Lab values of specific colors, as well as the calculations of their average ΔE00, were retained. Below are the average ΔE00 (Lab) values specifically for each color channel (R, G, and B), the absolute size of the change (3%,

6%, 9%, 12%), and the direction of the change (positive or negative).

Table 1 Expert participants' ratings for the product photograph with code P on a scale from 1 to 5, where 1 is completely unacceptable and 5 is highly acceptable.

Image code	Expert 1's Response	Expert 2's Response	Expert 3's Response	Expert 4's Response	Expert 5's Response	Degradation
P1	5	3	2	4	5	–3% R
P2	4	2	3	1	5	–6% R
P3	4	1	4	1	4	–9% R
P4	3	1	5	1	3	–12% R
P5	4	5	2	4	1	+3% R
P6	4	3	3	1	4	+6% R
P7	4	1	4	1	2	+9% R
P8	4	1	4	1	1	+12% R
P9	4	1	2	4	3	–3% G
P10	3	3	3	1	2	–6% G
P11	3	2	4	1	1	–9% G
P12	3	1	5	1	1	–12% G
P13	4	2	2	4	5	+ 3% G
P14	3	2	3	1	4	+ 6% G
P15	3	1	4	1	3	+9% G
P16	3	1	5	1	2	+ 12% G
P17	4	5	2	1	3	–3% B
P18	3	4	2	1	5	–6% B
P19	3	2	4	1	4	–9% B
P20	3	2	5	1	1	–12% B
P21	4	5	2	4	5	+ 3% B
P22	4	5	2	1	5	+6% B
P23	4	2	3	1	4	+ 9% B
P24	4	1	4	1	4	+ 12% B

Table 2 Consumer participants' ratings with less professional knowledge for the product photograph with code P, where 1 is completely unacceptable and 5 is highly acceptable.

1	Image code																																				Degradation
2	P1	3	3	4	5	5	5	3	2	5	4	5	2	5	5	5	5	3	5	4	5	5	4	5	4	5	5	5	5	4	4	5	3	3	4	5	5	4	5	4	4	3	- 3% R
3	P2	4	2	3	5	5	4	3	3	3	2	4	3	4	4	3	3	3	4	2	5	3	3	3	3	5	4	5	3	3	3	4	3	2	4	4	5	3	3	3	3	2	- 6% R
4	P3	4	2	3	4	5	3	2	3	2	2	3	3	2	1	3	2	2	3	1	3	1	2	4	2	2	3	4	1	1	2	2	2	3	3	3	4	2	3	1	1	1	- 9% R
5	P4	3	1	2	2	4	2	2	3	2	2	3	3	1	1	3	2	2	2	1	2	1	2	4	2	1	2	3	1	1	1	1	2	5	1	2	4	2	2	1	1	1	- 12% R
6	P5	5	1	5	4	3	4	5	2	5	5	5	5	5	5	5	5	4	5	5	5	3	3	5	5	5	5	5	5	3	3	5	4	5	4	5	5	4	5	5	4	5	+3% R
7	P6	3	1	4	4	3	4	4	2	4	5	4	5	3	3	3	5	2	4	3	4	3	4	4	4	4	4	5	5	3	3	5	5	4	4	4	5	3	5	5	3	4	+6% R
8	P7	3	1	4	2	3	1	4	2	2	3	4	4	2	1	2	5	2	4	2	4	3	5	4	3	3	3	5	4	3	3	4	5	3	3	4	5	3	3	3	1	3	+9% R
9	P8	3	2	3	2	3	1	4	3	2	2	4	4	1	1	3	5	3	3	1	4	3	3	4	1	2	5	4	3	2	2	3	4	3	2	3	4	2	1	1	1	2	+12% R
10	P9	4	3	5	5	3	5	5	3	5	5	5	3	5	5	5	5	4	5	4	4	2	5	5	4	4	5	5	5	3	2	5	3	5	4	5	5	5	5	5	4	5	- 3% G
11	P10	4	1	4	2	4	2	3	2	2	4	4	3	4	2	5	5	2	4	2	3	4	3	4	3	3	3	5	3	4	4	5	3	4	3	4	4	2	4	4	2	1	- 6% G
12	P11	2	1	3	1	2	1	3	2	2	3	3	3	3	1	4	5	3	3	1	2	3	1	3	2	2	3	5	1	2	2	3	2	1	2	2	3	2	2	1	1	1	- 9% G
13	P12	4	1	2	1	3	2	2	2	2	1	2	3	1	1	3	3	2	2	1	1	2	1	3	2	1	3	4	1	2	1	2	1	1	1	2	2	2	1	1	1	1	- 12% G
14	P13	4	2	5	4	3	3	3	4	4	3	5	3	5	4	3	5	3	5	4	1	3	3	5	5	5	5	4	4	5	2	4	3	5	4	5	5	3	4	3	5	4	+ 3% G
15	P14	3	1	4	4	4	2	2	4	2	3	5	3	4	3	3	3	3	4	2	5	2	2	5	4	4	3	5	3	5	2	3	3	2	3	4	4	2	2	2	4	3	+ 6% G
16	P15	3	1	3	1	2	1	2	3	2	2	3	3	3	1	2	3	3	4	1	4	1	2	4	3	4	3	4	2	4	1	3	3	1	2	3	3	2	1	1	1	2	+9% G
17	P16	4	1	2	1	3	1	1	3	1	2	3	4	1	1	2	2	3	3	1	1	1	2	4	2	3	3	3	1	2	1	2	2	1	1	3	3	2	1	1	1	2	+ 12% G
18	P17	4	4	4	5	3	4	4	4	5	5	5	4	5	5	4	5	5	5	5	2	5	4	5	5	5	5	5	5	5	4	5	4	5	4	5	5	4	5	5	5	5	- 3% B
19	P18	4	4	4	5	4	4	3	3	5	5	5	4	5	4	3	5	5	5	4	1	5	5	5	5	5	4	5	5	5	4	5	4	4	3	5	5	4	5	5	5	5	- 6% B
20	P19	5	1	2	2	3	1	4	4	2	3	3	4	2	3	2	2	5	3	3	5	2	2	4	2	4	3	4	2	4	2	3	2	3	2	4	3	3	4	1	5	2	- 9% B
21	P20	3	2	4	1	3	5	4	5	3	4	4	3	4	4	3	5	4	4	4	3	2	4	2	5	2	4	2	3	1	2	1	2	1	3	2	3	3	1	3	2	- 12% B
22	P21	4	3	5	5	2	5	5	5	4	4	5	3	5	5	3	5	5	4	4	1	5	3	5	5	5	5	5	3	4	4	4	3	5	5	5	5	4	5	5	5	4	+ 3% B
23	P22	4	2	4	5	3	5	5	5	3	5	5	3	3	5	4	5	5	4	3	5	5	2	4	5	5	5	5	2	4	4	4	3	5	5	4	5	3	5	5	2	2	+6% B
24	P23	4	2	4	4	3	5	5	5	2	5	5	3	3	5	3	5	5	5	3	2	4	4	3	4	4	4	4	5	3	3	2	4	3	5	5	3	5	2	4	4	2	+ 9% B
25	P24	4	1	4	4	4	4	5	5	2	5	5	3	3	5	4	5	5	5	3	1	3	3	3	4	4	3	4	4	2	2	1	4	3	5	4	3	5	3	5	3	2	+ 12% B

Table 3 Product photograph R channel -3%

	Original			Measured Sample			
	L1	a1	b1	L2	a2	b2	ΔE00
Oil1	81.00	–1.00	15.00	81.00	–3.00	15.00	2.4012
Oil2	49.00	62.00	60.00	47.00	60.00	59.00	2.0567
Glass	87.00	0.00	0.00	87.00	–2.00	–1.00	2.9522

Table 4 Product photograph R channel -6%

	Original			Measured sample			
	L1	a1	b1	L2	a2	b2	ΔE00
Oil1	81.00	–1.00	15.00	80,00	–6.00	13.00	6.1869
Oil2	49.00	62.00	60.00	46.00	58.00	57.00	3.1432
Glass	87.00	0.00	0.00	86.00	–4.00	–1.00	5.3893

Table 5 Product photograph R channel -9%

	Original			Measured sample			
	L1	a1	b1	L2	a2	b2	ΔE00
Oil1	81.00	–1.00	15.00	80.00	–8.00	12.00	8.4329
Oil2	49.00	62.00	60.00	45.00	56.00	5600	4.2444
Glass	87.00	0.00	0.00	86.00	–7.00	–2.00	8.6382

Table 6 Product photograph R channel -12%

	Original			Measured sample			
	L1	a1	b1	L2	a2	b2	ΔE00
Oil1	81.00	–1.00	15.00	79.00	–11.00	12.00	11.0688
Oil2	49.00	62.00	60.00	44.00	53.00	55.00	5.5115
Glass	87.00	0.00	0.00	85.00	–9.00	–3.00	10.6199

Table 7 Product photograph R channel +3%

	Original			Measured sample			
	L1	a1	b1	L2	a2	b2	ΔE00
Oil1	81.00	–1.00	15.00	82.00	2.00	16.00	3.7807
Oil2	49.00	62.00	60.00	50.00	64.00	61.00	1.1439
Glass	87.00	0.00	0.00	88.00	2.00	1.00	3.0211

Table 8 Product photograph R channel +6%

	Original			Measured sample			
	L1	a1	b1	L2	a2	b2	ΔE00
Oil1	81.00	–1.00	15.00	82.00	3.00	18.00	5.0400
Oil2	49.00	62.00	60.00	51.00	66.00	63.00	2.2559
Glass	87.00	0.00	0.00	89.00	5.00	2.00	6.7296

Table 9 Product photograph R channel +9%

	Original			Measured sample			
	L1	a1	b1	L2	a2	b2	ΔE00
Oil1	81.00	–1.00	15.00	83.00	6.00	18.00	8.2786
Oil2	49.00	62.00	60.00	53.00	68.00	64.00	4.2779
Glass	87.00	0.00	0.00	89.00	7.00	2.00	8.7080

Table 10 Product photograph R channel +12%

	Original			Measured sample			
	L1	a1	b1	L2	a2	b2	ΔE00
Oil1	81.00	–1.00	15.00	83.00	8.00	19.00	10.1672
Oil2	49.00	62.00	60.00	53.00	69.00	65.00	4.3714
Glass	87.00	0.00	0.00	90.00	9.00	3.00	10.7108

Table 11 Product photograph G channel -3%

	Original			Measured sample			
	L1	a1	b1	L2	a2	b2	ΔE00
Oil1	81.00	–1.00	15.00	80.00	1.00	14.00	2.6757
Oil2	49.00	62.00	60.00	48.00	62.00	60.00	0.9929
Glass	87.00	0.00	0.00	86.00	3.00	–3.00	4.8648

Table 12 Product photograph G channel -6%

	Original			Measured sample			
	L1	a1	b1	L2	a2	b2	ΔE00
Oil1	81.00	–1.00	15.00	78.00	5.00	11.00	8.6540
Oil2	49.00	62.00	60.00	48.00	63.00	60.00	1.0686
Glass	87.00	0.00	0.00	84.00	7.00	–5.00	9.4203

Table 13 Product photograph G channel -9%

	Original			Measured sample			
	L1	a1	b1	L2	a2	b2	ΔE00
Oil1	81.00	–1.00	15.00	77.00	7.00	9.00	11.8633
Oil2	49.00	62.00	60.00	48.00	63.00	60.00	1.0686
Glass	87.00	0.00	0.00	82.00	10.00	–7.00	12.4887

Table 14 Product photograph G channel -12%

	Original			Measured sample			
	L1	a1	b1	L2	a2	b2	ΔE00
Oil1	81.00	–1.00	15.00	75.00	11.00	7.00	16.9921
Oil2	49.00	62.00	60.00	48.00	64.00	60.00	1.2658
Glass	87.00	0.00	0.00	81.00	13.00	–10.00	15.1582

Table 15 Product photograph G channel +3%

	Original			Measured sample			
	L1	a1	b1	L2	a2	b2	ΔE00
Oil1	81.00	–1.00	15.00	83.00	–4.00	18.00	3.8604
Oil2	49.00	62.00	60.00	49.00	61.00	60.00	0.3997
Glass	87.00	0.00	0.00	89.00	–3.00	2.00	4.6134

Table 16 Product photograph G channel +6%

	Original			Measured sample			
	L1	a1	b1	L2	a2	b2	ΔE00
Oil1	81.00	–1.00	15.00	84.00	–7.00	20.00	6.7774
Oil2	49.00	62.00	60.00	49.00	61.00	60.00	0.3997
Glass	87.00	0.00	0.00	91.00	–6.00	4.00	8.4478

Table 17 Product photograph G channel +9%

	Original			Measured sample			
	L1	a1	b1	L2	a2	b2	ΔE00
Oil1	81.00	–1.00	15.00	86.00	–10.00	22.00	9.4555
Oil2	49.00	62.00	60.00	49.00	60.00	60.00	0.8042
Glass	87.00	0.00	0.00	93.00	–9.00	7.00	11.9255

Table 18 Product photograph G channel +12%

	Original			Measured sample			
	L1	a1	b1	L2	a2	b2	ΔE00
Oil1	81.00	–1.00	15.00	88.00	–13.00	25.00	11.7740
Oil2	49.00	62.00	60.00	49.00	60.00	60.00	0.8042
Glass	87.00	0.00	0.00	94.00	–12.00	10.00	14.6932

Table 19 Product photograph B channel –3%

	Original			Measured sample			
	L1	a1	b1	L2	a2	b2	ΔE00
Oil1	81.00	–1.00	15.00	81.00	–2.00	18.00	1.9940
Oil2	49.00	62.00	60.00	49.00	62.00	60.00	0.0000
Glass	87.00	0.00	0.00	87.00	0.00	3.00	2.8103

Table 20 Product photograph B channel –6%

	Original			Measured sample			
	L1	a1	b1	L2	a2	b2	ΔE00
Oil1	81.00	–1.00	15.00	81.00	–2.00	21.00	3.4155
Oil2	49.00	62.00	60.00	49.00	62.00	60.00	0.0000
Glass	87.00	0.00	0.00	87.00	–2.00	6.00	5.8282

Table 21 Product photograph B channel –9%

	Original			Measured sample			
	L1	a1	b1	L2	a2	b2	ΔE00
Oil1	81.00	–1.00	15.00	81.00	–3.00	24.00	5.0525
Oil2	49.00	62.00	60.00	49.00	61.00	60.00	0.3997
Glass	87.00	0.00	0.00	87.00	–2.00	10.00	8.4536

Table 22 Product photograph B channel –12%

	Original			Measured sample			
	L1	a1	b1	L2	a2	b2	ΔE00
Oil1	81.00	–1.00	15.00	81.00	–3.00	26.00	5.9025
Oil2	49.00	62.00	60.00	49.00	61.00	60.00	0.3997
Glass	87.00	0.00	0.00	87.00	–3.00	13.00	10.5024

Table 23 Product photograph B channel +3%

	Original			Measured sample			
	L1	a1	b1	L2	a2	b2	ΔE00
Oil1	81.00	–1.00	15.00	81.00	0.00	13.00	1.7292
Oil2	49.00	62.00	60.00	49.00	62.00	60.00	0.0000
Glass	87.00	0.00	0.00	88.00	1.00	–3.00	3.1840

Table 24 Product photograph B channel +6%

	Original			Measured sample			
	L1	a1	b1	L2	a2	b2	ΔE00
Oil1	81.00	–1.00	15.00	82.00	0.00	10.00	3.4781
Oil2	49.00	62.00	60.00	49.00	62.00	60.00	0.0000
Glass	87.00	0.00	0.00	88.00	2.00	–7.00	6.5329

Table 25 Product photograph B channel +9%

	Original			Measured sample			
	L1	a1	b1	L2	a2	b2	ΔE00
Oil1	81.00	–1.00	15.00	82.00	1.00	8.00	5.3846
Oil2	49.00	62.00	60.00	49.00	62.00	60.00	0.0000
Glass	87.00	0.00	0.00	88.00	2.00	–10.00	8.4779

Table 26 Product photograph B channel +12%

	Original			Measured sample			
	L1	a1	b1	L2	a2	b2	ΔE00
Oil1	81.00	–1.00	15.00	82.00	1.00	5.00	7.4845
Oil2	49.00	62.00	60.00	49.00	62.00	60.00	0.0000
Glass	87.00	0.00	0.00	88.00	4.00	–13.00	10.8432

After conducting the research and analyzing the results related to the experiment, observing the main intervention, i.e., the degradation of the RGB channels by 3% within the range of ±12%, it was concluded that the acceptability ratings for the product photographs by the consumer participants with less professional knowledge mostly fall within the range when ΔE00 is equal to or less than 6.

4 CONCLUSION

The conducted research shows that in relation to a photographic image defined as the original, interventions and manipulations in digital channels lead to noise in communication, i.e., degradation of the information that the photographic image transmits. Such interventions and manipulations can be performed throughout all stages of the digital system, with maximum control over the effect being achieved during the processing phase of the digital image file, where each channel can be adjusted individually while maintaining the values of the other channels. The research also indicates that by changing the values of the blue, green, or red channels, the realism or iconicity of the photographic image can be preserved. Most of the research conducted so far has focused on changes in the values of the channels in the digital recording of portrait images, which, in the context of promotional photography, can also be viewed as potential "persuasive" images, landscape photography, which in promotional photography can be viewed as potential "mood" images, and food photography, which in promotional photography can be viewed as potential "catalog" images. The most challenging photographic subject by this criterion has proven to be the "persuasive" photographic image. Maintaining the iconic character, or realism, is associated with the boundaries of the overall change in standard skin colors. Studies conducted on the digital file of promotional product photography show that the optimal regulator of perception and interpretation of promotional photographic images during the digital image processing phase is the regulation of enhancing and weakening channels within the boundaries of ±6%.

For other types of photographic images studied, the primary link between the perception of dominant or isolated colors and changes in the values of the digital channels within the range of ±9% was demonstrated. This cannot be tracked using standard color tables used for evaluating the technical reproduction of colors in all phases of the digital

photographic system. It was also determined that small changes in colors, within acceptable limits, based on the criteria of determining the total color difference (ΔE00), affect the perception of the photographic image.

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