

A study of perceived product quality transparency in online shopping product description pages.

– Focusing on description categories and methods for HMR products

온라인 쇼핑 제품 설명 페이지에서 지각된 제품 품질 투명도에 관한 연구.

– HMR 제품의 설명 카테고리화 방법 중심으로.

Yoon, Jungwoo_The Catholic University of Korea, Media Technology Contents

윤정우_가톨릭대학교 미디어기술콘텐츠학과

Contents

1. Introduction
 - 1.1. Purpose and aim of the study
 - 1.2. Method of the study
2. Literature review
 - 2.1. Lack of trust and transparency in online shopping
 - 2.2. Photographic images to improve product transparency
3. Analysis of samples
4. Survey
 - 4.1. Method of survey
 - 4.2. Result of survey
5. Conclusion
 - 5.1. Summary of conclusion and suggestion
 - 5.2. Limitations
- Reference

A study of perceived product quality transparency in online shopping product description pages.

- Focusing on description categories and methods for HMR products

온라인 쇼핑 제품 설명 페이지에서 지각된 제품 품질 투명도에 관한 연구.

- HMR 제품의 설명 카테고리 및 방법 중심으로.

Yoon, Jungwoo_The Catholic University of Korea, Media Technology Contents

윤정우_가톨릭대학교 미디어기술콘텐츠학과

ABSTRACT

Keyword

HMR

Trust

Online shopping

Product transparency

Product quality

Product description

page

The category and method of product description are expanding as the genre in Home Meal Replacement(HMR) products expand, and as the consumers' demand for transparency in product quality increase. Studies encourage utilization of photographic images to increase product transparency. With rapid increase in novel HMR products and brands, it is necessary to analyze current online product description pages and identify ways to improve product transparency. This study first conducted a hierarchical analysis of consumer awareness and corresponding product description categories related to product quality transparency. Second, we looked into whether the font-centric or image-centric description is a more transparent way of communicating information for each product description category. The investigation started with a literature review, followed by a case study analysis of product description categories and description methods in current online food and grocery shopping markets. An online survey was employed to investigate hierarchy in product quality transparency among product description categories and description methods. The study found that the product description categories that consumers perceived as most to least transparent in terms of providing product quality were product summary, food images and descriptions, packaging and storing information, customer reviews and questions, how to eat/cook/store, brand, check list, delivery information, and related products. The results also illustrated that photographic product descriptions do not necessarily improve transparency. They do, however, provide a general explanation of the product. Text descriptions can be more supportive in providing transparency in product quality in some categories of product description, such as brand and produce. The study could be helpful for designing the layout of product description information and selection of transparent product description methods.

요약

중심어

HMR

신뢰

온라인쇼핑

제품투명도

제품품질

제품설명페이지

다양한 가정간편식 (HMR) 제품 종류의 급격한 증가와 소비자들의 제품 품질 투명성에 대한 요구가 강해짐에 따라 제품 설명 카테고리 및 설명 방법이 늘어나고 있다. 제품 품질에 대한 투명도를 높이기 위해 연구들은 사진 이미지들의 활용을 권장하고 있다. 새롭게 등장하는 HMR 제품들이 빠르게 늘어나는 데 따라 현재의 제품 설명 페이지들에 대한 분석과 더불어 제품 투명도 제고의 발전을 위한 방법의 모색이 필요하다. 본 연구는 첫째, 제품 품질 투명성과 관련한 소비자의 인지와 이에 따른 제품 설명 카테고리의 계층 분석을 진행하였다. 두 번째, 글씨 중심적 혹은 이미지 중심적 설명 방식이 각 제품 설명 카테고리의 정보 전달에 있어 더욱 투명한 방법인지 알아보았다. 연구방법은 기존의 연구와 리서치의 문헌분석을 시작으로, 현재 온라인 식료품 쇼핑 마켓에서 사용되고 있는 HMR 제품의 설명 카테고리의 그리고 설명 방법에 대한 사례분석이 이어졌다. 제품 품질 투명성과 관련한 제품 설명 카테고리 및 설명 방식에 대한 우선순위를 알아보기 위해 온라인 설문조사가 진행되었다. 연구결과 첫째, 제품 설명 카테고리 중 제품 품질 투명도 전달과 관련한 가장 높음에서 가장 낮은 소비자의 인지 계층은 제품 개요, 음식 이미지와 설명, 패키징과 보관 정보, 소비자 리뷰와 질문, 생산관련 정보, 섭취법/조리법/보관법, 브랜드, 체크리스트, 배달 정보, 그리고 관련 제품들 순서로 발견되었다. 또한 연구결과 사진 중심적 제품 설명은 제품 품질의 투명성의 향상에 뚜렷한 관계는 없었다. 하지만 제품에 대한 전반적인 설명을 전달하는 것으로 나타났다. 브랜드 정보와 생산 정보 등 특정 카테고리는 글씨 중심적 설명이 제품 품질의 투명성 전달에 더욱 도움을 주는 것으로 나타났다. 해당 연구는 온라인 쇼핑 환경에서 HMR 제품의 투명한 제품 설명 방법의 선정 및 제품 설명 정보의 레이아웃 디자인에 도움을 줄 수 있다.

This study was supported by the Research Fund, 2020 of The Catholic University of Korea.

1. Introduction

HMR, an abbreviated term of home meal replacement, is a 'replacement of meal', is store sold product that is prepared in stores and consumed in households, which do not require any or almost no preparation in consumers' point of view.¹⁾ There are different categories in HMR food, that can be divided in to ready-to-eat (RTE), the simplest form among HMR kinds, that can be consumed right away without any additional process. Banchan such as namool or kimchi or ready made salad, sandwich and kimbap are examples of RTE food. Ready-to-heat (RTH) is a type of HMR kinds that can be consumed after heating of contained ingredients. Examples of RTH food include instant rice, porridge, soup, spaghetti, frozen pizza. Ready-to-cook (RTC) is a kind of HMR that can be consumed through simple cooking process, examples of RTC are jjim-dak or shabu shabu. Online food and grocery delivery brands now carry diverse and novel HMR products that require more product description than familiar products. Modern people are concerned about their health, but they are looking for HMR due to the lack of time, that chicken breast HMR products such as 'T'mdak' have been one of the best selling products online for years, because of its convenience and health benefits at the same time.²⁾ As more people find healthy and convenient food, there is stronger demand in transparency and trust that consumers' trust in many aspects is weak compared to shopping offline.³⁾ Many efforts are being made to provide transparent product quality information in product description pages. Current online food and grocery markets tend to provide extensive graphics and visual images to better describe the product. Because of the characteristics of seller anonymity, lack of process transparency, and lack of product transparency that lead to uncertainty in products and stores, studies emphasize that online shops should provide as much information as possible, regardless of kinds, methods, and genres, in online product description pages. Studies encourage that in whole information of the product, product descriptions and specifications, and rich media representations such as product videos, high quality images, 3D rendering, flash media, etc. should be provided order to increase product transparency⁴⁾. Although related studies in the past have encouraged extensive use of photographic images to provide transparency, they have not focused specifically on HMR products. This may be different from a shopping for an electronic device or fashion items, as food products such as HMR products have multiple shapes and textures. For example, a ready-to-eat (RTE) product such as a salad is a composition of mixed natural ingredients such as fruits and vegetables that cannot be prepared in a unified shape or form, meaning photographic images might not be most transparent method of explanation. Further, as photographic images are now easily modified by software programs, can they serve as a viable form of providing transparency of product quality in HMR foods?

1.1. Purpose and aim of the study

The aim of this study is first to investigate and analyze product description categories and description methods used in online product description pages. Second, it investigates

1) http://premium.chosun.com/site/data/html_dir/2015/08/07/2015080702293.html

2) <https://www.hankyung.com/economy/article/2019012014901>

3) Hyochung Kim, Meera Kim (2019) 「Analysis of Online Food Purchase Behavior and Factors Determining Online Purchases by Adult Consumers」 *Journal of the Korean Society of Food Science and Nutrition* 48(1) 97-108

4) Gafurov Dilshodjon, Ho young shin, Kisu Kim Systems Review (2013) 「A Study of Uncertainty Factors Affecting Consumers' Purchase Intention in Online Shopping」 *Information Systems Review* Vol.15, pp.45-68

the hierarchy of description categories in providing a sense of transparency in terms of product quality. Third, it investigates description method and its effect on product transparency. This will reveal what consumers find to be transparent sources of information in determining products' quality and to evaluate transparent description methods in each description category in HMR products.

1.2. Method of the study

Analysis was conducted of product description pages of the most popular online food and grocery shopping markets in South Korea that carry HMR products. This was done in terms of product description categories and product description methods. The categories were reorganized in groups according to similar genres of descriptions. A survey followed to identify a hierarchy in description categories of consumers' sense of transparency regarding product quality, and to determine transparent description methods in product description pages of HMR products.

2. Literature review

2.1. Lack of trust and transparency in online shopping

One of the biggest complaints in online food shopping is related to how delivered products sometimes look much different from their expectations in terms of quality.⁵⁾ People often feel that image shown on screen differ from actual delivered product. According to Korea Consumer Agency in 2019, complaint calls related to online food shopping has been raised to 33.8% since last year, and most complaints were related to product quality. The report summarizes that the complaints in product quality mostly occur due to the given online shopping situations; that consumers cannot see the product in real with their own eyes. Expectation of product quality was different from what was shown on screen and it led to dissatisfied shopping experience.⁶⁾ This suggests that details in delivery of product information and accuracy in portraying of product details is important in food and grocery sales online.

In a recent study done by Kim in 2019, 28.5% participants who preferred offline grocery shopping despite of its inconvenience was related to issues in distrust of product quality. The study proved and suggested that in order to encourage online shopping, accurate and plenty of product information must be provided, as this will secure consumer trust.⁷⁾

2.2. Use of photographic images as encouraged visual method

In 'A study of uncertainty factors affecting consumers' purchase intentional online shopping', it describes that online shopping environment has characteristics of seller anonymity, lack of product transparency and lack of process transparency that lead to uncertainty in products, that online shops should provide as much information as possible, regardless of kinds, methods and genres of details in online product description pages in order for shoppers to feel more trust toward products and online markets. It concludes that in order to increase product transparency, diverse rich media, such as flash media, 3D rendering, high quality pictures, product videos should be presented.⁸⁾

5) <https://www.yna.co.kr/view/AKR20190104116100030>

6) <https://www.mk.co.kr/news/economy/view/2019/01/9939/>

7) Hyochung Kim, Meera Kim (2019) 'Analysis of Online Food Purchase Behavior and Factors Determining Online Purchases by Adult Consumers,' Journal of the Korean Society of Food Science and Nutrition 48(1) 97-108

8) Gafurov Dilshodjon, Ho young shin, Kisu Kim Systems Review (2013) 'A Study of Uncertainty Factors Affecting Consumers' Purchase Intention in Online Shopping,' Information Systems Review Vol.15, pp.45-68

Studies of Benn, Webb, Chang and Reidy⁹⁾ and Kim, Yang and Lee¹⁰⁾ suggest that online grocery shopping has to provide similar shopping experience as offline shopping settings by providing as much visual images to secure uncertainty factors and to take off worries that shoppers may have. In ‘The Effect of Full Body versus Partial Body Graphic Labelling on Beverage Packaging’, consumers were more interested in seeing the actual product than to rely on descriptive elements on packages, which can be related to how people are much interested in the seeing product itself, not a “designed” text descriptions.¹¹⁾ In a study by Grunert and Fernandez–Celemin, consumers looked at the front of a package most frequently when selecting a product, and participants in the test commented the absence of pictures made selecting products more difficult, that the importance of pictures in online environment was emphasized.¹²⁾ Much previous studies emphasize that photographic elements are most transparent source of description method than other visual description methods.

3. Analysis of samples

MarketKurly, HelloNature, and TheBanchan were selected as sample online food and grocery markets. The reason for this selection was that MarketKurly and HelloNature are South Korea's two most widely used next-day delivery food and grocery online markets, carrying the highest variety of HMR products.¹³⁾ TheBanchan was selected as a sample as it is also one of the most popularly used online food and grocery markets, and puts much focus on pictorial elements in product descriptions. This made it a suitable sample to be analyzed and compared in relation to perceived transparency of product quality and description methods used in HMR products. As the purpose of the analysis was to find out description categories and methods being used in the current market as supportive information for conducting a survey, one product each from the ready to cook (RTC), ready to eat (RTE), and ready to heat (RTH) products in three sample markets was randomly selected for analysis of the kinds and categories of descriptions offered in the current product description pages.

9) Yael Benn, Thomas L. Webb, Betty P.I. Chang, John Reidy (2015) ‘What information do consumers consider, and how do they look for it, when shopping for groceries online,’ *Appetite* 89 pp.265–273

10) Hye Jin Kim, Kiseol Yang, and Young Eun Lee (2018) ‘Moderating effect of trust and commitment in customer satisfaction and customer loyalty on mobile grocery purchasing quality,’ *Journal of the Korean Society of Food Science and Nutrition* 47(2), 207–221

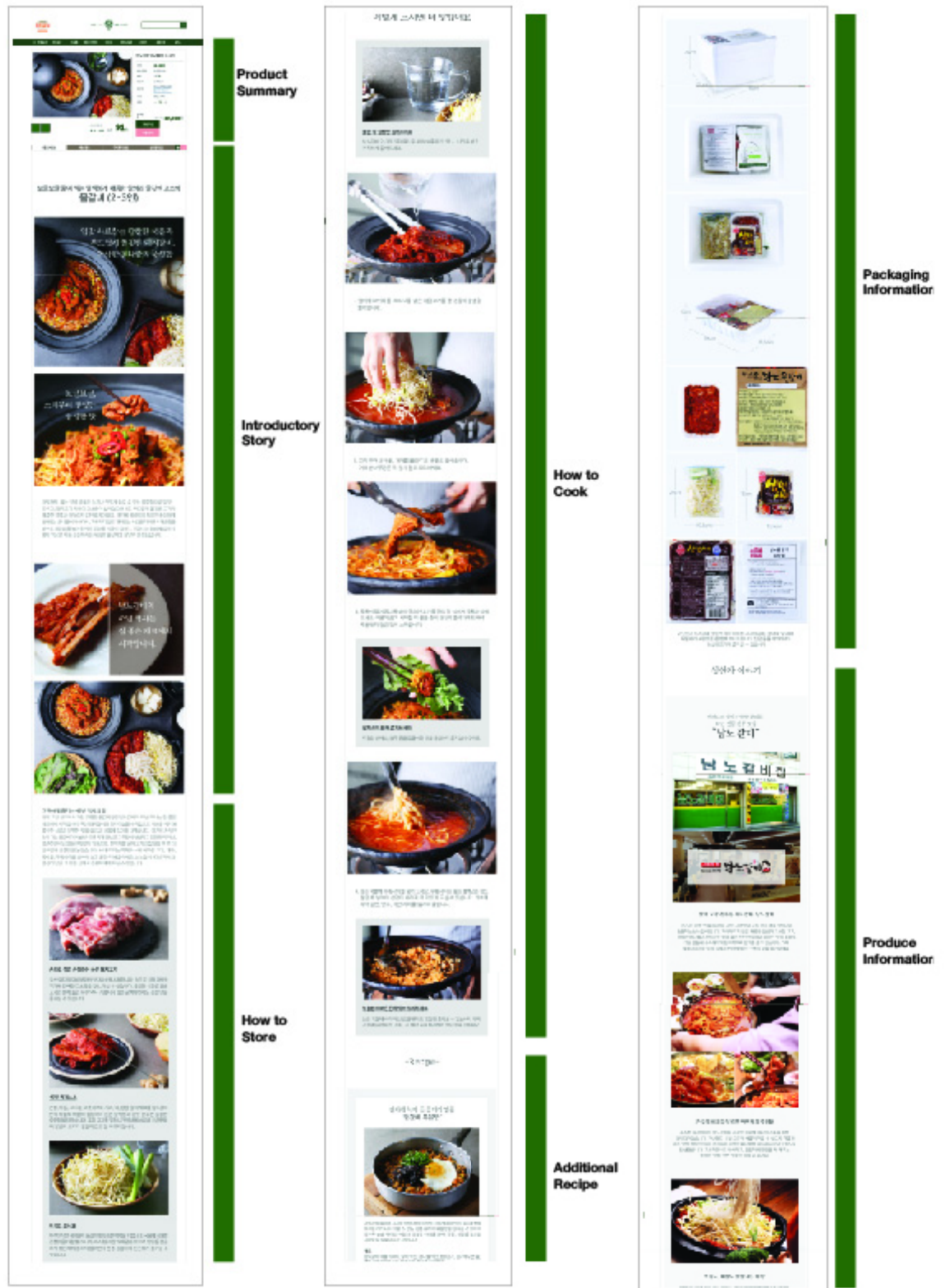
11) Toni Gomes, Ruper Andrew Hurley, Andrew Duchowski, Duncan Darby, Andrew Ouzts (2014) ‘The Effect of Full Body versus Partial Body Graphic Labelling on Beverage Packaging,’ *Packaging Technology and Science* Vol.27 pp.933–943

12) Grunert, K. G., Wills, J. M., & Fernández-Celemin, L. (2010). ‘Nutrition knowledge, and use and understanding of nutrition information on food labels among consumers in the UK,’ *Appetite*, 55(2), 177–189.

13) <https://www.hankyung.com/economy/article/2019021410191>



〈Figure 1〉 Analysis example of Market Kurly.



〈Figure 2〉 Analysis example of Hello Nature.



〈Figure 3〉 Analysis example of The Banchan.

4.Survey

4.1. Method of survey

〈Table 1〉 Analysis example of RTE product description categories and methods.

The Ban chan (RTE)	Description Category	Description Method
	Product summary	Photographs and text
	Product recommendati on I	Small photographs with text
	Delivery information	Text
	Food images and description	Multiple wide photographs with text
	Check list	Illustrative text
	About Taste	Text on top of photograph
	Packaging information	Photographs and text
	How to eat/store	Text in box
	Product summary	Text in box
	Product recommendati on II	Text in box
	Caution	Text in box
Mar ket Kur ly (RTE)	Description Category	Description Method
	Product summary	Photographs and text
	Related products	Small photographs with text
	Introductory story	Wide photograph with text
	Check list	Text
	Professional comment	text
	Produce information	Mid-sized photographs and text
	Packaging information	Mid-sized photographs
	Product summary	Text in box
	Brand Assurance	Text
	Brand promise	Text
	Delivery information/re turn policy	Text in box
Hel lo Nat ure (RTE)	Description Category	Description Method
	Product summary	Photographs and text
	Introductory story	Wide photograph with text
	Check list	Illustrative text
	Quality assurance	Wide photograph with text
	How to eat/store	Mostly illustration with short text
	Packaging information	Wide photograph with text
	Customer review	Text
	Delivery information/re turn policy	Text in box
	Customer review	Text in box
	Questions	Text in box

〈Table 2〉 Analysis example of RTH product description categories and methods.

The Banchan (RTH)	Description Category	Description Method
	Product summary	Photographs and text
	Product recommendation I	Small photographs with text
	Food images and description	Multiple wide photographs with text
	Packaging information	Photograph and illustration
	Product summary	Text in box
	Product recommendation II	Small photographs with text
	Customer review	Text in box
	Cautions	Text in box
Market Kurly (RTH)	Description Category	Description Method
	Product summary	Photographs and text
	Related products	Small photographs with text
	Introductory story	Wide photograph with text
	Check list	Illustrative text
	Product details	Wide photograph with text
	How to eat	Text
	Produce information	Text
	Packaging information	Illustration
	Details	Text in box
	Brand assurance	Text in box
	Brand promise	Text in box
	Delivery information/return policy	Illustration and text
	Customer review	Text in box
	Questions	Text in box
Hello Nature (RTH)	Description Category	Description Method
	Product summary	Photographs and text
	About event	Illustrative text
	Introductory story	Wide photograph with text
	Check list	Illustrative text
	How to eat	Wide photographs with text
	How to cook	Illustration with text
	How to store	Illustration with text
	Packaging information	Photographs
	Produce information	Illustration with text
	Product summary	Text in box
	Delivery information/return policy	Text in box
	Customer review	Text in box
	Q&A	Text in box
	Related products	Photographs with text

〈Table 3〉 Analysis example of RTC product description categories and methods.

The Banchan(RTC)	Description Category	Description Method
	Product summary	Photographs and text
	Product recommendation I	Small photographs with text
	Food images and description	Multiple wide photographs with text
	Packaging information	Photograph and illustration
	Product summary	Text in box
	Product recommendation II	Small photograph with text
	Customer review	Text in box
	Cautions	Text in box
Market Kurily(RTC)	Description Category	Description Method
	Product summary	Photographs and text
	Product recommendation I	Small photographs with text
	Food images and description	Wide photographs with text
	Check list	Text in box
	Product details	Wide photograph with text
	Product information	Wide photograph with text
	Packaging information	Illustration with text
	Details	Text in box
	Brand Assurance	Text in box
	Brand Promise	Text in box
	Delivery information/Return policy	Text in box with chart
	Customer review	Text in box
	Questions	Text in box
Hello Nature(RTC)	Description Category	Description Method
	Product summary	Photographs and text
	Introductory story	Multiple wide photographs with text
	How to store	Multiple wide photographs with text
	How to cook	Multiple wide photographs with text
	Additional recipe	Wide photograph with text in box
	Packaging information	Multiple wide photographs
	Produce information	Multiple wide photograph with text
	Product details	Text in box
	Delivery information/return policy	Text in box
	Customer review	Text in box
	Q&A	Text in box
	Related products	Small photographs with text

Participants were gathered via the Cyber Campus of the Catholic University of Korea, and either worked or studied at a university in Seoul or the Gyeonggi region of Korea. Participants all had experience in online food and grocery shopping with relatively high digital literacy. A total number of 42 participants joined the survey with ages ranging from 20 to 28. The survey was conducted from November 1st, 2019 until November 15th, 2019, via emails containing links to each sample with a list analysis chart that contained description categories and description methods for all samples used in the survey as a guiding element for providing responses. Participants were requested to go through all 9 sample links in the order of 3 RTE samples, 3 RTH samples, and 3 RTC samples, then were asked to answer:

- 1) Do the description categories provide transparency in terms of product quality?
- 2) Are the description methods used in each description category transparent to you in terms of product quality? Why?

order to make sure of definition of "transparency," as it may differ, the definition from Cambridge Dictionary was provided as:

- The characteristic of being easy to see through (See through)

- The quality of being done in an open way without secrets (Open)
- A situation in which business and financial activities are done in an open way without secrets, so that people can trust that they are fair and honest (Business English)¹⁴⁾

4.2. Result of survey

The responses to Question 1 revealed that the expected transparency of categories was in the order of product summary (89%), food images and description (84%), packaging and storing information (76%), customer reviews (64%), how to eat/cook/store (43%), produce information (48%), brand information (36%), check list (34%), delivery information (32%), and related products (12%). Forty percent of participants found that the description methods of photographs and text, used in product summary, were transparent forms of description. Many responses included the comments "it is not a transparent method because the pictures are not accurately portrayed," "you only see a limited/partial view of the product" and "text information is too simple," "text descriptions contain information that I am not interested in," and "text information does not provide easy understanding of the product." the participants, 42% found that the description method of large photographs with text, used in brand information, was a transparent method of description. Comments included "since this is a relatively unknown brand, it feels like photographs are not supporting transparency or trust in the brand," and "understanding a novel brand is difficult just from seeing a few pictures." description method of text in a box, used in produce information, was found to be a transparent method of description by 68%, with comments that included "produce and ingredient information is more transparent and easy to understand in words," and "photographs provided in this category are unrelated to the product." description method used in food images and descriptions (multiple photographs and minimal text) was found by 68% to be a transparent method of description. Many comments related to participants' own level of expectation, such as "although the photographs may be slightly different from the actual product, it provides general understanding of product" and "I just need basic visual understanding of the product" (this differed by roles in categories). description method used in how to eat/cook/store (multiple photographs and minimal text) was found by 92% to be a transparent method of description. As the method was transparent to most participants, there were less comments on this category, but a few mentioned "the process of eat/cook/store is so simple that it does not confuse me." description method used in packaging and storing information (mid to small sized illustration or photographic images with minimal text) was found by 88% of participants to be a transparent method of description. Some comments included "multiple views and size ratio comparison provide transparency because it provides 3-dimensional information about the product that it makes me realize that this is an actual product, whereas food images are less realistic. It adds depth to the transparency." method used in delivery information (text in box) was found by 68% to be a transparent method of description, however many commented that they no longer thoroughly read this category as the delivery system in South Korea is so unified and standardized that it does not require a complex description. method used in check list (text in box) was found by 84% to be a transparent method of description. There were no additional comments in this category. method used in related products (small-sized photographs and text) was found by 38% to be a transparent method of

14) <https://dictionary.cambridge.org/dictionary/english/transparency>

〈Table 4〉 Analysis chart of perceived transparency of description categories

Description Category	Transparency %	Rank
Product summary	89%	1
About brand	36%	7
About produce	48%	5
Food images and description	84%	2
How to eat/cook/store	43%	6
Packaging and storing info	76%	3
Delivery information	32%	9
Check list	34%	8
Related products	12%	10
Customer review and questions	64%	4

〈Table 5〉 Analysis chart of perceived transparency of description methods

Description Category	Description Method	Transparency %
Product summary	Mid and small sized photographs and text	40%
About brand	Wide photograph with text	42%
About produce	multiple photographs and minimal text	68%
Food images and description	multiple photographs and minimal text	68%
How to eat/cook/store	mid to small sized illustration or photographic images with minimal text	92%
Packaging and storing info	mid to small sized illustration or photographic images with minimal text	88%
Delivery information	Text in box	62%
Check list	Text in box	84%
Related products	Small sized photographs and text	38%
Customer review and questions	text in box	42%

description. Comments included "although transparency of product quality is insufficient, it provides transparency of quality in proportion to the given role in the page."description method used in Customer review (text in box) was found by 42% to be a transparent method of description. There were some contrasting comments including "it provides transparency of product quality because it is an actual written experience of consumers" and "it is not transparent because one's experience and expectancy level is varying." However, there were multiple comments on how the photograph reviews provided transparency, much more so than the text alone.

5. Conclusion

5.1. Summary of conclusion

The results of the survey agreed with the previous literature's reviews and studies indicating that diverse uses of photography in online shopping are necessary. However, the responses had little relation with transparency of product quality in HMR products. The role of photographs was rather a description method to provide a general idea of the HMR product, as many participants responded that they simply needed a general briefing of HMR products. Among the interesting comments was "I am familiar with HMR products because I have become very experienced with a variety of HMR products in the past years, so I do not require transparency in HMR product photographs." This may be because young shoppers in this study are digital natives who constantly interact with diverse media. Staying connected provides constant subliminal exposure to information on diverse products. Even though the product may be novel, it may also be somewhat familiar to young consumers unconsciously. This study offers the conclusion that while photographs in product descriptions present the general idea of a novel product, they do not necessarily act as a transparent method of description for HMR products. However, text, preferably with the support of image captions, can provide more transparency than pictures in that words provide more accuracy in portraying or describing certain traits of HMR products. Image-driven description may be more suitable for providing a general explanation of an HMR product, such as product summary, food images and descriptions,

how to eat/cook/store, and packaging and storing information. Text-driven descriptions may be suitable for categories that demand greater depth of transparency, such as brand information or produce information, since the categories should provide a summary and history of a company or a farm within a small space.

Result of the survey was agreeable as the previous literature reviews and studies that diverse tries in photography in online shopping is necessary as , however, the result of the response had little relation with transparency in product quality in HMR products. The role of photographs were rather used as a description method to provide general idea of the HMR product, as many participants answered that they just need to know general briefing of HMR products. Some of the interesting comments were that, 'I am familiar with unfamiliar HMR products because I am very experienced with variety of HMR products in the past years that it does not require transparency in HMR product photographs.' This may be that young shoppers as the age of participants in this study are digital natives who are connected in diverse media 24/7. Staying connected provide constant unintended information with exposure to diverse products that even though the product may be novel, it may be in familiar to young consumers' eyes that although it may be new, it could be some what familiar to them unconsciously. This could lead to a similar conclusion found in study by Grunert and Fernandez-Celemin, that 35% of the participants in their study never looked at information such as lists of ingredients or nutritional information, explaining that already high cognitive load experience by consumers, the difficulties that consumers have understanding labels, or because participants may have purchased the products previously and so feel that they have sufficient knowledge about them.¹⁵⁾

The summary of the study brings an conclusion that photographs in product description is rather presenting general idea of a novel product, it does not necessarily act as a transparent method of description in HMR products. However, text, preferably with support of some graphic description, can provide more transparency than pictures, that words provide more accuracy in portraying or describing certain traits in HMR products. Picture-driven description may be more suitable for providing general explanation of a HMR product, such as product summary, food images and descriptions, how to eat/cook/store, packaging and storing information. Text-driven description may be suitable for categories that demand greater dimension and depth of transparency, such as about brand or about produce, since the categories should explain about a summary and history of a company or a farm in short time and space.

5.2. Limitations

As the age group of the study only included young participants ranging from 20 to 28, the result of the study may not be applicable to middle-aged or elderly age groups. Also, the results may vary depending on lifestyles, personality types, and beliefs of individuals. The study further does not provide results or conclusions relating to different kinds of HMR products other than RTE, RTH, and RTC. The results may be different among kinds of HMR products. There may be more specifics, variety in description categories, and methods that pertain to different online markets that are not covered in this study.

15) Grunert, K. G., Fernández-Celemin, L., Wills, J. M., Storcksdieck Genannt Bonsmann, S., & Nureeva, L. (2010). Use and understanding of nutrition information on food labels in six European countries. *Journal of Public Health*, 18(3), 261-277.

Reference

- Baumeister, R. F., Sparks, E. A., Stillman, T. F., & Vohs, K. D. (2008). Free will in consumer behavior. Self-control, ego depletion, and choice. *Journal of Consumer Psychology*, 18(1), 4–13.
- Cowburn, G., & Stockley, L. (2005). Consumer understanding and use of nutrition labelling. A systematic review. *Public Health Nutrition*, 8(01), 21–28.
- Gafurov Dilshodjon, Ho young shin, Kisu Kim Systems Review (2013) 「A Study of Uncertainty Factors Affecting Consumers' Purchase Intention in Online Shopping」 *Information Systems Review* Vol.15, pp.45–68
- Grunert, K. G., Fernández-Celemín, L., Wills, J. M., Storcksdieck Genannt Bonsmann, S., & Nureeva, L. (2010). Use and understanding of nutrition information on food labels in six European countries. *Journal of Public Health*, 18(3), 261–277.
- Grunert, K. G., Wills, J. M., & Fernández-Celemín, L. (2010). Nutrition knowledge, and use and understanding of nutrition information on food labels among consumers in the UK. *Appetite*, 55(2), 177–189.
- Hye Jin Kim, Kiseol Yang, and Young Eun Lee (2018) 「Moderating effect of trust and commitment in customer satisfaction and customer loyalty on mobile grocery purchasing quality」 *Journal of the Korean Society of Food Science and Nutrition* 47(2), 207~221
- Hyochung Kim, Meera Kim (2019) 「Analysis of Online Food Purchase Behavior and Factors Determining Online Purchases by Adult Consumers」 *Journal of the Korean Society of Food Science and Nutrition* 48(1) 97–108
- Toni Gomes, Ruper Andrew Hurley, Andrew Duchowski, Duncan Darby, Andrew Ouzts (2014) 「The Effect of Full Body versus Partial Body Graphic Labelling on Beverage Packaging」 *Packaging Technolgy and Science* Vol.27 pp.933–943
- Yael Benn, Thomas L. Webb, Betty P.I. Chang, John Reidy (2015) 「What information do consumers consider, and how do they look for it, when shopping for groceries online」 *Appetite* 89 pp.265–273
- <https://www.hankyung.com/economy/article/2019021410191>
- <https://dictionary.cambridge.org/dictionary/english/transparency>
- http://premium.chosun.com/site/data/html_dir/2015/08/07/2015080702293.html
- <https://www.yna.co.kr/view/AKR20190104116100030>
- <https://www.mk.co.kr/news/economy/view/2019/01/9939/>