Mediating science and nature: Representing and consuming infant formula advertising in China

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Abstract
This article analyses the representation and consumption of infant formula advertising on Chinese television, following the food scare of 2008 when milk supplies were contaminated with the poisonous chemical melamine. Drawing on the concepts of encoding/decoding and ‘circuit of culture’, the article investigates how the Chinese dairy industry encodes the messages of food safety and quality in their advertisements, and how parents decode these messages as part of their daily risk management strategies. Combining a critical analysis of advertising imagery with focus group and interview evidence regarding its consumption, the article suggests that the dairy industry juxtaposed images of science and nature to mediate messages about the quality and safety of infant formula. The study’s evidence confirms that Chinese consumers decode these messages based on their previous experience and knowledge, exhibiting considerable ambivalence about the advertising of infant formula and reflecting significant anxiety about the product’s quality and safety.

Keywords
Encoding, decoding, circuit of culture, infant formula, food scares, TV advertising, science, nature, China

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Introduction

In the context of our current work on consumer anxieties about food, this article analyses how the Chinese dairy industry encodes messages of food safety and quality in their infant formula (baby milk) advertisements, and how parents decode these messages as part of their daily risk management strategies following the food scare of 2008. Unlike many food scares, the contamination of infant formula was not accidental. It was caused by unscrupulous merchants watering down milk in order to increase its volume, adding melamine in order to enrich its protein content artificially. The issue caused an international scandal, culminating in hundreds of babies being hospitalised with kidney problems, several of whom died. Having initially tried to cover up the problem, the authorities later prosecuted many of those involved, several of whom now face long prison sentences, and two of whom were executed. One of the main companies involved in the scandal, Sanlu, went out of business and numerous dairy company employees and municipal officials lost their jobs. Following the food scare, consumers manifested a high level of distrust of the government sectors that were in charge of food safety regulation and supervision, as well as the Chinese dairy industry, of which some 22 companies were implicated in the infant formula scandal (Qiao et al. 2010; Xinhua News Agency, 2008; Zhang et al., 2010). The Chinese dairy industry then faced serious problems restoring consumer confidence in local (domestic) brands, as the sale of imported brands soared despite their significantly higher prices (Gong and Jackson, 2012).

This article explores TV advertising campaigns after the food scare as dairy companies tried to restore consumer confidence. It examines the content of TV advertisements for Chinese-produced infant formula, and analyses how images of science and nature were encoded to mediate messages of food safety and quality. It also uses focus groups and interviews with parents and grandparents to understand how consumers decode such messages (other family members such as aunts also are involved occasionally in baby care). We begin by outlining the role of advertising in contemporary China and the capacity of audiences to make sense of media representations. We then outline the research methods before turning to the core of the analysis, examining how images of science and nature were combined artfully in mediating messages about the quality and safety of infant formula in the wake of the food scare. Our evidence suggests that Chinese consumers exhibit considerable ambivalence about infant formula advertising, as they decode these messages based on previous experience and knowledge. Both the representation and consumption of the advertising messages should be understood within the wider social context, including the prevalent medicalisation of childcare in China which has accompanied recent neoliberal reforms. The article concludes that in the absence of independent medical advice and affordable medical treatment, infant formula companies can make ill-founded health claims for their products, and employ dubious promotional tactics.

Advertising in contemporary China

After the economic reforms and Open Door Policy introduced in the late 1970s, state planning in China began to give way to a more market-oriented economy. Following two decades of material deprivation and anti-consumerism, advertising began to play a more prominent role in communicating product information to consumers. Since the Chinese
authorities allowed newspapers and television to carry domestic and international advertisements for the first time in 1979 (Anderson, 1981), the Chinese consumer market, including the advertising industry, has expanded rapidly, with growing gross domestic product (GDP) per capita, accession to the World Trade Organization (WTO) and increasing disposable income among the middle class (Cheong et al., 2011; Paek and Pan, 2004; Wang, 2000, 2003, 2008; Zhou et al., 2002). The growth of the advertising industry has been particularly boosted by foreign advertisers and multinational advertising agencies (Hong, 1994; Sinclair, 2008).

While the consumer and advertising markets kept expanding with increased urbanisation and globalisation, patterns of Chinese consumption have changed. Consumption has shifted from domestic utilities (e.g. washing machines) to personal goods and services with more symbolic value (Curtis et al., 2007; Davis and Sensenbrenner, 2000; Hopkins, 2010; Klein, 2006; Yan, 1997). While some scholars believe that consumption was an economic driving force in the 1980s and 1990s (Latham, 2006), others were critical of consumerism, as it encouraged materialism and money-worship in China (Zhou, 2008). Coinciding with these changes, advertising techniques have become more sophisticated. Direct, hard-sell and rational approaches are being increasingly replaced by indirect, soft-sell and image-oriented appeals (Chan, 1997), and variations of the ‘rational’ and ‘emotional’ approaches are being flexibly used based on the demographic, regional and socio-economic background of Chinese consumers. Complex advertising campaigns based on identity formation and symbolic values have become effective in particular among young and urban consumers (Cheong et al., 2011; Ferry, 2003; Paek and Pan, 2004; Zhou and Hui, 2003). Conversely, some literature has demonstrated that audiences are becoming increasingly sophisticated in their reading of media messages, and that consumer responses are becoming increasingly diverse (Donald et al., 2002; Zhao, 2008).

Encoding/decoding and the ‘circuit of culture’

While earlier work on the cultural politics of advertising has focused predominantly on the analysis of media representations (including the visual and verbal content of advertising images), more recent work has included other aspects of the ‘circuit of culture’, including the interconnection between different moments of representation, identity, production, consumption and regulation (du Gay et al., 1997). The circuit of culture model has provided a theoretical and methodological framework to analyse the ‘biography’ of cultural texts and artefacts (du Gay et al., 1997). In this article, we engage with the circuit of culture model and focus particularly on the representation and consumption moments. We also use the concept of ‘encoding/decoding’ (Hall, 1997; Morley, 1980; Schroder, 2000), which proposes more complex understandings of how viewers and audiences make sense of media texts and images, especially how their pre-existing knowledge, experiences, beliefs and background can influence the ways that they decode the messages. Audience studies, including the work of Ang (1991, 1996), Morley (1992) and others (e.g. Silverstone and Hirsch, 1992), directed attention to the domestic context of media consumption, and reached more positive conclusions about the capacity of audiences and viewers to engage critically with mass media than was assumed in earlier theories of media reception, where audiences were conceived of in more passive terms.
Method

Previous research shows that TV and print media (including newspapers, magazines and scientific publications) are the preferred advertising media for infant formula products (Matthews et al., 2009), and it is well established that advertising investment in television has far exceeded that in other media platforms such as newspapers, magazines, radio, outdoor billboards and the internet in China (Huang et al., 2010). In 2006, TV advertising expenditure took up more than 80 percent of the total advertisement expenditure in China (Nielsen Media Research, 2006). The above statistics show that TV advertising has the widest reach among Chinese consumers and it is the most visible dimension of producer–consumer communication in our study of the representation and consumption of food safety messages.

Sample and data collection

Infant formula advertisements were collected from Adtopic.net, one of the most comprehensive advertising video websites for industry and academic use in China. The videos of infant formula advertisements were retrieved from a keyword search on the website search engine, and filtered again through manual search. We used the keyword nai fen (milk powder) to search the videos. In Chinese, infant formula is usually called ‘(baby) milk powder’. During the manual search, milk formula advertisements for adults (e.g. pregnant women and seniors) were excluded. In total 69 advertisements from 32 brands were collected, covering a two-and-a-half-year period from March 2008 to September 2010. We analysed advertisements broadcast both before and after the melamine scandal (September 2008), in order to compare whether the most salient themes of the advertisements were affected.

Data analysis

The most notable themes of the advertisements were identified through repeated viewings by the researchers. These themes then were developed into a variable with 19 values, including the following: nature (farm, cow, etc.); science and technology; assurance of safety and quality (institutional, organisation, etc.); assurance of safety and quality (personal testimony); aspiration (success, achievement, etc.); nutritional and health benefits; foreign ownership; gender of care provider (mother, father, mother and father); family (nuclear, extended); digestion and dissolvability; green, organic; specially designed for Chinese babies; protection; goat milk; parental love; charity, public interest; responsibility, dedication; n/a; other.

Each advertisement was coded using the Statistical Package for the Social Sciences (SPSS) for a preparatory content analysis, in order to describe the frequency of the themes to ‘establish significance not statistically, but in the sense of importance’ (Schegloff, in Wood and Kroger, 2000: 138). In the pre-analysis, we found that the themes of nature, science and technology and assurance were more salient during stages 2 and 3 (one year after the melamine scandal), and other popular themes were distributed more equally in all stages (see Table 1). Visual images and texts relevant to these themes were contrasted and compared systematically. In this article we focus on the themes of
Table 1. Frequency of most notable themes across five stages.

| Theme stage | Nature (farm, cow, etc.) | Science and technology | Assurance of safety and quality (institutional, organisation, etc.) | Assurance of safety and quality (personal testimony) | Aspiration (success, achievement, etc.) | Nutritional and health benefits | Foreign ownership |
|-------------|--------------------------|-------------------------|-------------------------------------------------------------|---------------------------------------------------|--------------------------------------|-------------------------------|----------------|
| Stage 1     | 0                        | 2                       | 0                                                           | 0                                                 | 5                                    | 9                             | 2              |
| Stage 2     | 6                        | 9                       | 6                                                           | 4                                                 | 6                                    | 6                             | 3              |
| Stage 3     | 2                        | 9                       | 7                                                           | 3                                                 | 5                                    | 1                             | 3              |
| Stage 4     | 1                        | 2                       | 1                                                           | 0                                                 | 5                                    | 11                            | 2              |
| Stage 5     | 0                        | 4                       | 1                                                           | 0                                                 | 2                                    | 4                             | 2              |
| Total       | 9                        | 26                      | 15                                                          | 7                                                 | 23                                   | 31                            | 12             |

Stage 1: March–August 2008 (½ year before the scandal)
Stage 2: September 2008–February 2009 (½ year since the scandal)
Stage 3: March–August 2009 (1 year since the scandal)
Stage 4: September 2009–February 2010 (1½ years since the scandal)
Stage 5: March –September 2010 (2 years since the scandal)
‘nature’ and ‘science’ in the most representative advertisements (for Wondersun and Firmus), including some comparative analysis with a leading international manufacturer (Dumex).

**Participants**

In addition to the analysis of advertising content (texts and images), we also used focus groups and interviews with parents and grandparents to investigate how they understood advertising campaigns which emphasised the messages of ‘science’ and ‘nature’ to assure food safety. Our focus group discussions with parents and grandparents of babies and young children (aged three months to two years) in Chengdu, the capital of Sichuan province, were conducted in February and March 2010 and March 2011. We asked open-ended questions about the participants’ babycare experiences, their understanding of infant formula advertisements, their sources of information regarding baby care, their feeding practices and perceptions of the safety of baby food both now and prior to 2008. Open-ended questions allowed the participants to explore their personal experiences, as well as other sociocultural and political-economic issues, in order to explain their decoding of food safety and quality messages in the advertisements. Twelve focus groups were conducted, lasting between 40 and 90 minutes. They were internally homogeneous in terms of role and social status (e.g. mothers from middle-class and above neighbourhoods, grandmothers from low-income neighbourhoods, etc.), with four to six participants in each group. 

| Group No. | No. of participants | Carer group | Social status                        |
|-----------|---------------------|-------------|--------------------------------------|
| 1         | 6                   | Mothers     | Middle-class and above               |
| 2         | 4                   | Mothers     | Low-income                           |
| 3         | 6                   | Grandparents| Low-income                           |
| 4         | 5                   | Grandmothers| Low-income                           |
| 5         | 5                   | Mothers     | Middle class and above               |
| 6         | 4                   | Grandmothers| Middle class and above               |
| 7         | 5                   | Mothers/    | Middle class and above               |
|           |                     | grandmothers|                                      |
| 8         | 4                   | Mothers     | Middle class and above               |
| 9         | 5                   | Grandmothers| Low-income                           |
| 10        | 5                   | Parents     | Low-income                           |
| 11        | 4                   | Mothers     | Middle class and above               |
| 12        | 4                   | Mothers     | Middle class and above               |

Focus groups were both audio and videotaped, transcribed in full, translated from Chinese to English and coded using NVivo8 (a qualitative analysis software package). The project received ethical approval from the University of Sheffield in January 2010. All participant names have been pseudonymised to protect their anonymity.
Findings and discussion

Narrating nature

This section analyses representations of nature in advertisements by infant formula companies, and how they were consumed by parents and grandparents in China using images from TV advertisements and focus group discussions. After the infant formula scandal in 2008, many dairy companies produced TV advertising campaigns to try to reassure their consumers of the safety and quality of their products. These campaigns took advantage of the relaxed regulation of infant formula advertising in China, using a variety of appeals to restore consumer confidence. In some advertisements (e.g. Nanshan), staff members from the dairy company (including the firm’s chief executive officer, a laboratory worker and a buyer) testified to the safety of the company’s products, claiming that they feed them to their own children. Other companies resorted to more conventional strategies, focusing on the scientific claims and alleged health benefits of their products. In many cases, idyllic images of nature (including idealised images of dairy farms) are juxtaposed with images of science (including lab-coated scientists and their laboratories).

For example, in a 15-second advertisement that Wondersun broadcast on a national television channel (CCTV 1) on 6 March 2009, a male voiceover asks ‘How do we make good infant formula?’ While the voiceover spells out ‘location, milk source and formula’, the screen shows a visual combination of all three elements (Figure 1). The voiceover continues: ‘All these are very important, but what is more important is conscience.’ The screen then switches to a group of Chinese and western scientists in white lab coats, standing together with their hands across their chests (Figure 2). (Mo liang xin, ‘Touch the heart [with the hand]’ is a phrase in Chinese meaning ‘with absolute sincerity and honesty’. This phrase is usually followed by a speech or an action.

Figure 1. Wondersun advertisement (1).
Image © Wondersun (reproduced with permission).
Therefore, the ‘hand-over-chest’ gesture in Figure 2 could be understood as a supporting statement to the ‘conscience’ claim of the advertisement. In Chinese, ‘conscience’ is translated into liang, good and xin, heart. The advertisement finishes by flashing up a series of pictures of smiling babies and showing several tubs of Wondersun infant formula, while the voiceover says: ‘For 45 years, Wondersun has insisted on making good infant formula with conscience.’

The emphasis on ‘conscience’ (liang xin) draws a distinction between Wondersun and other dairy companies that were implicated in the infant formula scandal, which were widely criticised by the media for their lack of business ethics and conscience. As one of the melamine-free brands, Wondersun benefited from the scandal and jumped from a third-tier brand to a second-tier brand in the Chinese dairy market (interview with Wondersun sales representative in charge of North-East China, 2010). However, even though the contamination occurred at multiple points in the production chain (milk collection at the farm, storage at milk stations and transportation to dairy manufacturers), this advertisement only addresses the first link in the chain (dairy farms). The location image reassures consumers that Wondersun’s dairy farms are located in green, open and clean (natural) fields. The farm in this advertisement is portrayed as an open green field, with sporadic grazing cows, adjacent to a lake and mountains under a blue sky. The complete absence of human figures or human-related subjects foregrounds conventional rural signifiers such as green grass and blue sky, invoking a romanticisation of the rural and idealised representations of nature.

The way that nature is depicted as undisturbed and pristine has its roots in the western romantic tradition (Paterson, 2006). Narratives of being pure, natural and green were present in food advertisements in the early 20th century (Domosh, 2003), and have become more prominent within the context of contemporary agri-food systems, with their characteristic separation of food production and consumption (Dimitri and Oberholtzer, 2010; Hollander, 2003; Wilk, 2006). The growing distance between
producers and consumers in globalised food chains, as well as outbreaks of food scares due to unsustainable food production systems, has created an imaginary space for food and beverage companies to sell their products, charging premium prices based on these imagined geographies. Consumer anxieties about unknown provenance, exacerbated by high-profile food scares, have made location, place and origin crucial aspects of food safety and signifiers of quality in food advertising in China.

The emerging narrative of nature in food advertising is associated with the growing number of affluent middle-class consumers in urban China, and their increasing embrace of natural food in their daily diet. Natural food (e.g. coarse-grained cereals), which was consumed traditionally in rural areas, is being increasingly recognised now as healthy, safe and natural among urban consumers. This is in accordance with the revival of *shi yang* (proper diet): a dimension of medicinal food in *yang sheng* (life nurturance or self-cultivation) in traditional Chinese Taoist culture (Farquhar, 2002; Liu, 2004). In this ancient way of using medicine and food, human beings are a ‘microcosmic reflection of a much greater whole that encompasses all forces of nature’ (Holland, 1999: 9). Such foods are thought to regulate various biological functions and bodily organs, nurturing human vitality (Liu, 2004). The interrelations of nature, body and food in this tradition are recreating the foundations for *shi yang* for the affluent middle classes, who are investing increasingly in food, health and spiritual well-being.

The consumption of coarse natural food among the growing urban middle classes has been referred to as a ‘romantic reappraisal’ of Chinese rural tradition (Griffiths et al., 2010). In their analysis of middle-class Chinese people’s visits to rural gardens located close to major cities, Griffiths et al. (2010) argue that the desire to go back to nature has been associated with urban migrants’ earlier experiences in rural China. As rurality often is associated with the suffering of middle-aged, middle-class consumers who experienced their adolescence during the Cultural Revolution, Hubbert argues that eating the coarse food that was common during that period fulfils strongly ‘cathartic functions of public memorialization’ (2007: 95). The meanings associated with the narrative of nature in China embody not only nostalgia at the personal or domestic level, but also a more politicised, collective reflection of a specific historical movement in the public domain. Nonetheless, with China’s rapid urbanisation and industrialisation, there have been rising demands for a more general daily consumption of natural products by many social groups other than the educated youth. The fact that the rural gardens discussed by Griffiths et al. (2010) are flourishing nationwide, and that people are willing to pay to enjoy nature (green fields, flowers, fresh air and coarse food), indicates an increasingly romanticised consumption of nature in China that shares many characteristics with the romantic tradition in the West (cf. Williams, 1973).

However, the meanings of nature in relation to baby food are quite diverse. There seems to be an inconsistency in the understanding of nature according to different dimensions of child care. While most urban baby-carers envision safer and higher-quality food (such as free-range eggs and vegetables grown with less fertiliser) coming from more natural environments in rural areas (Gong and Jackson, 2012), many parents also expressed their concern that the therapeutic diets in *shi yang* may not be suitable for young children, and that such diets may do more harm than good. Moreover, when asked if the images of nature in these advertisements would affect their decision to choose a
particular brand of infant formula, many of the focus group participants considered the images of nature a common feature of such advertisements, with little impact on their choice of brand. For example, one group discussed their reasoning as follows:

Wang Xiaomei: I have seen this too much.
Chen Wei: Too much. They all have it, cows and meadows. [referring to specific brands] Yili and Mengniu both have it. (Parents from low-income background, group 10)

Like these focus group participants, many others thought that the images of nature in these advertisements were unlikely to command their attention. This can be partly explained by widespread public distrust of deceptive and misleading advertisements in China (Hong, 1994). The most influential factor in their decision-making, according to the participants, was their babies’ experience of using the products. When asked to elaborate on this, participants talked about the physical condition of individual children when choosing between different brands: for example, brand X causes indigestion for this baby, but not brand Y. The usually paired adjectives ‘foreign’ and ‘better’ in describing infant formula seemed to appear less frequently at this point, and a process of decontextualisation seems to be occurring in which greater emphasis is placed on use-value over exchange-value (cf. Sayer, 2003), assessing how each brand may be suitable for individual babies. This shows a more complex set of criteria in baby food consumption than consumption being governed solely by symbolic values (being foreign), as indicated in previous group discussions.12 ‘Being foreign’ only provides a framework for new parents to select infant formula products with foreign ownership as their first choice. Their final selection is combined with other ‘rules of thumb’ (for example, whether the baby likes the taste of it, whether the formula causes dry mouth or constipation) that are ‘congruent with cultural frameworks that prioritise a number of other attributes such as taste and wholesomeness’ (Green et al., 2003: 50). At this point, although the reference to nature is highly valued in relation to solid baby food, it has not been linked to the images of nature in the infant formula advertisements to create a brand preference.

The ambivalence exhibited by parents also related to their differentiation of nature in Chinese and foreign contexts, their childhood experience of rurality and nature, and their rationalisation of the geographical locations of food production. Although the images of nature in the advertisements were unlikely to affect directly the decision of selecting formula brands (as demonstrated above), parents did use the images of genuine green pasture and blue sky as criteria to judge the location of food production in general terms. The criteria were particularly applicable to foreign brands that were thought to be produced in truly unpolluted and natural environments. After expressing their distrust of images of nature in the Chinese infant formula adverts, two mothers said:

Dai Mingyuan: New Zealand has the best milk source in the world.
Researcher: Why do you think so?
Wang Zhi: It’s less polluted there, and there are very few people too. (Parents from low-income background, group 4)
Childhood experiences in rural villages among some parents also shaped their decoding of nature. While most parents criticised the general natural images used in Chinese infant formula advertisements as untrue representations, some recalled images of nature from their own childhood experience in villages, and used those nostalgic images of rurality to support the safety and quality of local infant formula products:

- **Li Min:** Look at that blue sky and white cloud in that ad… (mother from low income background, group 10)
- **Chen Wei:** Chengdu has no blue sky and white cloud. (father from low income background, group 10)
- **Wang Xiaomei:** My husband chose Hongya [a small county 120km from Chengdu] infant formula for my little boy. He [husband] grew up there, and he knows the pasture there. The environment [there] is better and the air is fresher. (mother from low-income background, group 10)

Others parents shared less romantic and nostalgic sentiments, and took a more rational approach towards these images in terms of the location and economics of production. One mother said that the images promoted in the advertisements provided her with a reference point, but other criteria such as having a safety certificate were applied when she decided to choose a domestic brand which was considered risky and almost unacceptable by most of the focus group participants:

> I use the images in the ad as a reference. I’m thinking about using Wondersun, because it is from Helongjian where there is good pasture and environment. I know for a fact that there is good, pure raw milk that doesn’t have to travel thousands of kilometres to other parts of China. There should be plenty of milk sources for local dairy companies. If the formula was produced right next to the dairy farm, it should be safe. (Fang Fang, mother from middle-class and above background, group 8)

This mother drew on her knowledge of the 2008 food scare (which resulted from demand outstripping production) to interpret the message. In addition, her explanation demonstrates her understanding of how food safety risks increase as the length of the supply chain increases. Knowledge of the cost of milk production helps her critically decode the messages in the advertisements, reaching an alternative perspective on food safety. Her decoding of the messages also demonstrates a consumer-citizen dimension, in that she was actively searching for and verifying information from the advertisements, and using an ethical assessment of food miles to evaluate the way that food was produced.

Similar inconsistency in the understanding of nature is demonstrated in contexts where nature is considered as a holistic environment for children to grow up. Following the discussion of safer food in rural areas, a group of grandmothers originally from rural China began to explore the idea of raising their grandchildren there in order for them to benefit from fresh vegetables and free-range eggs. The group expressed mixed feelings about rurality:
Yang Guifang: This kid was born in Chengdu. If he goes back [to the rural area] he’ll get a rash. Those are red, big and very itchy. Nasty.

Liu Shuhui: It won’t work. He can’t get used to the water and soil there.

Researcher: Do you think it is because of the bugs, like mosquitoes that cause the skin problems?

Li Ruping: No, it’s the water.

Liu Shuhui: The water. Water here [in Chengdu] is disinfected, but it’s not there [in the rural area].

Li Ruping: That’s why, he has no antibodies.

Yang Guifang: My mum gets water from the foot of the mountain. It is cleaner than the tap water here.

Liu Shuhui: It is cleaner.

Yang Guifang: But he still gets a rash. (Grandmothers from low-income background, group 9)

Water, the most common materialisation of nature, is associated with purity (clean water from the foot of the mountain) and peril (giving a nasty rash to children). Consumer perceptions relate to both the romantic side of nature that revitalises, and the dark side of nature that destroys. The rather contradictory understanding of water (cleaner but gives children a rash) also reveals an ambiguous understanding of rurality. Because of the social inequality based on status, class and rural/urban divide in China, the participants from rural areas are stigmatised as backward, provincial and inferior (Gong and Jackson, 2012). However, as food scares often recur in cities, and food from the rural is deemed increasingly as safer, the rural is re-evaluated in comparison with the urban; but this high re-evaluation of the rural is not always consistent. While the participants supported the view that the natural environment is associated with ‘unproblematic’ foods such as meat, fruit and vegetables, they also worried that some aspects of nature, such as soil and water, may not be suitable for urban-born children.

The above examples show that the participants engaged with the message of nature from various perspectives, reaching different conclusions regarding the safety and quality of infant formula in relation to nature. While some parents reinforced the image of nature in the advertisement with their nostalgic memory of the past, others critically assessed the image with an analysis of the food production chain. Ambiguity in consumers’ understanding of rurality also underlies conflicting perceptions of water, the materialisation of nature, as both pure and perilous.

**Selling science**

In this section, we turn to the representation and consumption of science in the advertisements. In addition to analysing images and evidence from focus groups, we also extend our discussion to the wider social context in which these advertisements are consumed, including the medicalisation of childcare, prevalent parental anxieties and neoliberal healthcare reform in China – all of which, we argue, are relevant to the advertising of infant formula.
In a 30-second advertisement for Firmus infant formula, the production processes are shown in a sequence of frames made up of images and texts. These frames are accompanied by some gentle piano music. Unlike the Wondersun advertisement (shown in Figures 1 and 2), in this case images of nature are juxtaposed with images of science, or even seamlessly connected within the same frame, with the blue sky floating above images of an industrial processing plant (the text confirming that 300,000 purifying procedures are used, which meet international standards). After two frames showing lab-coated scientists and another frame of the green earth, the product itself appears in a beaker-like container. In this advertisement, a complex production process has been reduced to two locations: farms and laboratories. The only humans involved in the production process are scientists. Nature and science coexist harmoniously, with no apparent conflict.

First broadcast in November 2008, this advertisement focuses on farms as a symbol of the safety and quality of the milk. The heart shape made by the group of scientists (in white lab coats) and managers (in dark suits) standing together, could be interpreted as a retort to the lack of business ethics which led to the 2008 infant formula scandal. These few images take up about 20 seconds of the advertisement, and are followed by a few frames which show a baby reaching up to a tub of Firmus formula, a mother holding the baby and the baby happily playing with the tub. The message contained in the advertisement is of a highly simplified process of formula production, with a reassuring combination of science and nature, leading inexorably to satisfied babies and contented mothers. Yet, as we have seen, the apparent transcendence of nature and science in such a seamless fashion, involving idealised images of nature and simplified representations of science, does not automatically reassure consumers whose attitudes towards rurality and science are often ambivalent (as demonstrated by the present study’s focus group research). In the following paragraphs, we explore the wider context in which these advertisements are consumed. We draw on focus group evidence to show how parents decode the message of science, based on their experiences of neoliberal healthcare reforms and the increased medicalisation of childcare in China.

Historically, the discourse of science has featured strongly in childcare practices and parenting advice worldwide (Apple, 1987, 2006; Grant, 1998). This discourse fits well with China’s national strategy of scientific development, and has become increasingly powerful in the current neoliberal economic context (Harvey, 2005). Within this context, the state is withdrawing from managing pregnancy, birth and childcare, leaving parents to make their own choices in an individualised and commercialised childcare system (Shi, 2009). The financial reform of the public health services in the 1990s shifted power further towards commercialised medical institutions. Attempting to justify the policy, it was argued that the reforms improved the productivity of public health institutions, but they also had many negative consequences. Sharp decreases in medical insurance coverage, especially in rural China, and increased costs for medical care were among the most notable outcomes (Du, 2009; Liu and Mills, 2002). Child immunisation services, for example, cost ¥2–4 in the 1980s, but cost more than ¥10,000 today (the focus group participants reported that all mandatory and elective vaccines cost more than ¥10,000 for each child).
Resorting to the powerful discourse of science, infant formula companies formed an aggressive marketing strategy in the wake of the 2008 scandal, drawing attention to the alleged health benefits of their products based on scientific research. The same strategy has contributed to a sharp decline in breastfeeding rates in China since the 1990s (Gottschang, 2000a; Xu et al., 2006). The adoption of ‘scientific’ childcare practices also have become a coping strategy for many parents regarding their food safety concerns (parents rely on frequent health checks at hospital to confirm that there is no food safety threat to their children). The incorporation of micro-nutrients such as vitamins, which are given paramount importance in people’s daily diet, features strongly in the scientific claims of infant formula companies. TV advertisements frequently refer to the use of micro-nutrients in promoting the health benefits of their products. They also aggressively exploit the lax regulation of health claims in China. For example, while few of the focus group participants knew exactly what ARA and DHA are (arachidonic acid and docosahexaenoic acid), nearly all of them recognised these allegedly ‘must-have’ nutrients and believed that they were ‘some kind of necessary ingredients for infant formula’. As noted elsewhere (Gong and Jackson, 2012), one grandmother in the consumer focus groups believed that her daughter’s breast milk was nutritionally inferior to imported infant formula because the latter contained micro-nutrients such as DHA and ARA. As we have shown above, while new parents engage critically with the nature narrative employed in infant formula advertisements, they are somewhat less sceptical about the products’ alleged scientific benefits, although here too some focus group participants remained ambivalent about the promotional tactics used by some infant formula companies. As one mother reported:

Abbott had this seminar … they flew a childcare expert from Shanghai to Chengdu to explain the advantages of Abbott products. It’s said that he charges ¥300 per hour for consultancy … I went there because I really wanted to learn. I took my pen and notepad … The hall was full [of parents] … He showed us a video like this, followed by a little quiz and the questions were all in the video… Those who got the questions right got some free infant formula. (Liu Yan, mother from low-income background, group 9)

In this case, the mother’s enthusiasm wore off as she attended more seminars and realised that their purpose seemed to be more about promoting infant formula than disseminating experiences and knowledge of childcare. Another young mother was equally unhappy about her experiences in peer-support group meetings organised by an online mothers’ forum:

I don’t know. We have different levels of knowledge, so the conversation doesn’t always flow … and the strangest thing is, all of a sudden, a participant turns into a sales representative and starts selling formula to us. (Lang Rongjing, mother from middle class background, group 12)

Their interpretations of the messages of science and scientific knowledge were both influenced by the same suspicion of the problematic promotional tactics: childcare seminars or mothers’ forums with a hidden agenda of selling infant formula product. Although these two mothers were able to identify suspicious promotional tactics, it is important to note that their lack of childrearing confidence may have drawn them to these events in
the first place. As we argued elsewhere, many new parents with varied social status in the focus groups felt uncertain about their childcare skills, especially when they were faced with a plethora of sometimes conflicting information from unsanctioned commercial sources. The focus group research also found that some of the participants received promotional messages of infant formula in maternity wards and community hospitals, despite repeated bans on formula promotion by law.22 The acquiescence was an implicit yet powerful ‘warrant’ for new parents to select formula as nutritional baby food, as breastfeeding was not strongly supported by commercial forces, government regulations and medical practices.23 Therefore, the messages of food safety and quality mediated through the image of scientists, and the associated scientific benefits in the advertisements, were reinforced by medical professionals’ implicit endorsement. Meanwhile, and regardless of their social backgrounds, parents from the younger generation frequently rely on the internet to seek information on childcare, thanks to the diffusion of computers and the internet among households in urban China. Their social backgrounds seem to have played only a limited role in their ability to engage critically with the message of science in infant formula advertising.24 Their online activities are generally more empowering, including participating in discussion forums, searching for news on suspect infant formula brands and sharing their own experiences, often motivated by their determination to find alternative information, as the state media do not always promptly expose food safety scandals when they are entangled with political interests.25 Mothers who participated in peer-support groups reported that they found useful information from online and offline meetings (e.g. how to care for toddlers with a slight fever), which demonstrates their skilful exploration of new media to engage with other new mothers who also lacked confidence in childrearing. More importantly, such active and public-minded activities may empower new parents with more choice and information, potentially giving rise to citizen-consumers who can exercise more political power in the marketplace.

**Consuming science, managing risk**

In addition, the representation and consumption of science were located within discourses of health risk and consumer protection. For example, in a health promotion video produced by a Chinese dairy company, parents are told that pneumococcus poses serious threats to children under the age of two.26 In the course of the video, babies and young children are shown with a shining outline (halo), indicating the enhanced protection provided by artificially-added nutrients. The international company Dumex goes further, making ‘immufortics’ into the shape of a shield, a visual signifier of health protection.27 These representations offer parents a strong form of psychological reassurance, in addition to the assurance of food safety through the representations of nature described above. Infant formula advertisements emphasise the protective functions of the product by claiming that it boosts children’s immune system. The wider context of the need for such protection is the general sense of risk, caution and fear felt by new parents in China. A recurring theme in the focus group discussions was that parents and other baby carers were generally anxious about the health of their children. One extreme example is of a mother who paid to store her umbilical cord blood in a medical bank for 20 years as a precaution against unlikely future genetic disorders for her daughter.28 She believed that
this preventative measure served as a form of technical insurance against future serious
diseases for her daughter. In addition, the commercial blood bank actually provided
health insurance as part of the service package for her baby:

The blood bank also gives her [daughter] health insurance for free every year. So if we don’t
use the blood, the money we pay for the storage buys her an insurance that covers ¥5000 worth
of serious disease treatment fees every year. (Li Dan, mother from middle class background,
group 12)

The double insurance bought by this mother provides evidence of the extent of the fear
experienced by new parents in China. This mother’s anxieties are rooted in the increasing
costs of healthcare in China (Wagstaff et al., 2009). Despite the fact that infant care
has improved greatly over the past decade, parental fears persist and provide fertile
ground for commercial exploitation. In China particularly, parental confidence has been
significantly undermined by the neoliberal reforms of the medical system and by recent
food scares, including the 2008 infant formula scandal, leaving parents without inde-
dpendent and authoritative guidance on childcare issues. In the cases below described by
the participants, doctors prescribed costly treatment, further exacerbating parental
fears:

You have to listen to what the doctor says… If you don’t take this treatment [IV drops] for a
cold, they’ll tell you that your child will develop this and that condition, and they sounded very
scary. (Grandmother from low-income background, group 3)

I spent ¥8,000 on treating my son’s jaundice at an intensive care unit. I should have
listened to my mum. It only costs less than ¥100 to cure this with phototherapy, but
doctors said it was so serious, and I was totally scared. (Mother from middle-class
background, group 5).

The frequency of postnatal health checks in China, and warnings issued by doctors,
increase levels of anxiety among many new parents (Gong and Jackson, 2012). This may
prompt them to take more preventative measures such as the double insurance discussed
above. Recourse to preventative measures is reflected also in the participants’ use of the
immunisation system. Spread over two years, the immunisation system requires hospital
visits every one or two months for children under the age of two. Most children are given
more than 20 vaccines (mandatory and elective). While many parents on lower incomes
struggle to pay for the elective vaccines, many others are scared of the alleged conse-
quences of not having them:

[We get the jab] at the community hospital. If you don’t go there, they [doctors] will scare you
– that you’ll get this and that disease. You don’t want anything bad to happen to the kid, do you?
(Li Jianping, grandmother from low-income background, group 3).

The focus group discussions with young mothers show a pronounced sense of anxiety
about the external world that may threaten the well-being of their children. These anxie-
ties are taken up by the infant formula companies, adopting the discourse of scientific
Gong and Jackson

and protective childcare in their advertisements. This may explain why many new parents are susceptible to these discourses.

A more positive interpretation of these coping strategies is that they demonstrate a citizen dimension in public life in a more general way. In the current neoliberal context, parents have begun to take issues into their own hands, acting as members of a community with shared interests. As demonstrated above, the focus group participants raised issues of responsible parenting and trust in society at large. While some took a more proactive and individual approach to manage the food safety issue – taking advantage of the internet to search for more information and participating in peer support groups – others openly voiced their high expectations of government regulation and the intervention of local community organisations:

The government should pay more attention and enhance its supervision. At the end of the day this country depends on the next generation. Special attention should be given to the next generation in terms of food safety. Community committees and residential committees can start up some organisations, or find some people to advocate for food safety and supervision to get everyone’s attention. Things will become better. (Zhang Xiumei, grandmother from low-income background, group 4)

Although public outrage over the food scare and concern about food safety after the infant formula scandal sped up the publication of the new Food Safety Law of 28 February 2009 (which took effect on 1 June 2009), with more comprehensive and stricter food safety standards (interview with office chief of China National Center for Food Safety Risk Assessment, 2010), critics suggest that consumer rights in China still have not received adequate protection due to the undemocratic and corrupt political system, as demonstrated in the cover-up of the infant formula scandal, suppressed media supervision, and unresolved victim compensation (Ye and Pang, 2011). Corruption at local government level not only resulted in a series of food scares with low-level punishment (e.g. Fuyang infant formula scandal, 2004) in China over the past 10 years, but also led to rapidly declining public confidence in food safety authorities. However, corruption at the local level, manifested in the orchestrated cover-up between the local authority and Sanlu in 2008, deeply worries the central government, which has been experiencing a ‘legitimacy crisis’ since the intensification of economic reform in 1992 (Shue, 2004). Public discontent over unemployment, expensive healthcare and income inequality resulting from neoliberal reform poses a threat to the legitimacy of the Chinese Communist Party. To address this legitimacy crisis, the central government has extended its ‘benevolence’, one of the ‘key logics of legitimation in China’ (Gries and Rosen, 2004: 9), through its efforts to improve the people’s well-being. Positioned at the centre of people’s well-being, food safety issues have been given high priority, as several new laws and regulations have been published, although their implementation at the local level is still being questioned (Ni and Zeng, 2009).

Conclusion

After the 2008 infant formula scare in China, infant formula companies created aggressive campaigns to communicate food safety messages to consumers. In this article we
have focused particularly on representation and consumption moments in the circuit of culture to understand how food safety and food quality messages were encoded and decoded in these two moments. We have shown how the dairy industry juxtaposed images of science and nature as part of their advertising campaigns to mediate messages about the quality and safety of infant formula. While the combination of nature and science may not sit so easily together in other contexts, these apparently disparate images were combined seamlessly in the case of infant formula advertising in China. The focus group evidence shows that Chinese consumers engaged critically with representations of nature in these advertisements, and that their decoding of these messages was shaped by their prior experiences (including their differentiation of nature in the Chinese and foreign contexts, childhood experience and knowledge of rural environments). While some consumers were ambivalent towards the way that science is represented in the advertisements, including the dubious health claims and childcare advice offered by some brands in their promotional strategies, most were less unlikely to challenge the role of science in contemporary childcare. However, the development of information and communication technologies, especially the diffusion of the internet among urban consumers in China, has shifted the balance of power towards the audience. As discussed in this article, there has been a critical engagement of the media by some parents – in particular parents from the younger generation – who have empowered themselves with the knowledge disseminated on the internet and their interactions with peer groups. Accompanying this is the rising trend of public-minded citizen-consumers who demand not only ethical practices in the infant formula industry, but also more accountability and transparency in government regulation. However, the government’s response to these public demands is undermined by the corruption and non-transparency of the political system.

The high level of acceptance of science among consumers should be understood in a context where neoliberal healthcare reforms are increasing the cost of medical treatment, and where reliable and independent sources of childcare advice are not readily available. We argue that these wider issues, such as neoliberal healthcare reform and the medicalisation of childcare, underlie the representation and consumption of food safety and food quality messages. We conclude that in the absence of independent medical advice, affordable medical treatment and adequate government regulation, infant formula companies will continue to be able to make ill-founded health claims for their products and employ dubious promotional tactics. However, judging by recent market reports, these strategies appear to have had the desired effect, as sales of infant formula have quickly returned to their pre-2008 levels (Qiao et al., 2010), although the balance between domestic and imported brands may have altered in favour of the latter.

In emphasising the critical analysis of advertising imagery and audience reception, this article has offered limited insights into other aspects of the circuit of culture, such as the production processes involved in creating these advertisements. Further research is required to provide a more comprehensive understanding of the whole circuit involved in producing, distributing and consuming infant formula advertising messages in China.

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Notes

1. Commercial mass media advertising on the radio and billboards has existed in Shanghai since the 1920s (Prendergast and Shi, 2001). Communist China was hostile towards advertising, but relied heavily on it for political propaganda. During the Great Famine (1958–1961) and the Cultural Revolution (1966–1976), the government managed livelihood goods such as food and clothing based on rationing, while denouncing advertising as a ‘bourgeois capitalist vice’ (Hong, 1994).

2. Permission for media institutions to carry advertisements was not only the result of the Open Door policy, but also an incentive for the state-funded media to seek alternative funding revenue (Paek and Pan, 2004). In return, commercially funded media outlets facilitated the revival of advertising, based on their wider reach of the Chinese public after the funding structure reforms (Hong, 1994).

3. The increasing income of urban residents is also noticeable: per capita annual income and per capita annual consumption expenditure have risen from ¥1,516 and ¥1,278 in 1990 to ¥14,908 and ¥9,997 in 2008 respectively (China Statistics Yearbook, 2009).

4. Young people are more likely to respond to symbolic images than the older generation; consumers in the hinterland are more responsive to the rational approach than their coastal counterparts; Shanghai prefers Pepsi, while Beijing prefers Coke (Sinclair, 2008).

5. Here we present a simple frequency table, using statistics extracted from the analysis. We hope to develop the coding scheme further in future research to allow more advanced statistical analysis with SPSS.

6. The nature of the focus group method does not allow us to discuss how the decoding process is shaped by the demographic background of the audience in a more systematic way, given the relatively small number of participants (57) involved in the research.

7. Although the Chinese government has been tightening up the regulation of infant formula marketing in recent years, its key regulation, The National Provisions on Marketing of Breast-Milk Substitutes promulgated on 1 October 1995 (see: www.gov.cn/banshi/2005-08/23/content_25511.htm) was criticised for having had little effect on promoting breastfeeding. Gottschang’s (2000b) study found that new mothers received infant formula samples at the hospital, although the Provisions strictly forbid this. Receiving an infant formula sample was widely reported also by the focus group participants in the present study. Gottschang argues that the illegal practice of promoting infant formula is tackled insufficiently by the government, as the ‘attractions of foreign investment and profit seeking have overcome the government’s reluctance to produce and promote infant formula’ (2000b: 277). In addition to the Provisions, more detailed regulation on infant formula advertising in various media is regulated by the Chinese Advertising Association’s Infant Formula Advertising Self-regulation. This self-regulating document is helpful for promoting breastfeeding (e.g. it prohibits advertisers from using the image of newborn babies), but the regulation still needs further development (e.g. it does not regulate the frequency of broadcasting of advertisements) (see www.breastfeeding.com.cn/newsshow.asp?id=119&big=3).

8. While the urban middle classes are appreciating more organic, green and slow-grown food, for many of them the reappraisal has a strong association with personal nostalgia: 17m zhiquing (rusticated or educated youth) were displaced from their families and sent to rural villages or state farms, sometimes far away across the country, from the 1950s to 1976 (Yang, 2009).

9. According to Hubbert (2007), as the Chinese Communist Party hesitates to officially acknowledge the trauma for the 17m zhiquing, they use Culture Revolution-themed restaurants, which usually serve coarse food as a semi-public space, to collectively recognise and memorialise their past suffering.
10. In China, as in the West, the contemporary consumption of nature is located within a neoliberal framework in which nature is being increasingly considered as a valuable existence that has a price. Coinciding with other neoliberal trends in medical care (to which we will turn in the second half of the article), these rural gardens run by private entrepreneurs are encouraged by local government for creating jobs and generating tax revenue. Despite the lack of explicit government regulation of public resources such as lakes and mountains, the flourishing of such small-scale tourism has created a de facto market environmentalism in China as, ‘markets in environmental services are becoming the dominant approach to managing and protecting the environment in the twenty-first century’ (Liverman, 2004: 735).

11. The video clip of this advertisement can be viewed at: http://v.youku.com/v_show/id_XODA4NTU0OTI=.html.

12. The science and technology development strategy dates back to the early history of the People’s Republic of China, founded in 1949. It accelerated with the assistance of the Soviet Union in the 1950s and 1960s. The strategy stagnated in the 1960s and 1970s due to the withdrawal of Soviet experts and the Cultural Revolution, but continued throughout the late 1970s until the beginning of 2000. Since 2002, President Hu Jintao began promoting ‘scientific development’ alongside the ‘harmonious society’. The current government’s strategy calls for ‘China’s shift towards more balanced and more sustainable modes of development’ (Wang, 2007: 78), in contrast with the economically-orientated scientific development strategy of previous governments.

13. The World Bank has reported how low-income tuberculosis victims failed to enter treatment or dropped out early due to the prohibitive fees (Liu and Mills, 2002).

14. Other numbers and texts in these frames say: 300,000 purifying procedures with international standards, 3000 Mu (494 acre) Firmus farms at a latitude of 47°N, attention of 280 research and development staff members, and 47 years’ dedication.

15. The video was full of warnings that parents should immunise their children against various diseases, or risk them developing serious medical conditions.

16. For example, even though the European Parliament only cleared the way for infant formula companies to make health claims about DHA, based on scientific evidence following an application submitted by Mead Johnson Nutritionals in April 2011, the function of DHA in facilitating brain development already had become a central feature in almost all infant formula products in China by 2010, when the fieldwork for this research was carried out.

17. The scientific basis of the European Union’s resolution allowing infant formula companies to claim the health benefits of DHA is contested (scientific opinion published in European Food Safety Authority, 2009).

18. According to the participants (groups 2, 4 and 5), new mothers received phone calls from infant formula sales representatives after giving birth, although they had only given their phone numbers to the hospital for emergency contact. Their suspicion was that, allegedly, the phone numbers may have been leaked by the hospitals without their consent. Also, participants reported that they had attended formula company-sponsored seminars held in some of the hospitals at community level.
23. Other factors such as weak law enforcement, poor arrangement of maternity leave and heavy reliance on grandparents to provide childcare for newborn babies all contributed to decreasing rates of breastfeeding (see Gong and Jackson, 2012).

24. A mother with a master’s degree in one of the middle class and above groups is the only participant who understood the full name of DHA after she did research on the internet, but she did not question the health benefits of DHA claimed by infant formula advertisements. Although other parents in lower income groups did not know the full name of DHA, they also thought that DHA was a must-have nutrient for infant formula.

25. Jian Guangzhou, the first Chinese journalist who blew the whistle on Sanlu infant formula in Oriental Morning newspaper in 2009, was under tremendous pressure during his investigation of the scandal, which was linked to the political interests of local government (Jian, 2008; Ye and Pang, 2011). Jian resigned from his position in September 2012 (Nfdaily, 2012).

26. According to this video, possible diseases caused by pneumococcus include pneumonia, meningitis, otitis media, bacteremia, hypophrenia, deafness, epilepsy and paralysis. The video also claims that pneumococcus infection results in 0.7 to 1m child deaths each year worldwide.

27. See links to the advertisements here: http://v.youku.com/v_show/id_XMjczOTA3NjQw.html; http://v.youku.com/v_show/id_XNzIwNjE2MDA=.html.

28. Despite the controversy, previous estimates suggest only a small percentage of babies (estimated at between 1 in 1000 and 1 in 200,000) ever use the umbilical cord blood that is stored (Johnson, 1997).

29. The World Health Organization criticised China’s healthcare system for its supply-induced demand, particularly for inpatient services. According to one report: ‘Irrational use of health technologies, such as prescribing unnecessary diagnostic tests and medicines, and referring more patients for hospital admissions are … part of revenue-driven approaches used by the Chinese service providers to make more money that can be used to increase the income level of doctors and other staff’ (Parry and Weiyuan, 2008).

30. This can be compared with the single six-in-one jab that toddlers are given at one year in the UK.

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