

Investigating the Discursive Productions of Science in Advertising

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Abstract: This study examines the “scientization” of beauty in the print advertisements for skincare products in Taiwan. The notion of “scientization” used here refers to the ways in which science is deployed in the name of product research and development on behalf of the skincare industry. To examine the wider cultural significance of science in society, the study utilizes discourse analysis to grasp how the advertising contributes to the (re)production of the legitimacy of science and, by association, the claims made by the skincare industry about its products. The findings show that a variety of discursive strategies are adopted by the advertisements to construct the productions of science, including: 1) procedures of science, 2) numbers of science, 3) expertise of science, and 4) innovations of science. The advertisements in this study represent one of the most pervasive vehicles through which our current vision(s) of science are reflected, reinforced, and suspended in a drop of cream.

Keywords: Science, representation, skincare advertisements

1. Introduction

Since the rise of the women’s movement in the 1960s, the portrayals of women in the mass media have drawn scholarly attention in various disciplines. There is a lot of research that examines the social roles of women through predominant images of ideal female body and women’s physical appearance in advertising (Bordo, 2003; Courtney & Whipple, 1983; Ferguson, Kreshel & Tinkham, 1990; Hesse-Biber, 1996; Soley & Kurzbard, 1986; Tuchman et al., 1978). The roles portrayed by women in advertising are mostly shown in narrowly defined roles for women such as caring mothers at home, subordinate to men, or as charming sexual objects. However, in a field in which the stereotyped images of women in advertising are recognized, debated and challenged, what these analyses have not yet adequately addressed is how the advertising stimuli in the advertisements convince the potential female consumers to purchase the advertised products. In a culture of consumption, female particularly, a variety of skincare products are launched to promise either youthful looks or luminous skin. How to develop an efficient and attractive advertising content plays an important role in reminding, reinforcing or communicating product benefits to reach wider women’s markets.

After 4 weeks, 96% reported firmer and smoother around the eye areas (L’Oréal Paris’s *RevitaLift Double Lifting Eye*, 2012)

An advertising claim such as that shown above implies that consumers, particularly the female, will reap benefits from using a special skincare product. However, such claims must be presented with appropriate evidence-based statements. In the discourse of advertising, science seems to have become a crucial device to launch a product, to support descriptions and evidence of the product, and to lay claim to authority in providing facts about the product. The scientific claim made for products is the way in which advertising agents deploy science and scientific language to convey a selling message.

The importance of advertising medium in relation to science has been underestimated in the

tradition of studying the popularization of science. The majority of attention has been paid by media scholars to written texts and the study of how science is presented in newspapers (Myers, 2003, p. 272). Due to the pervasive and enduring presence of advertising in society, it is important to highlight how the presence of science is diffused through an oblique and informal channel, advertising. Therefore, this paper primarily addresses the following question: What are the social constructions of science in the advertising campaigns for skincare products to validate the claims made for the products and to convince the target consumers of the benefits of the products? The study aims to explore the way in which the skincare industry is instrumental in shaping 'science' in the era of the advertisements, without aiming to evaluate the scientific accuracy of the message itself made in this particular type of advertising. It is argued that the distinctness of advertising lies in its ability to accommodate the familiar forms of advertising with the underlying cultural assumptions of science to promise 'ideal beauty' for women.

2. Literature Review

2.1. The Skincare Market and the Ideal Beauty

According to a study done by Datamonitor (2011), the global skincare market is forecast to have a volume of \$94,694.6 million in 2015, an increase of 21.2% since 2010. There are some factors contributing to this growth within the global skincare market, including the rise of the ageing population, the increase of wealth in developing markets, the pursuit of perfect skin, technological progress and awareness of health and wellness.

Within the consumer culture, women are considered to perform certain femininity rituals to conform to prevailing standards of bodily acceptability. The media images of youth, firmness, and slimness, and so forth, have been taken up and practiced by women. Beauty has been seen as a prolific signifier of success, attraction and sex. Some scholars have indicated the key role that advertising plays in shaping femininity, "the attributes that are conventionally associated with the condition of being female within a specific culture" (Macdonald, 1995, p. 224). In the discourse of much beauty-related advertising, women are encouraged to examine themselves for bodily deficiencies which can be improved or operated by the commodity culture. Not surprisingly, many women worry about the contours of their bodies-especially shape, size and skin tone. Jhally (1990) has noted that "in modern advertising, gender is probably the social resource that is used most by advertisers" (p. 135). Thus, advertisements become one of the most important cultural factors moulding and reflecting women's life today (Williamson, 1978, p. 11). In consumer culture, women could take beneficial strategies such as the regimen of hair-care, skin-care, manicure and pedicure to fight against any problems related to their bodies. Under the influence of an expanding promotion with its propaganda for commodities, one of the most common beneficial strategies consumers choose is to spend money on commodities to prevent or solve problems in order to give an acceptable impression and appearance. The message is clear: people can do it as long as they spend money.

Commodification is the mode through which contemporary Western societies seek to ensure a minimal continuity in how people present themselves (Shilling, 1993, p. 92). The term, commodification, is considered as the means of winning recognition or confirmation in society. Hence, the beauty industry constructs an ideal form of 'commodified beauty' as an achievable goal through the commodification of the woman's body. Representations of ideal beauty in advertisements for cosmetics usually show women with flawless faces, full lips, big eyes and slender figures. As Goodman et al. (2008, p. 159)

suggest, female beauty is 'multidimensional'. The stereotypical definition of ideal beauty not only sells a product, but also offers a socially constructed idea of how women should look.

2.2. Science in Advertising

Generally, advertising is considered central to consumers' intention to purchase a product (Vestergaard & Schröder, 1985; Cook, 1992; Preston, 1996; Goddard, 1998). The discourse of advertising, an intrinsic part of modern culture, has an ability to exploit people and has established archetypal models on which people model themselves. "Advertising language is of course loaded language. Its primary aim is to attract our attention and dispose us favourably towards the product or service on offer" (Dyer, 1982, p.139). All of these studies admit that the main purpose of advertising is persuading. Advertising manifests trends and values of the social target at which it is directed and applies the target group's values and beliefs to the message (Douglas & Isherwood, 1996; Dyer, 1982; Myers, 1998).

Schrank (1998) categorized ten types of superiority claims used in advertising. One of the claims, the scientific or statistical claim, uses "some sort of scientific proof or experiment, very specific numbers, or an impressive sounding mystery ingredient." The adoption of scientific language in advertising is not only to back up the claims to help consumers make good purchasing decisions but also to intensify the public's belief in the credibility of scientific research. The link between science and business is demonstrated to be strong and revealing. The legitimacy of the claims and justification of the advertisements is pledged by science, which makes it easier for consumers to understand the indication given. The use of this persuasive strategy is, as Taillard (2004, p. 261) argues, "a communicative strategy available to communicators who, fearing distrust on the part of audience, emphasize the coherence or consistency of the information conveyed with beliefs previously held by audience".

Accordingly, there are three types of communication: pure information, pure expression and pure persuasion (Woodward & Denton Jr., 1996, p. 20). Nevertheless, there are some overlaps among these forms of communication. For example, the statement, *22% reported a visible reduction on crow's feet from Vichy Laboratoires's LIFTACTIVE/ SERUM 10* (2013), indicates the efficacy of the cream. In one sense, this number is a piece of factual information resulting from the experiment in Vichy Laboratoires's laboratory. In another sense, it is apparent that the advertiser intends to persuade the potential consumers into buying the product. As Woodward and Denton Jr. (1996, p. 21) argue, "a good deal of persuasion occurs under the pretext of information-giving".

A number of research studies have shown the importance of mass media and television in particular as the general public's main source of information about science and technology (House of Lords Select Committee on Science and Technology, 2000; Eurobarometer 55.2, 2001; British Association for the Advancement of Science, 2005). However, given advertising's prominence in introducing scientific concepts and sharing them with the general public, little attention has been paid by media scholars to the role of advertising in how science is depicted in the public domain. The reason for undervaluing the importance of the advertising medium in relation to science lies in the traditions of studying the popularization of science. In terms of the relationship between science and the media, traditionally, attention has been paid to written texts and the journalists' adoption of scientific language or scientific evidence in newspapers (Myers, 2003, p. 272). This is because they are the easiest materials to trace, collect and analyze (Gregory & Miller, 1998, p. 105). Besides, some studies have been concerned about the accuracy of the scientific information in the media. To make science a readable and accessible subject, the complex technical terms need to be translated into plain language. Thus, simplification and misinterpretation of the information become the most common complaints from scientists (Whitmarsh

et al., 2005, p. 49). Science has been given an inaccurate image by the media because journalists are not able to accurately translate the scientific and technological information into non-scientific language (Gregory & Miller, 1998, pp. 104-108).

Pitrelli et al. (2006) conducted a quantitative study to analyze the presence and use of science in the Italian press. The results demonstrate that the advertisements in the categories of 'pharmaceuticals' and 'body care' had the greatest number of examples of a rhetorical use of terms, charts and scientific images. It concluded that science has a consistent presence in advertising and the image of science that derived from this is a positive one. In 2008, a UK study was conducted to examine the view of British consumers about the scientific and pseudoscientific claims made in advertisements for functional foods and cosmetics. It indicated that scientific awareness plays an important role in consumers' ability to critically examine scientifically and pseudo scientifically based advertising claims (Dodds et al., 2008). Díez Arroyo (2013) analyzed the persuasive function of scientific language in cosmetic leaflets and beauty firm's websites. She (p. 210) concludes that the persuasive function of scientific language in skincare advertising relies on three important respects: 1) science is used as a source of credibility; 2) due to the media in its role as scientific knowledge disseminator, scientific claims benefits from the social impact of science; 3) scientific claims take advantage of the opacity of specialized terms for the laypeople.

Some studies on rhetoric have also found out that the rhetorical figure of 'expert' provides the guarantee and credibility of the product. The study by Eurobarometer 55.2 (2001) developed two questions to measure the levels of confidence in terms of Europeans' experience and perception of science and technology (p. 43-45). The first one was general, regarding the professions held in the highest esteem. It showed that the three professions held in the highest esteem by European citizens were those with a scientific and technical dimension: doctors came first, followed by scientists, and, in third place, engineers. The second question was concerned about who would be trusted for explanations in the event of a disaster. It was observed that scientists came first with 62.7%, followed by doctors with 55.3%. The voice of scientists has been generally regarded with authoritative respect. Science is widely believed to offer the objective truth; as Douglas (2004) and Steel et al (2004) assert, objectivity is an important factor for constructing scientists' credibility. A scientist's words carry weight in times of uncertainty (Gregory & Miller, 1998, p. 167).

In addition to the credibility of scientists, the use of numbers in news articles has been highlighted by some researchers. Bell (1991, p. 203) indicates that numbers not only "undergird the objective, empirical claims of news", but they also "express and enhance the news value of the story". Quantification "conveys a sense of 'transparency and objectivity', and calculation tends to be regarded as an impersonal, mechanical routine devoid of human emotion, desire and bias" (Campbell, 2000, p. 55). What is more, Van Dijk (1988, p. 88) asserts that numbers "are predominantly meant as signals of precision and hence of truthfulness". For van Dijk (2000), numbers are "the rhetorical device to suggest precision and objectivity, and hence credibility" (p. 46). His analysis of a news article from the British tabloid *The Sun* reporting on illegal immigration gives an example of "number rhetoric" (van Dijk, 2000, p. 47). He (p. 48) concludes that the frequent use of numbers and statistics rhetorically improves credibility and facticity of reports on ethnic affairs within the overall strategy of positive self-presentation and negative other-presentation. Moreover, Campbell (2000) states that newspapers in the coverage of criminal issues in the UK "utilize a range of numerical (and non-numerical) expressions to accomplish a variety of rhetorical goals" (p. 60). She (ibid, p. 63) claims that "the language of quantification – conventionally viewed as 'neutral' objective' and 'hygienic' – is a rhetorical medium through which criminal (and other social) statistics are made meaningful, and different political

standpoints are expressed”.

Therefore, the following study has sought to identify the way in which scientific references are represented in advertising messages in the pamphlets for skincare products to validate the claims made for the products and to convince the target consumers of the benefits of the products. In the findings reported in this study, four principal discursive productions of science are identified: procedures of science, numbers of science, expertise of science and innovations of science.

3. Method

For this study, a purposive sample of print pamphlets promoting skincare products was collected (Table 1) by the researcher from chain pharmacies such as *Watsons* and *Cosmed*, between April and August in 2012 in Taiwan. This resulted in a total of ten pamphlets in the sample, including brands such as *Avène*, *Dr. Wu*, *L'Oréal Paris*, *Olay*, and *Vichy Laboratoires*. Typical products were soothing spray, UV protective cream, cleanser, makeup remover, lifting cream, and whitening cream for female consumers. These pamphlets usually market more than one product and are comprised of two to five pages. The size of the pamphlets is about nine to twelve centimeters in width and eleven to fourteen centimeters in length. Eight of the pamphlets included advertising for more than one product.

As a qualitative design was adopted, discourse analysis was employed to investigate how discourse in advertisements involves people's construction of meanings. Thus, this study focused on analyzing the texts of beauty product advertisements. According to Fairclough, (1992, p. 8), discourse is a form of social practice, which “constitutes the social”. Advertisements seen as media discourse involve language and social processes. Hence, this framework is used to examine how the current productions of science in advertising discursively validate the claims made for the products.

While the sampling process is not strictly random, it is noted that *Avène*, *Dr. Wu*, and *Vichy Laboratoires* are cosmeceutical brands while *Olay* and *L'Oréal Paris* are the general skincare brands. Six pamphlets belong to the cosmeceutical brands and four are general skincare brands. The brands such as *Avène*, *L'Oréal Paris*, *Olay* and *Vichy Laboratoires* are international brands. *Dr. Wu* is a brand that was set up by Wu Ying-Chin M. D, a renowned dermatologist in Taiwan in 2003.

Table 1. List of Pamphlet

Brand	Country of Origin	Products
1.Laboratoires dermatologiques Avène: lotion hydratante	France	► Lotion hydratante
2.Dr. Wu: basic care for normal and sensitive skin	France	► Intense soothing spray with chamomile ► UV protective cream with tinosorb M SPF50 ► Gentle cleansing milk with amino acids ► Gentle soothing cleanser & make-up remover ► UV whitening cream with fullerene RS SPF 35 PA+++
3.L'oréal: Revitalift	France	► Double lifting eye treatment

4.Olay: White Radiance	USA	<ul style="list-style-type: none"> ▶ Pure white cream ▶ Pristine white essence
5.Olay: White Radiance	USA	<ul style="list-style-type: none"> ▶ Ultra UV protective fluid ▶ Fluid UV blocker ▶ UV protective cream ▶ Restoring cream ▶ Restoring emulsion ▶ Brightening essence
6.Olay: Regenerist™	France	<ul style="list-style-type: none"> ▶ Micro-sculpting super cream ▶ Night resurfacing elixi
7.Vichy: Normadermt	France	<ul style="list-style-type: none"> ▶ Tri-activ anti-imperfection hydrating care ▶ Anti-imperfection rejuvenating care
8.Vichy: Liftactiv CxP	France	<ul style="list-style-type: none"> ▶ Liftactiv CxP ▶ Liftactiv CxP essence ▶ Liftactiv CxP eyes ▶ Liftactiv CxP nuit
9.Vichy: Liftactiv Serum 10	France	<ul style="list-style-type: none"> ▶ Liftactiv Serum 10 ▶ Liftactiv ▶ Liftactiv nuit
10.Vichy: Bi-white Med	France	<ul style="list-style-type: none"> ▶ Deep corrective whitening essence ▶ Deep cell-whitening spot intervention

4. Findings and Discussion

After analyzing ten pamphlets for skincare products, the classification of the discursive productions of science is presented in Table 2. At this point it is worth mentioning that these categories are based primarily on their relevance to this study and should not be considered as an exhaustive list of categories. These categories are the principal ones used by skincare companies to present the scientific evidence which they believe will help the consumers to believe the claims made for the effectiveness of a product. The categories in Table 2 demonstrate the contemporary constructed concepts of science in a wider and detailed sense; however, these categories are not mutually exclusive. For instance, some of the discursive appeals could be categorized as both procedures of science and numbers of science, or even as any combination.

Table 2. Discursive Productions of Science in the Pamphlets for Skincare Products

Brand	Procedures of Science	Numbers of Science	Expertise of Science	Innovations of Science
1. Laboratoires dermatologiques Avène: lotion hydratante	V			

2. Dr. Wu: basic care for normal and sensitive skin	V	V	V	V
3. L'oréal: Revitalift	V	V		
4. Olay: White Radiance- pure white cream	V	V		V
5. Olay: White Radiance- ultra UV protective fluid	V	V		V
6. Olay: Regenerist™	V	V		
7. Vichy: Normaderm	V	V		V
8. Vichy: Liftactiv CxP	V	V	V	V
9. Vichy: Liftactiv Serum 10	V	V	V	V
10. Vichy: Bi-white Med	V	V	V	V

4.1. Procedures of Science

The discursive production of the procedures of science can be defined as any reference to the description or association of the manufacturing of the product, such as raw ingredients, testing / the product or experimenting with the product. According to Table 2, it can be seen that procedures of science is the most significant advertising appeal. Let's examine the examples to illustrate this point in Table 3. The examples highlighted in bold are referred to in the discussion below.

Table 3. Procedures of Science in the Pamphlets for Skincare Products

Laboratoires Dermatologiques Avène: Lotion Hydratante	Hyaluronic Acid, Sodium-P.C.A., Crambe Abyssinica
Dr. Wu: basic care for normal and sensitive skin	chamomile E.O., witch hazel extract, allantoin, Tinosorb M, sebayl [®] , Ac.net [™] , salicylic acid, fullerene RSTM; in DR. WU Research Center , based on 50 subjects with ages ranging from 20-50, Dr. Wu clinical satisfaction of use
L'oréal: Revitalift	pro-xylane, caffeine; 107 women tested in an independent laboratory
Olay: White Radiance- pure white cream	sepiwhite , Niacinamide, celLucent [™]
Olay: White Radiance- ultra UV protective fluid	complex natural herbaceous extract, UV protec [™] , TiO ₂ , vitamin B5, vitamin E
Olay: Regenerist [™]	Hyaluronic acid, lyslatine, pentapeptide-3/Leuphasyl, peptide, sea collagen, vitamin E, Aqua, Cyclopentasiloxane, Glycerin, Niacinamide, Aluminum Starch Octenylsuccinate, Dimethicone, Panthenol, Dimethicone Crosspolymer, Polyethylene; tested on 21 women with the application

	of Olay super cream in P&G research development center in the USA in 2006; tested on 10 Chinese women with the application of <i>micro-sculpting revitalizing essence water</i> in Olay Beijing research center in 2008
Vichy: Liftactiv CxP	eperuline, zinc, pca, LHA, salicylic acid, glycolic acid, sodium polyacrylate, vitamin E; after clinical tests on 53 Chinese women with oily and pimple-prone skin tested
Vichy: Liftactiv Serum 10	Highly concentrated with 10% of rhamnose ; 2 experiments of vivisection; clinical assessments after 4 weeks of use; test on 800 women with sensitive skin
Vichy: Bi-white Med	Vichy Thermal SPA water, Ceramide whiteTM, LHA, DRM-whiateTM ; clinical test of 8 weeks on 66 Asian women; clinical test on 400 Asian women with sensitive skin; tested and verified by dermatologists

Table 3 shows the predominance of scientific references to ingredients about the skincare products as specific stimuli in order to catch advertisement viewer's attention. In the sample analyzed, every pamphlet employed discipline-specific languages such as 'hyaluronic acid' (Avène), 'sepiwhite' (Olay) and 'rhamnose' (Vichy) etc. Vichy's Bi-white Med advertisement uses Ceramide whiteTM, LHA and DRM-whiateTM to illustrate the unique ingredients of their scientific ingenuity (Fig. 1). Greater attention is given to the development of 'smart' hi-tech ingredients, a bevy of exotic or difficult to pronounce ingredients, to make a range of skincare products. Note that we are neither asserting that these terms be properly used in the advertising content, nor that all consumers can comprehend them. Rather our focus is on the fact that the media has made the products' long-researched chemical structure accessible to the general public. Whether the advertisement includes single scientific term or a body of ingredients, reference to raw ingredients is made principally using signs from sector-specific language (chemistry, biomedical science and so on) that are difficult for a non-expert public to understand. However, it is indeed this kind of inaccessibility that assures the efficacy and values of the advertised skincare product. Advertising experts have the advantage of exploiting popular opinions and planning persuasive communication plans. As a disseminator of culture, the media, advertising in particular, has made the general public realized of the special scientific jargons including in medical and bio-chemical fields, known as 'science literacy' (Lewenstein, 1995, p. 358).

In addition, a series of tests through which all products must pass determine their effectiveness and safety. By presenting the information about the clinical trials, the advertisers are trying to display the positive evaluation of an item shown. Whether the trial is conducted in Dr Wu Research Center (Dr. Wu), or an independent laboratory (L'Oréal), or tested and verified by dermatologists (Vichy), the authoritarian voice of experiments is reflected to validate the advertisement's claims. The magical properties of the products dawn on a discourse of legitimacy that lies in the realm of proven results. Through reference to clinical studies, these advertisements legitimize people's trust in products through

people’s trust in science.



Figure 1. Vichy Laboratoires Bi-White Med

4.2. Numbers of Science

Numbers of science can be defined as any reference to the description of number or percentage. *Numbers of science* is the second most used advertising appeal in the sample (Table 2).

Table 4. *Numbers of Science* in the Pamphlets for Skincare Products

Dr. Wu: basic care for normal and sensitive skin	Gentle soothing cleanser & make-up remover: the result of cleanness 4.5 , the feelings of after cleansing 4.5 , 97% of satisfaction; In DR. WU Research Center, based on 50 subjects with ages ranging from 20-50 , Dr. Wu clinical satisfaction of use, increase skin hydration by 90.4% , skin firmness by 84% , the skin appearance by 88%
L'oréal: Revitalift	In the United States, 107 women tested in an independent laboratory, the instant result after 1 hour and long-term result after 6 weeks of use, L'Oréal Revitalist double lifting eye performs the best; in Taiwan, 52 women's self-evaluation after 4 weeks of use, 96% of skin feeling firmer around the eye area
Olay: white radiance- pure white cream	In Japan, based on 100 women aged between 18 to 55 after 3 weeks of use in June 2007
Olay: white radiance- ultra UV protective fluid	10 hours protection from the sun
Olay: regenerist	After 4 days, firmer looking skin, tested on 21 women with the application of Olay super cream in P&G research development center in the USA in 2006; after 10 minutes, 75% increase of hydration,

	tested on 10 Chinese women with the application of <i>micro-sculpting revitalizing essence water</i> in Olay Beijing research center in 2008
Vichy: Normaderm	After clinical tests, 53 Chinese women with oily and pimple-prone skin tested, after 4 weeks of use, reduce oiliness by 25.62% , improve black acne by 21.98% , improve crow's feet by 9.4%
Vichy: liftactiv CxP	Clinical assessments after 4 weeks of use, reduce appearance of wrinkles by 14.4% , increase firmness of skin by 9.5% , 98% women feel skin smoother; test on 53 women aged between 46 to 65 after 8 weeks of use, reduce the appearance of wrinkles around eye contour by 22.7% ; 1 solution for 3 big problems
Vichy: liftactiv serum 10	10 minutes, see the change; over 10 years of research, 7 patents, 6 pieces of clinical research, 6 papers in dermatology science journals, 2 experiments of vivisection; 10% concentration of rhamnase; in 10 minutes, smooth 10% of wrinkles and fine lines; clinical assessments after 4 weeks of use, 27% reduction of lines around the eyes, 22% reduction on crow's feet, 16% reduction of laugh lines, 17% reduction in forehead wrinkles, 14% reduction of line on the neck; clinical assessments after 4 weeks of use, the test on women aged between 45 to 55 with flabby skin and lines; improve skin tone by 91% , increase skin firmer by 93% , enhance skin elasticity by 94% , restore skin hydration by 96% ; Rejuvenate from the bottom of the skin, visible velvety smooth and elasticity 90%; test on 800 women with sensitive skin, 100% safe
Vichy: Bi-white Med	Clinical test of 8 weeks on 66 Asian women, reduce appearance of spots by 29% ; clinical test on 400 Asian women with sensitive skin, 100% satisfaction of whitening skin, even skin tone, bright skin and radiant skin

Table 4 reveals the use of figures and statistics as a source of valid information to make advertisements more compelling. For the sceptical people, quantifying the benefits seems to offer them reassurance. The use of numerical quantification provided by the advertisement placements replaces skincare's association with narcissism and beauty with an address to the twenty-first century women: aware, independent, knowledgeable and taking responsibility for their own future and well-being. As shown

in Table 4, *The result of cleanness 4.5, the feelings of after cleansing 4.5, 97% of satisfaction; based on 50 subjects with ages ranging from 20-50, increase skin hydration by 90.4%, enhance skin firmness by 84%, improve the skin appearance by 88%* presented by Dr. Wu's (Fig. 2), a series of skincare products for normal and sensitive skin, includes different kinds of quantifiers to assure the consumer about the performance of the products. Percentage - 'increase skin hydration by 90.4%' or '97% of satisfaction' is a precise proportion which conveys a sense of 'effectiveness' about the products or informs the female readers about the number of women whose (reported) experience with the advertised product has met or even exceeded expectations. The use of percentage is, on the one hand, another persuasive technique which marks a mathematical quantity, and on the other, carries the connotation of scientific credibility and expanded quality. However, reference to percentage also suggests that the product has been researched and that its effectiveness can be empirically proved. Juxtaposed with the precision - 'the result of cleanness 4.5', has the effect of shifting the focus onto an altogether different order of 'number'. Moreover, the number of the subjects '50 subjects' combined with the age 'ranging from 20-50' implies that the product had been experimentally tested on specific groups of people; women aged between 20-50 are guaranteed the compelling proof of the performance of its products. Readers are actively encouraged to see the increase in skin hydration, enhancement in skin firmness and improvement in skin appearance as 'substantial' rather than 'small'. Another numerical expression is time period; as the L'Oréal's extract shows, *in Taiwan, 52 women tested, after 4 weeks of use, 96% of skin feeling firmer around the eye area*. '4 weeks of use' is constructed to indicate the rapid benefits resulted from using the advertised beauty products and points to the fact that the advertised product will take effect at some point in the very near future.



Figure 2. Dr. Wu's Basic Care for Normal and Sensitive Skin

As illustrated by the examples above, all the expressions of time period perform a strengthening function to "condense" time, so to speak, in that they underscore the quickness of the advertised products to achieve impressive results. The percentage statement '96% of skin feeling firmer around the eye area' is supported by the expression of time. A combinational quantifier is employed to render L'Oréal's product as 'substantial'. The rhetorical effect of this technique is to invent for the reader a 'hierarchy of concern' about particular products. Five different kinds of numerical statements, percentage, precision, the number of women, age, and time period, presented in these pamphlets except Avène, offer different levels of conceptualisations of the 'scientific number'. This quantifying and intensifying manoeuvre, indicating the processes and practices of measurement and enumeration, not only enhances the

rhetorical effect of the advertisement, but also optimises selling potential.

4.3. Expertise of Science

The appeal to *expertise of science* can be defined as any reference to the medical fields or professions, such as dermatology.

Table 5. *Expertise of Science* in the Pamphlets for Skincare Products

Dr. Wu: basic care for normal and sensitive skin	Dr. Wu clinical skincare, Dr. Wu's professional research and developments principles
Vichy: Normaderm	Under dermatologist's test
Vichy: liftactiv CxP	After clinical test by dermatologists ; under dermatological and ophtalmological control
Vichy: liftactiv serum 10	After clinical test by dermatologists ; 22 nd World Congress of Dermatology Seoul 2011, the newest breakthrough of anti-ageing the newest breakthrough of anti-ageing
Vichy: bi-white med	22 nd World Congress of Dermatology Seoul 2011, the new breakthrough of whitening

Table 5 presents the medical professions in the pamphlets for skincare products. Such references to the medical professions should be considered within the current context of the media's role in constructing links between science and society. As far as the presence of medical professions in the sample analyzed is concerned, dermatologists, iconic representations of authoritative spokes-persons, are equated with the symbolic authority of the scientist, whose work takes place in a specialized environment among people with professional training and specialized equipment. As employed in the examples above, Dr. Wu and dermatologists become the "source" from which Mr. Wu from the brand, Dr. Wu clinic, and dermatologists from the brand, Vichy, are recognized as distinctive cultural codes of appeal to the general public. In addition, the acknowledgement of 22nd *World Congress of Dermatology Seoul 2011* from Vichy's liftactiv serum 10 (Fig. 3) can be a symbol of an authoritative institution within a culture that relies on experimental evidence to support advertising claims.

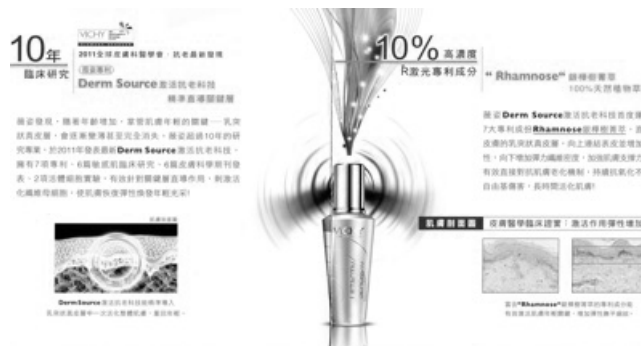


Figure 3. Vichy's Liftactiv Serum 10

Experts of science can serve a number of purposes in an advertising campaign for skincare products, including setting the context, legitimizing the research by skincare companies, providing a limited sort of credibility, and reflecting the efficacy of the products. Routinely, medical professions such as dermatologists are attributed by a special status in the mass media and are demarcated from the laymen. To speak in the name of dermatologists, the brand advertisers try to deliver their credentials to support the claim that the product could either hydrate the skin or make it look beautiful. More importantly in terms of advertising appeal, this effect has been established following research-sourced empirical evidence by medical professions, particular dermatologists. Since scientific and medical institutions are considered to have access to knowledge/ power beyond that of the lay persons, references to them in the advertisements may be made in order to instil such necessary credibility on behalf of the consumer.

Medical scientists and doctors have been put in the role of experts in advertising campaigns for skincare products for explanation, context, perspective, clarification and recommendation. A widely shared belief among the public and scientists is science's distinctive authority, purported predictive power and objectivity (Ravetz, 2003). Scientists' academic reputation, their abilities and the qualities of their work and characteristics of the research process are the basis for credibility of scientists or experts (Barnes, 2005; Ravetz, 2003). Hence, the reference to a medical profession is used predominantly as a source of validity of the products or the veracity of the claims. A dermatologist's role in advertising is cast as a 'shield' and a 'tool of persuasion' to promote particular products.

4.4. Innovations of Science

The discursive appeal to *innovations of science* can be defined as any reference to a specifically innovated ingredient, technique, formulation or a product, especially those that are granted legal protection by way of a patent. Let's examine the examples in Table 4 to illustrate this point.

Table 6. *Innovations of Science* in the Pamphlets for Skincare Products

Dr. Wu: basic care for normal and sensitive skin	The breakthrough sunscreen and blocking agent: Tinosorb® M, sebayl®, fullerene RS™
Olay: white radiance- pure white cream	cellLucent™
Olay: white radiance- ultra UV protective fluid	the most powerful facial sun protection, the unique isolation technique- UV protec™
Vichy: Normaderm	Patented eperuline, zinc, PCA, New Normaderm, the first product to target the signs of ageing for oily skin
Vichy: liftactiv serum 10	Vichy's patent - Derm Source, 7 patents
Vichy: bi-white med	New bi-white med, ceramide white™, the first high concentration product targeting spots

Regarding the *innovations of science* in Table 6, this advertising appeal reflects the efforts of scientists directly related to developing skincare products and technologies. The unique *isolation technique- UV protec™* from *Olay white radiance- ultra UV protective fluid* (Fig. 4) and *patented eperuline, zinc, PCA, New Normaderm, the first product to target the signs of ageing for oily skin* from *Vichy: Normaderm* carry additional meanings. These unique techniques and patented eperuline are innovated in specialized environments among people with advanced training and specialized equipment, and are claimed to

exfoliate, balance and rebuild the skin in a very effective and mild way. The modern idea of innovation is considered to be economic technology and technological innovation in a positive sense.



Figure 4. Olay's White Radiance- ultra UV Protective Fluid

The use of innovation in skincare advertisements has a positive connotation as the introduction or application of the scientific method in useful arts: professional and, to a certain extent, industrial. **The first innovation of future biochemical anti-ageing technology- smooth wrinkles and firm skin from Vichy: liftactiv CxP** is talked of in terms of utility, the dominant meaning of innovation today, linking science to technological innovation. Patent application, such as *cellLucent™* from Olay: *white radiance-pure white cream* connotes a technological product or intellectual property which is invented in the space called 'laboratory'. Like the special signing apparatus, traffic lights, the mark™ is an operator within a particular discourse. A trademark is "a recognizable sign, design or expression which identifies products or services of a particular source from those of others" (Wikipedia, 2014). Products described with the sign® or ™ imply that the technologies were innovative and unique. Such emphasis on patented chemical concoctions might serve to imply that a visible and clinically identifiable improvement to the skin is expected to reach the idea of female beauty.

4.5. The Discursive Construction of the Consumer's Knowledge

One gimmick that is normally deployed in advertising is to establish the consumer as having a problem for which the advertised product is shown as a solution (Winter, 1982). In this study, the underlying discourse is about presenting skin itself as problematic in terms of beauty and youth. These problems range from more serious ageing mechanism issues to the hassles of acne-prone skin. The common sense assumption endorsed in such advertising is that women wish to use products to help them appear velvety smoother, and promises are made of "scientificized" solutions for looking beautiful. The notion of the strategic use of science as an advertising weapon, however, implies a conscious filtering of advertising information for consumers' needs. The discourse of science in advertising for skincare products has become symptomatic of knowledge. Advertisements for skincare products particularly stress the connection between the consumer's knowledge, the scientific community and the commodity. The language of 21st century's advertisements addresses a readership now well versed in the properties of the skincare products. These brands enlarge the female consumer's vocabulary at the same time as

they promise to extend the resistance of her skin.

According to Irwin and Wynne (1996, p. 6), traditional views on the issue of 'public understanding of science' contain three aspects: 1) there is an apparent assumption of 'public ignorance' in matters of science and technology, such as a basic understanding of science facts, theories and methodologies; 2) science is an important force for human improvement and offers a uniquely privileged view of the everyday life; 3) science is unproblematically 'scientific'- it represent the *only* valid way of apprehending nature. As far as the portrayal of scientific content in advertising in the sample analyzed is concerned, it is argued that advertisers do confirm these traditional beliefs through various portrayals of science. At the same time, the skincare industry is instrumental in shaping 'science' in the era of the advertisements that allow for innovation in its scientized mode of address. *Expertise of science* is invoked to provide authority and credibility. Medical science is generally one of the most highly regarded professions. Hence, it is not surprising that dermatologists are often used as an effective tool for promotional purposes and for selling skincare creams through advertising to give the brand and the product the identification, credibility and assurance. *Innovations of science*, the solution offered, i.e. the product or patented eperuline from *Vichy: Normaderm* is constructed as the best one because their methods are backed by *procedures of science and numbers of science*. Therefore, it is further argued that the distinctness of such advertising lies in its ability to accommodate the familiar forms of advertising with the underlying cultural assumptions underlying the public's understanding of science to promise 'ideal beauty' for women.

5. Conclusion

This paper has examined and identified that the representations of science are constructed positively as a solution to any skin problems for women. Advertisements contain research-sourced empirical evidence and their resultant products are linked to and sympathetic to women's concerns about their skin. It also found that the advertisements for the skincare products made use of references to scientific evidence as rhetorical tools to develop a sense of credibility of the product, which somehow claims (usually implicitly) that the producers are able to guarantee the efficacy and value of the advertised product and brand. This analysis enables us to see and read into the advertisements, the ideologies out of which it is produced. The advertising campaign for the skincare products invokes the stereotyped images of science; for example, *procedures of science*, *numbers of science*, *expertise of science* and *innovations of science*, as identified in this research. The effectiveness of the product has been specifically quantified with the improvement of percentage or the efficiency of time by contemporary skincare companies. The concept of science was presented as a 'help' or 'solution' for women to achieve beauty. The term 'laboratory' included as a part of a brand name has been found in *Vichy Laboratoires*, which suggests that the scientists, as the role of credibility, are involved in the production of products. Key ingredient claims have increasingly been employed as the significant language in advertising. The claim to medical expertise and authority, as authoritarian figures ordering for women what to buy and why, has dominated the advertising campaign for beauty culture. Deference to scientific authority is a central value predisposition shaping support for the strategic use of science in advertising. The authority of science has substantiated people's concerns for the effectiveness of the products.

Such practices of highlighting the function of science at various stages of production central to cosmetics advertising have contributed to the public understanding of science that circulates in society. As van Dijk (2003, p. 183) asserts, the role of media serves as "an important cultural arena, where

scientific knowledge is not just mediated but constructed”, and the place “where science meets the public” (Gibbons, 1999, C83). Moreover, such practices have been positioned in relation to resolving a woman’s experience of problematic skin. This suggests that the skincare industry has relied on the scientific discourses to provide an opportunity to improve its products, add value and increase profits in an increasingly tough market for skincare. More importantly, the use of scientific discourses in the beauty advertising campaigns is the skincare industry’s effort to maintain public confidence in consumers’ decision-making in order to ensure the reproduction and maintenance of its position in women’s lives.

Compared with other research into the role of women represented in advertising, the case of skincare advertising has an interesting character: advertisers are communication professionals, yet their aims are not to spread the knowledge of science, nor are they professionals in science communication. Nevertheless, they construct scientific jargons and present explicit references to science in general. Considering the fundamental role advertising plays in the consumer economy, it is therefore important to highlight how the presence of science is diffused through the oblique, non-specialist channel, advertising. With the general belief in scientific advancement, the skincare industry has offered women a proliferation of scientifically innovated solutions: skincare products imbued with innovative ingredients, additional nutrients and health-promoting properties from their laboratory. The clinical study of efficacy of using the products to treat the problematic skin has illustrated that the nature of beauty can be achieved through the scientified capacities of products. The scientified innovations of skincare products constitute the most comprehensive products offering in the market to promise ‘scientified beauty’. The disciplinary project of ideal beauty such as youth, firmness, being wrinkle-free, can be ‘scientified’ with the promise of scientific breakthrough—a purchasable commodity. The constructions of science that advertisers choose to adopt reflect values held by the advertisers and the culture in which people exist. Medicalize the human body and scientify beauty. With a pot of cream that combines functionality, scientificity and healthy-looking beauty, women’s flawless form of beauty can thus be scientified.

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