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Michael Smith
Griffith University, micsmith66@gmail.com

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Credibility and Trust Issues Stemming from an Ambiguous Science Frame: Reducing Demand for Rhino Horn in Vietnam with the Fingernail Metaphor

MICHAEL SCOTT SMITH

*School of Language, Humanities and Social Science
Griffith University
Southport, Gold Coast
Australia
Micsmith66@gmail.com*

ABSTRACT: This paper investigates trust and credibility issues raised by Environmental Non-Government Organisations (ENGOS) in Vietnam working to reduce demand for rhino horn. The ENGOS selected scientific information of rhino horn's keratin composition, which is similar to fingernails, but excluded from their media outputs Asian scientific studies results supporting the horn's medicinal value. This paper argues that the keratin/fingernail messaging created trust and credibility issues because it competed with an existing science frame in Asia, which defers to the science of traditional medicine, and excluded discussion of an institutionalized division in scientific opinion concerning rhino horn's worth as a medicine.

KEYWORDS: credibility, environmental non-government organizations, ENGOS, illegal wildlife trade, news framing, Rhinoceros, Rhino horn, traditional medicine, trust, Vietnam

1. INTRODUCTION

Illegal trade in wildlife is worth between US\$5-20 billion a year and the illegal supply of wildlife parts for traditional Asian medicines is the biggest threat to some species (Shepherd & Magnus, 2004; Milliken 2014). Wildlife products include both flora and fauna. Asian countries such as Vietnam and China are heavily implicated in the illegal trade of wild animal parts including transnational trade in the parts of rare animals such as tigers, pangolins, bears, and rhinos, often for use in traditional medicine. International trade in rhino horn has been illegal since the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) was ratified in 1975. Prior to CITES, Africa's rhino population was decimated by over a century of hunting throughout East Africa in connection with the international ivory trade. In the 1960s a remnant population of Southern White Rhino in South Africa was saved by a conservation program that dispersed the remaining rhino around the country. Since then, Southern White Rhinoceros populations in South Africa were able to recover and the country's rhino numbers grew from around 1800 in 1968 to around 20,000 (Rademeyer, 2012, p. viii). Since then as rhinos have continued to be hunted almost to extinction in other areas of Africa; South Africa is now home to 80 percent of the world's rhino population (Bale, 2018).

In 2007 an upsurge in rhino poaching and illegal trophy hunts in South Africa were tied to an emerging market in Vietnam where rhino horn was reportedly worth more than gold or cocaine (Harper, 2015). The high price was tied to both its use as a traditional medicine and its rarity. Medical use included treatment for cancer, fever, hangovers, and as a general health elixir and detoxifier (Truong, Dang & Hall, 2016). The rising demand coincided with the Asian country's economy improving and a growing middle class. End users are predominantly

wealthy older males, who use for health purposes, as well as to symbolize personal wealth (Truong et al. 2016 p. 362). Despite difficulties evaluating the extent of the demand and the nature of the use, research showed that demand in Vietnam was responsible for an escalation of rhino poaching in South Africa (Milliken & Shaw, 2012). Since 2013, poaching levels have exceeded 1000 a year (Save the Rhino, 2018), drawing media attention and raising conservation concerns internationally.

Use of horns of rhinoceros and other animals has been widespread in traditional medicine in Vietnam and China, historically until now. Historical records vary. Liu, Wang, Huang, Duan, Liu, Shang, Zhu, Wen & Quian, (2016) claim it was used for more than 2000 years, while Nowell (2012) found records of rhino horn medicinal use as early as 2600 BC. The earliest records in Vietnam, which has a strong Traditional Chinese Medicine (TCM) influence, date back to 1300 (Truong et al., 2016). Rhino horn is considered indispensable in TCM for various remedies and applications, though its “mechanism of action remains unknown” (Liu et al., 2016, p.1). “According to the documentation of Bencao Gangmu (Ming dynasty, 1578 A.D.) and some other traditional literatures, animal horn derived TCMs were usually applied for treating heat syndrome, relieving convulsion, and reducing blood bleeding” (Liu et al., p. 2). The pharmacopoeia of The Divine Peasants Herbal (Shennong Bencao Jing, Han dynasty, about 200 B.C.–200 A.D.) listed rhino horn as a detoxifier and nonspecific health tonic (Liu et. al, 2016; Nowell, 2012). There are multiple benefits listed in a variety of texts. Since 2002 at least five Vietnamese language pharmacopoeias include sections on rhino horn (Milliken & Shaw, 2012).

Medical research of rhino horn has been limited compared to other ingredients in traditional Asian medicine (Nowell, 2012). To a large extent modern pharmacological tests of rhino horn that were carried out in Asia support traditional claims of its medicinal effectiveness. This includes the only existing test of clinical standards involving humans (Tsai, 1995, cited in Nowell 2012, p. 10). The two clinical research articles outside Asia, one in the UK the other in South Africa, found “no effects at all” from rhino horn (Nowell, 2012, p. 38).

Since Vietnam was identified as the primary market nation for the illegal trade in rhino horn that was coming out of South Africa, local and international environmental non-government organizations (ENGOS) have been working to reduce demand and the trade. As part of the ENGOS’ respective demand reduction campaigns they have used the media to communicate their messages to the public. In their media outputs, the ENGOS have used four key frames: “Voodoo Wildlife Parts” (VWP), “Responsibility”, “Empower” and “Lip Service” (Smith, 2017; Smith, forthcoming). As the present paper focuses on an aspect of the “VWP” frame, for more discussion on the other three frames see Smith (2017).

The “VWP” frame was a simple form of science communication aimed at the lay consumer of rhino horn in Vietnam (Smith, 2017). The frame was most commonly enacted by ENGOS by comparing the scientific composition of rhino horn to fingernails, using fingernail metaphors both in text and image (Smith, 2017). Thus the “VWP” frame was critical of traditional medicine practices and beliefs (Smith, 2017, forthcoming) that revered rhino horn as the best of the best traditional medicines (TRAFFIC, 2013). Without publicly identifying the scientific sources of their arguments, the ENGOS criticized rhino horn’s medical efficacy broadly, calling it a superstition, myth, and false belief, thus angering some members of the public and government (Smith, 2017). Reports suggest that scientific experiments carried out in Taiwan (Tsai, 1995) and China (see Nowell, 2012) were the source of the keratin/fingernail

information. Controversially, however, the studies also found that rhino horn has medical effects that are founded in Traditional Chinese Medicine.

2. LITERATURE REVIEW

Science communication acts as a guide to help audiences understand science and “allows access between people at different levels” (Burns, O’Connor & Stocklmayer, 2003, p. 194). Burns et al. (2003) define it as: “the use of appropriate skills, media, activities, and dialogue to produce one or more of the following personal responses to science (the AEIOU vowel analogy): Awareness, Enjoyment, Interest, Opinion-forming, and Understanding” (p. 183).

Scientific literature presents opposing results regarding the medical efficacy of rhino horn. A report from Nowell (2012) for TRAFFIC and CITES provides a review of the scientific research. Nowell (2012) critiqued existing scientific research covering the horn’s structure and composition, the horn’s pharmacological effects and the traditional medicine literature from around Asia dating back thousands of years.

Rhino horn is classified in TCM as a “heat clearing drug” with “detoxifying properties” (Nowell, p. 2). Historically rhino horn has “proved efficacious in the experience of many people” (Nowell, 2012, p. 2). Among the modern clinical research done in Asia (where the bulk of research has been conducted), Nowell (2012) reports there is a general consensus that rhino horn has some medical benefits. All the Asian studies using *in vitro* techniques found “statistically significant pharmacological effects for rhino horn: antipyretic, anti-inflammatory, analgesic, procoagulant, among others” (Nowell, 2012, p. 1). Liu et al.’s (2016) article on a clinical trial to find alternatives for rhino horn, reported that rhino horn was “considered indispensable” (p. 1) and found it possessed “wonderful antipyretic, sedative and anti-coagulant activity”.

Modern clinical Chinese research found that horns of water buffalo, domestic cattle, yaks and goats could be substituted for rhino horn, as they have similar chemical compositions and medical actions (Nowell, 2012, Liu et al., 2016). Hence, Liu et al. (2016) found rhino horn was not “not especially unique or indispensable” (p. 9). Horns, hooves and nails of different species are not the same chemically, as they all vary in the make up of their keratin protein composition (Nowell, 2012). In Traditional Chinese Medicine (TCM), there are also several herbal antipyretics substitutes, such as worm wood (Huang, Liu, Liu, Li, Zhang, Nui, Song & Zhang, 1993). Everyday modern medicines that act as antipyretics and anti-inflammatories are also shown to work just as well or better; these include aspirin and paracetamol (Nowell, 2012).

Nowell (2012) concludes however, that any medicinal use of rhino horn should be “contemplated with caution” because of its limited medical efficacy. The only study that employed the best practice method of a randomised double-blind trial on humans (Tsai 1995, cited in Nowell 2012) found rhino horn had a limited antipyretic effect in children, but did not recommend it, because a common nonsteroidal and anti-inflammatory drug, acetaminophen (paracetamol), performed better (Tsai 1995). Nowell’s overview (2012) finds there were no scientific studies that supported recent, non-traditional medicine claims that rhino horn was an effective treatment for cancer, detoxifier or aphrodisiac. Nowell (2012) notes that results obtained in Western studies conflicted with the Asian studies. Two *in vitro* studies done outside Asia, including a Hoffman LaRoche pharmaceutical corporation study contracted by World Wildlife Fund (WWF), “found no pharmacological effects at all for rhino horn and

other horns” (Nowell, 2012, p. 1). Adding to the argument against rhino horn’s medical efficacy, Nowell (2012) reveals that keratin proteins are “not seen by drug developers as having much therapeutic potential”.

In indirect support of Nowell’s (2012) questioning of the credibility of Chinese clinic reports, Cyranoski (2017), Henry (2017) and MacDonald (2016), draw attention to Chinese government agency reports of widespread research integrity issues in Chinese clinical studies. MacDonald (2016) reports that the Chinese State Food and Drug Administration (SFDA) found 80 percent of data from over 1600 clinical trials of Western medicines in China “failed to meet analysis requirements, were incomplete or totally non-existent.” MacDonald (2016) also warns that “even worse practices are going on” in the Traditional Chinese Medicine (TCM) industry.

There are several translational factors that Nowell (2012) notes, which complicate modern clinical research of traditional Asian medicine, potentially causing trust and credibility issues. Most research that had been carried out, at the time of Nowell’s publishing, focused on the horn’s effectiveness to treat fever (Bell & Simmonds, 2007; But, Lung & Tam, 1990, 1991; Huang, Hsu & He, 1959; Tsai 1995, as cited in Nowell, 2012), which was because the main traditional use for rhino horn was for “removing heat.” Nowell (2012) notes importantly that the traditional term “removing heat” does not translate into the modern context of fever. Nowell (2012) makes a relevant point that concerns trust and credibility when she quotes Shea (2006), “This represents an unavoidable simplification of the primary property traditionally described for rhino horn. There are immense epistemological and ontological differences between the theories underlying traditional medicine vs. modern science” (p. 10). Ellis (2005) echoes this point, which needs to be considered in context of Vietnamese audiences, who trust the science and science communication surrounding traditional medicine:

That the medicines may not cure or ameliorate the conditions for which they are prescribed in TCM cannot be accurately assessed by a Western-only perspective, say many TCM adherents, so an argument on the grounds of efficacy will likely fall on deaf ears (Ellis, 2005, p. 129)

Relevant in the context of Vietnamese attitudes towards science, Nowell (2012) notes that Vietnamese tend to rely on a combination of modern and traditional medicines, indicating a duality in trusted scientific authorities. Ellis (2005) found that “Western and TCM practitioners tend to focus on the research results that are supported by their world views” (p.238).

By analysing the processes of understanding and support of biotechnology, Brossard and Nisbet (2006) aimed to create a succinct model that could be applied to trust and credibility heuristics regarding science communication broadly. They concluded several key points. Firstly, that citizens lack the ability and/or motivation to fully inform themselves about scientific issues and rely instead on “information shortcuts” such as values, trust and media interpretations. Secondly citizens rely on science and the more they know about the science the more they are supportive of the issue, but this influence is overshadowed by heuristics of values, trust and feelings about science. Deference to scientific authority rather than scientific knowledge is the principle influence. Relying on choosing who to trust can be a substitute for knowledge. They also found that religion in America is in conflict with the deference to scientific authority. A similar situation could potentially influence opinions about science in Vietnam, as traditional medicine and spiritual beliefs are related in Asia.

There is a strong crossover in the literature on science communication, environmental communication, risk communication, source strategies and claims making, with respect to trust

and credibility. In line with Brossard and Nisbet (2006), Anderson (1997) observed that claims makers were tied to making scientific appeals in their discourses of legitimacy, a key task of claims makers (Solesbury, 1976). Anderson (1997) noted that public perceptions of environmental risk are impacted by opinions about the trustworthiness of institutions. Her arguments support the view that where there is an omission of science it signals a lack of openness and neglects the trust and cultural factors that affect public opinion. Lakoff (2010, p. 73) agreed when he says the framing of the environment is effective when there is “sufficient trust in the messenger”. Collins (2013) argues it is important that environmental frames are not vilifying, as this will limit the potential for negotiation.

From the claims makers’ perspective, Anderson (1997) tended to agree with Beck (1992) on the lack of objectivity of science. Anderson (1997) argues that divisions and conflicts in scientific opinion have become institutionalised and media practitioners distort facts by using pseudo experts, misleading experts and emotive tactics; she also refers to Beck and Giddens’ ideas about the trend in undermining traditional institutions (p. 115).

Beck’s (1992) seminal essay reflects both his poor opinion of scientists’ credibility and the need for it. Beck (1992) argues that trust and credibility are issues for a public that are dependent on unfamiliar institutions (p. 4). Beck discusses a failure of science when it “frittered away” rationality and credibility (p. 59). Beck argues that the press, or in the case of this paper, ENGOs, have the power to define social problems and set agendas with material that is independent of scientific reports and arguments, or a poor version of scientific reports. One reason he cites is because scientists exist in powerful economic and cultural magnetic fields. Beck’s poor view of scientists’ capacity for objectivity include that scientific elites consider the public to be irrational and ignorant and they show little regard to the consumers’ choice of lifestyle. He outlined the need for more accountability. “The (il)logic”, cooperation and opposition of scientific perception needs to be displayed. Questions that need to be asked to acquire credibility include what are the “systematic sources of mistakes” and how much the “social perception is dependent on scientific rationality and credibility” (Beck, 1992). The findings of Vagra, Myers, Kotcher, Beall and Maibach (2018) are relevant to scientific reports, such as Tsai (1995), which appeared to be the original source of the fingernail/keratin metaphor. Vagra et al. (2018) found in their research, that science communication about controversial issues influenced public perceptions of the scientists’ political orientations and credibility. Themes that are inherent in public perceptions can also be described as audience frames (Entman, 1993).

People frame reality to understand it, manage it and act on it (Goffman, 1974). Lakoff (2010, p. 71) argues how central framing was in life by saying “all thinking and talking involves frames”. Entman (1993) defines framing as:

Framing essentially involves selection and salience. To frame is to select some aspects of a perceived reality and make them more salient in a communicating text, in such a way as to promote a particular problem definition, causal interpretation, moral evaluation and/or treatment recommendation for the item described. (Entman, 1993, p. 52, emphasis in original)

Thus, news framing plays an important role for journalists and media practitioners in the production of meaning and “power in a communicating text” (Entman, 1993, p. 51), even though Gitlin (1980) stressed that media frames are largely unspoken and unacknowledged. Movements rely on media communication to matter and those communications and their frames become the movement (Gitlin, 1980). Frames appear by virtue of persistent selection,

emphasis and exclusion (Gitlin, 1980), and are enacted through devices such as metaphors, images, sources (Gamson & Modigliani, 1989) and words (Lakoff, 2010). Frames unfold at key focal points such as headlines, leads and quotes (Tankard, 2001). Frames are influenced by journalists' social norms and values, organisational pressures and constraints, routines, ideological and political orientations (Scheufele, 1999). These influences can be seen to also apply to ENGO media practitioners (Smith, 2017).

deVreese (2005) found science frames were commonly used in the media. Anderson (1997) found that environmental groups commonly used science frames in their media outputs. She argued that they were tied to using science to make their arguments. In climate change communications, Nisbet (2009) identified a generic science frame, the "Scientific or technical uncertainty" frame which relates closely to the Voodoo Wildlife Parts frame that is at the centre of this paper. Nisbet (2009) defined this generic frame as "a matter of expert understanding or consensus; a debate over what is known versus unknown; or peer reviewed confirmed knowledge versus hype or alarmism" (p. 18).

Smith (2017) finds that ENGOs working to reduce demand for rhino horn in Vietnam used the "VWP" frame to refer to apparently superstitious consumers who believe in the magical benefits of rhino horn (p. 69). A mix of views of the efficacy of the frame existed among the ENGOs. Some ENGO personnel and experts felt the frame was humorous and relatable, thus effective at raising awareness (Smith, 2017, p.70), while others had received feedback with concerns about cultural beliefs and accuracy (Smith, forthcoming). "By saying that consuming rhino horn has the same effect as chewing fingernails, the ENGOs communicated that it had little or no magical nor medical benefits, a claim that has apparently angered members of the government and the public" (Smith 2017, p. 70). The legitimacy of some ENGOs had suffered because they had not backed their claims scientifically, while others claimed legitimacy by employing medical experts as messengers (Smith, forthcoming). Anderson (1997) argued along with other framing theorists and environmental communication scholars (Entman, 1993; Hansen, 2011; Lakoff, 2010; Lester, 2016; Nisbet, 2009) the importance of culture when framing environmental issues. The argument in this case is significant as traditional medicine is an empirically documented science tied to Asian culture. In regard to media outputs and culture, Lin (2012) found that in the case of an ENGO working with local Thai people to change attitudes and behaviour towards elephants, a gentle culturally sensitive approach was effective. Similarly, Collins (2013) found that vilifying frames reduced the potential for negotiation. Lakoff (2010) concurred that negating a frame is rarely effective.

3. METHODOLOGY

The research project that this paper stems from (Smith, 2017) was approved under a university ethical approval process. The original project used a mixed method approach of framing analysis and semi-structured interviews to answer the research questions. The questions aimed to explore what frames that ENGOs in Vietnam employ in their media outputs to reduce demand for rhino horn. Semi-structured interviews with key ENGO personnel and experts were carried out investigate how those frames were arrived at and to evaluate the efficacy of the frames. Firstly, a pilot project was carried out to test the methodology. For the pilot, a local Vietnamese ENGO, called Change, based in Ho Chi Minh City provided 10 press releases in English which were subject to framing analysis. A semi structured interview was carried out using Facebook with the media relations personnel.

As the method provided rich data, six more ENGOs in Vietnam, including two local and four international, were then selected for the study, making a total of seven: Trade Records Analysis of Flora and Fauna in Commerce (TRAFFIC), World Wide Fund for Nature (WWF), Wildlife Conservation Society (WCS), WildAid, Change, Education for Nature Vietnam (ENV) and WildAct. I collected the sample of the press releases regarding rhino horn demand reduction in Vietnam from the press release archives for 2014 to 2016 on the respective websites. I conducted a framing analysis of the total of 76 press releases that fitted the criteria. Frames were identified both deductively and inductively using framing theory.

I attended the 2016 Hanoi Conference on the Illegal Wildlife Trade to gain access to all the relevant media relations personnel of the ENGOs in one place. Semi-structured interviews were conducted with the key personnel at the conference, and with experts after the conference, while still in Vietnam. These interviews were transcribed and a qualitative analysis carried out in NVivo. The methodology tied together Entman's (1993) theories of the four sites (text, communicator, audience and culture) and functions (problem, cause, moral evaluation and treatment recommendation) of frames, with Scheufele (1999) and deVreese's (2005) factors that influenced the frame-building process. Using the press releases and interview transcripts, the frames were categorised by the functions, sites, and factors that influenced their production, to try to understand the pros and cons of the frame-building processes that the ENGOs employed either consciously or unconsciously. As the methodology explores underlying attitudes and aspects of the communicators, audience and culture, the results can help illuminate issues relating to trust and credibility.

For the purpose of this paper, to further investigate the trust and credibility issues surrounding the fingernail claim, an additional small selection of peer-reviewed literature and related scientific reports regarding the pharmacological effects of rhino horn was also reviewed. This included a brief qualitative framing analysis of two key science communication documents. Firstly, I analysed an overview report of the main scientific studies and experiments on the pharmacological effects of rhino horn (Nowell, 2012), which was conducted for CITES on behalf of TRAFFIC with UK government funding. Secondly I analysed a scientific report conducted by scientists mostly based in TCM universities in China and funded through Chinese TCM-related, education and scientific government-agencies (Lui et al., 2016), which tested the medical efficacy of rhino horn against the efficacy of other sustainable horn alternatives. The analysis was conducted to gauge if the articles were positive or negative about the pharmacological effects of rhino horn and to reveal institutional sources of affiliations, funding and support.

A limitation in the methodology regards this study's inability to assess the extent and reliability of the relevant scientific studies. Hence there is a distinction between what is "true and accurate" and what is "scientifically proven." I have tried to reduce this limitation by noting that Anderson (1997) argues that the division of scientific opinion is institutionalised and Beck (1992) argues that science is flawed by the cultural and economic environment it operates in. Therefore, where appropriate I have used "scientifically proven" rather than "true and accurate."

4. RESULTS

Through the use of a range of framing devices as previously discussed by Smith (2017; Smith, forthcoming), the "VWP" frame occurred in a total of 46 press releases out of the sample of 76

over the sample time (See Tables 1 and 2). The appearance of the frame, 14 as dominant and 32 as competing, point to the frame being persistent. It appeared in two sub-themes: the “Medical” sub-theme, which made use of the fingernail metaphor; and the “Success” sub-theme, which aimed to counteract the belief that rhino horn is a status symbol. The “Success” sub-theme was most used as the dominant frame by TRAFFIC. This paper, however, will focus specifically on the “Medical” sub-theme and fingernail metaphor. The data shows that the “Medical” sub-theme was more prevalent among local ENGOs than IENGOs during the sample timeframe. WildAid was the exception among the IENGOs. This potentially could be because WildAid was closely partnered and working on messages with the local ENGO, Change, during the sample time frame.

Table 1. Local ENGO press releases with “VWP” frame

Total ENGO press releases	Dominant “VWP” frame	Competing “VWP” frame
Change (10 press releases)	1	8
WildAct (11 press releases)	3	2
ENV (13 press releases)	1	5
Total (34)	5	15

Table 2. International ENGO press releases with “VWP” frame

Total ENGO press releases	Dominant “VWP” frame	Competing “VWP” frame
Traffic (14 press releases)	6	5
WWF (10 press releases)	0	0
WCS (4 press releases)	0	0
WildAid (14 press releases)	3	12
Total (42)	9	17

4.1 Fingernail Messaging in the Media Outputs

Despite being outside the sample time frame, TRAFFIC’s 2013 launch of the “Say NO to Rhino Horn” campaign has been included in the present analysis. It came a year after Nowell’s (2012) report for TRAFFIC, which reported that “all [the clinical studies in China] found statistically significant pharmacological effects for rhino horn: anti-pyretic, anti-inflammatory, analgesic, procoagulant, among others” (p. 1). The TRAFFIC campaign’s message includes the fingernail/keratin information about the horn’s chemical composition, but excludes the positive test information: “Rhino horn is made of the same stuff as human nails. Still want some?” It excluded the results that supported traditional medicine rhino horn efficacy. The emphasis was on the recent claims such as a detoxifying agent, cure for cancer cure and sexual problems. The campaign images¹, which show rhinos photoshopped with either fingers or toes in place of their horns, could be considered insulting to believers in rhino horn’s lofty place in traditional medicine. TRAFFIC described the campaign as follows:

¹ Images can be viewed online: <http://www.wwf.org.za/?8020/rhino-ad-campaign-viet-nam>

The image provides an intriguing visual to communicate to the Vietnamese public that rhino horn is made largely of keratin, the same substance that makes up your finger and toe nails. Widespread lies, myths and rumours are fuelling demand and use of rhino horn in Viet Nam. This creative campaign aims to show that rhino horn is not a magical treatment, it will do nothing to treat cancer, remove toxins or help one's sexual prowess (WWF, 2013).

Following the “Say NO to Rhino Horn” campaign of TRAFFIC and WWF, four ENGOs in the sample appeared to go a step further with the “fingernail” message. Whereas TRAFFIC’s “Say NO to Rhino Horn” campaign compared rhino horn to fingernails and negated some specific claims about its medical efficacy, the four ENGOs, Change, ENV, WildAid and WildAct, went one step more with messaging that completely negated rhino horn’s medicinal worth. Two examples are included here: Firstly the WildAid “Nail Biter” campaign featuring Richard Branson, which was created with OgilvyOne Beijing. The message reads: “Rhino horn has nothing your own nails don’t have... No different or more a medical remedy than your fingernails” (See WildAid website for image, <https://wildaid.org/>). A WildAid press release quotes Branson as saying:

Most of this spike in wildlife crime is driven by increased consumer demand in China and Vietnam, where rhino horn is used primarily as a remedy for all sorts of ailments, even though it has long been shown that it doesn’t have any medicinal properties whatsoever. It’s a sad story of superstition and misinformation. (WildAid, January 13, 2016, “Richard Branson speaks out against rhino horn trade”)

Secondly, an ENV press release that featured the fingernail framing device stated:

Moreover, unfounded beliefs that rhino horn can cure cancer or treat other illnesses has fuelled consumer demand for rhino horn, despite the fact that rhino horn is made from a form of keratin, similar to human fingernails or buffalo horn and has absolutely no medicinal value. (ENV, 2015)

4.2 Insights from Interviews into the “VWP” Frame

The key personnel and experts, who were interviewed, helped shed light on the reasons and processes behind the “fingernail” message, revealing communicator, audience, and cultural frames (Entman, 1993), as well as ENGO ideologies (Scheufele, 1999; deVreese, 2005). These variables shed light on the trust and credibility issues experienced by the Vietnamese public. There were mixed views about whether traditional medicine claims were true. Some ENGO personnel said the fingernail message was true and effective to create awareness, while other ENGOs said it was untrue and there was a negative public sentiment to the message.

The interview data shows that some of the ENGOs either did not know or did not believe that rhino horn has scientifically proven medical effects. The strong ideologies such as the ideological stances referred to by Mr. Tung, media manager of Change, and Representative B may have contributed to the production of the “VWP” frame:

So, I really hate the people who use and buy rhino horn and I will judge them as someone who has not had the chance to read the right information and they don’t have enough knowledge about it, so they buy it (T Trang, 2016, personal communication, July 1)

So, I think we tried to highlight that and tried to highlight that there is no proof that it cures cancer and that the other benefits you know are absolute... you know, frankly pure fallacy. It is keratin, it is fingernails... We took on that message because it's true and... We really try to be a science-based organisation, we try to base our appeals on science and not on emotion (Representative B, 2016, personal communication, 18 November)

Some ENGO personnel, however, said that the public was angered by the fingernail message, because it is false or contradicted their beliefs:

But even with the message of the fingernail, we got a lot of complaint from the government officer and other public member. That's why we stopped using that message. When the conservation organisation says that rhino horn is the same like fingernail, it's not true at all. Because you shouldn't say it have no value at all, rather than that you should say we have other alternative other than rhino horn. (D Nguyen, 2016, personal communication, 18 November)

We got a lot of feedback from people they say they don't trust that kind of message. People say rhino horn and fingernails are not the same (Representative A, 2016, personal communication, 17 November)

John Baker of WildAid said that humour and satire were effective at grabbing attention, however, there were several issues that impacted the audience's trust, such as ENGOs communicating in ways that were potentially disrespectful. The feedback, as discussed earlier, from the public and the government suggested that such devices did not engender trust:

If you think rhino horn is going to help you, you might as well bite your fingernail, because it's the same material. So, it's a little bit of information and it's a little bit of making people look dumb for using rhino horn, because no-one wants to be sitting there chewing on their fingernails (J Baker, 2016, personal communication, 17 November)

Another issue that ENGO personnel raised, which may have impacted trust and credibility, was how the fingernail message was an oversimplification of the science:

You do have to simplify something to send to the public, because if it's too scientific or too detailed then they don't understand. A lot of the time we are sending out messages that are too simplified (Representative A, 2016, personal communication, 17 November)

Responses from experts in the media confirmed that the fingernail message was widely mediatised:

And the media pointed out that rhino is not good for human health, because rhino is similar to nails, human nails... Rhino horn does not contain any medicinal properties. That was what the media in Vietnam pointed out for a long time. And we carry our story in that direction (Newspaper editor A, 2016, personal communication, 22 November)

Hence, the use of the “fingernail” metaphor was a form of science communication, used as an “information shortcut” (Brossard & Nisbet, 2006). The ENGOs’ “fingernail” message that enacted the “VWP” frame, was likely responsible for a number of the Vietnamese public choosing not to trust ENGOs as source of credible scientific information. Experts in the media tended to agree with ENGO perceptions that the oversimplification of the science of the fingernail message created trust issues:

I think the media does not report with the scientific evidence enough. Especially foreign media. Some NGO report found out that 99 percent similar to human nails, and then some

foreign newspaper report. Not very objective, not enough to win people trust. And no people remember the story of 99 percent of rhino horn like human nails anymore (Journalist B, 2016, personal communication, 22 November)

Another media expert suggested that the lack of scientific information resulted in general confusion and ambiguity about the medical effects of rhino horn in Vietnam:

Rhino horn consumers just have a very vague idea of the actual impact of rhino horn on their health. They just believe that it is good for their health, but they don't know exactly good for what. They don't know exactly. They just know that rhino horn can make them stronger and when people refer to rhino horn, rhino horn can make them stronger [and can] make them more manly, for man. Most of the consumers are men not women, so [they] believe that it can make them stronger. I think most of the time [that] Vietnamese media write about rhino horn, they just mention the user of rhino horn for medicinal purposes and what they purpose is, they don't know what it is (Newspaper editor A, 2016, personal communication, 22 November)

Miss Hong from WCS suggested that the public would respond better to the ENGOs' campaigns, if the ENGOs focused on discrediting the new spurious claims, such as cancer cure, of rhino horn made by traders rather than criticise traditional medicine:

We can give them a message of how the research has been done on the features of rhino horn to say that it doesn't have all those advertised benefits people are talking about right now. And those benefits don't have any basis. And it's often created by the wildlife traders and each year there's more new benefits and that's the proof that it's [claims by wildlife traders] not traditional [and] it doesn't have any basis. (VH Duong 2016, personal communication, 18 November)

4.3 Qualitative Analysis of Scientific Reports

The results of studies regarding the medical efficacy of rhino horn, stemming from the conservation and scientific sectors, differ significantly. ENGOs and Western scientific studies report that rhino horn has no medical benefit, while a majority of Asian scientific studies report that it does.

The ENGOs in their press releases communicated that rhino horn has no medical benefit, because it is made of the same keratin material as a human's fingernails or hair. Western scientific studies such as Hoffmann LaRoche Pharmaceutical Corporation's UK study (Anon, 1983, cited in Nowell, 2012) found no anti-pyretic or other medical effect. In line with the Western studies and ENGO press releases, an overview report of the existing relevant scientific reports (Nowell, 2012) questioned the scientific results of rhino horn's medical worth from Asian studies and warned that as tests had not been replicated any use should be "contemplated with caution" (p. 38).

The reports from MacDonald (2016), Henry (2017) and Cyranoski (2017) tended to support the reasoning behind Nowell's (2012) questioning of the Chinese clinical trials, as they raised trust and credibility issues with research integrity in China that were likely to extend to TCM (MacDonald 2016).

The qualitative analysis of the overview of scientific studies by Nowell (2012), revealed the presence of the "VWP" frame. The overview enacted the frame by questioning the scientific results obtained in China, while appearing to support the results of Western clinical

studies. While appearing mostly objective, the article conveyed the meaning of a false belief by four key devices:

- emphasising that the experiments that supported the pharmacological effects of rhino horn were all from China, while reports from elsewhere refuted the claims;
- emphasising information on the lack of high standard scientific research on rhino horn, compared to other traditional medicine ingredients;
- including information about the alleged lack of interest in research from Western drug companies in keratin-based drugs;
- emphasising that rarity rather than medical efficacy is the main factor in the demand for medical use.

On the other hand, all the scientific reports from China that were reviewed by Nowell (2012) confirmed the validity of traditional beliefs in the medical efficacy of rhino horn by showing that rhino horn has significant pharmacological effects. Six studies showed significant anti-pyretic effects and two showed significant anti-inflammatory effects (Nowell 2012 p. 38). These scientific reports are published in peer reviewed journals including *Nature*, the *Journal of Ethnopharmacology*, and the *Journal of Morphology*. The studies pointed to proven medical efficacy of rhino horn in the treatment of some medical conditions. Liu et al.'s (2016) tests demonstrated that at traditional dosages based on the ancient texts of *Bencao Gangmu* and *Shennong Bencao Jing* (Han dynasty, about 200 B.C.–200 A.D.) - rhino horn has “wonderful antipyretic, sedative and procoagulant activities” (p. 4).

A qualitative analysis of Liu et al.'s (2016) paper found the presence of the “VWP” frame with a very positive assessment of the medical efficacy of rhino horn for uses prescribed in traditional medicine texts. It conveyed this by saying rhino horn had “wonderful” (p. 4) medical values, but emphasised that it could be substituted by other animal horns and recommended that it should not be used, because it was illegal and rhinos face the threat of extinction.

An analysis of sources of funding and affiliations of scientific pharmacological studies revealed a clear division between Western and Eastern funding sources. The 1983 UK study by Hoffmann LaRoche pharmaceutical corporation was requested by WWF (Nowell, 2012), which is headquartered in Washington DC. Nowell's (2012) overview of scientific studies was prepared for CITES which is headquartered in Geneva Switzerland. The overview was compiled on behalf of TRAFFIC, which is headquartered in the UK. Nowell's report was supported by funding from the UK Department for Environment, Food and Rural Affairs. Liu et al.'s (2016) study was supported by Priority Academic Program Development of Jiangsu Higher Education Institutions, Technology Research Funds of State Administration of Traditional Chinese Medicine, National Science Foundation of China, Doctoral Fund of Ministry of Education of China and Jiangsu Qinglan Project. The division between Western and Eastern funding sources and affiliations tends to align with the rejection or agreement of TCM efficacy in the scientific results.

The findings show that the science communication regarding the medical worth of rhino horn in the media outputs of the ENGOs in Vietnam differentiates widely from the peer reviewed scientific reports done in Asia on the topic. Arguably this differentiation firstly derives from ENGOs and Chinese scientists deferring to the different scientific authorities of Western medicine and Eastern traditional medicine respectively. The findings, which show the

persistent use of the “fingernail” message since the 2013 TRAFFIC “Say NO to rhino horn” campaign, also suggest that ENGOs defer to other ENGOs as scientific authorities possibly because of shared values. Secondly the division may derive from the different powerful cultural and economic fields that ENGOs and scientists operate in. These fields differ because ENGOs are generally funded through Western agencies, while the Chinese scientists, who conducted the majority of the experiments done on rhino horn pharmacology, were supported through Chinese organisations.

5. THEORETICAL DISCUSSION

Lakoff (2010) and Nisbet (2009) noted a frame encapsulates all competing points of view, while Beck (1992) argued that scientific views can differentiate widely. Anderson (1997) argued such divisions are institutionalised. Hence the “VWP” frame, as Nisbet’s (2009) definition of the “Scientific or technical uncertainty” frame explained, encapsulates both sides of the scientific debate surrounding rhino horn. The debate included scientific reports and rhetorical devices such as “keratin”, “fingernails” and “myths”, which were used by ENGOs.

The “VWP” frame and the “fingernail” message framing device, which is central to the frame, are clear examples of Gitlin (1980) and Entman’s (1993) theories of framing being a process of selection, emphasis and exclusion. The ENGOs selected the information from scientific reports about rhino horn being made of keratin the same as fingernails, while they excluded the scientific support for the key medical effects of rhino horn as a heat clearer or antipyretic. The excluded information regarded the findings of at least six scientists that rhino horn had “significant fever reduction” (see Table 3, Nowell, 2012, p. 13) and “statistically significant pharmacological effect” (Nowell, 2012, p. 1). Thus, the process of selection and exclusion, which painted the medical effects of consuming rhino horn the same as chewing fingernails, supported the ENGOs’ argument to reduce demand and trade for rhino horn. The data shows the frame became persistent.

There are several possible explanations why ENGOs excluded the scientific support of rhino horn’s medical efficacy from their press releases. Arguably the ENGOs, particularly TRAFFIC, that contracted the overview of the scientific reports by Nowell (2012), knowingly excluded in their press releases information about rhino horn’s medical efficacy, potentially because journalists, or in this case ENGO media personnel, tend to avoid ambiguous information (Gitlin, 1980; Blood, Putnis & Pirkis, 2002). Such information could be used to disrupt the ENGOs argument and promote rhino horn use, so the ENGOs plausibly viewed the information as dangerous in the public sphere and wanted to avoid a backfire situation. Lakoff’s (2010) theories tend to agree, as he warned against attempts to negate a frame because of the potential to activate the meaning. It has been my experience as a journalist in this area that ambiguous information about rhino horn can be reposted online and used in a context that was not intended by the author. For example, drawing on my own experience, my news feature article exposing the rhino horn trade in Ho Chi Minh City, *The Saigon Horn* (Smith, 2012), was quoted in an online article promoting rhino horn as an aphrodisiac.

As previously discussed, the ENGOs used the “VWP” frame because it was successful at raising awareness (Smith, 2017), as an informational shortcut (Brossard & Nisbet, 2006). The press releases showed that a majority of the ENGOs claimed that rhino horn has no medical effect whatsoever. In addition, the interview data tended to show that some ENGOs either did not know or did not believe that rhino horn has scientifically proven medical

efficacy. Brossard and Nisbet (2006) offer a possible explanation for the ENGOS not knowing. The ENGOS examined here may have not invested the time and effort to learn about the science from primary scientific sources. Hence, they may be similar to what Brossard and Nisbet (2006) call “miserly citizens” or “a low information public,” who lacked the ability and/or motivation to fully inform themselves about scientific issues and relied instead on “information shortcuts” such as values, trust and media interpretations (Brossard & Nisbet, 2006). It is plausible that once the fingernail message was first publicised, such as via the 2013 TRAFFIC/WWF campaign discussed above, other ENGOS involved in campaigning relied on that media interpretation as an information shortcut and perpetuated the frame. WWF and TRAFFIC, during the sample time frame of 2014-2016, tended, however, to reduce the selection and emphasis of the fingernail and myth devices.

Brossard and Nisbet’s (2006) finding that the greatest influence of citizen’s support for science is not knowledge, but a deference to scientific authority, may provide another clue to the exclusion of scientific evidence from the ENGOS campaigns. The ENGOS may have deferred to the scientists in the West, rather than the scientists in the East, highlighting “the strong heuristic role played by value predispositions” (Brossard & Nisbet 2006, p. 26). Vagra et al.’s (2018) theories about how scientists communicate controversial issues reveals their institutional biases and Beck’s (1992) theories about the powerful cultural and economic field that scientists operate in, could also help explain why ENGOS potentially didn’t defer to the science coming out of Asia. Reports from MacDonald (2016), Henry (2017) and Cyranoski (2017) of allegations of a lack of research integrity in China suggest that Beck’s (1992) theory may be valid in the context of pharmacological studies into rhino horn in China, with evidence of Chinese scientists operating under powerful cultural and economic influences. The allegations also provide possible reasons for ENGOS not deferring to Asian scientific knowledge. As Ellis (2005) observed, “Western and TCM practitioners tend to focus on the research results that are supported by their world views” (p. 238).

In contrast to the ENGOS, their audience, which is the Vietnamese public, appeared to defer to Traditional Medicine scientific authority in the East (see Figures 1 and 2). The interviews also suggested that if the ENGOS had provided more detailed scientific evidence the Vietnamese audiences may have also deferred to an extent to Western as well as Chinese modern scientific authority (see Figure 1). Nowell’s (2012) overview supports this as she found the Vietnamese rely on a combination of traditional and modern medicine.

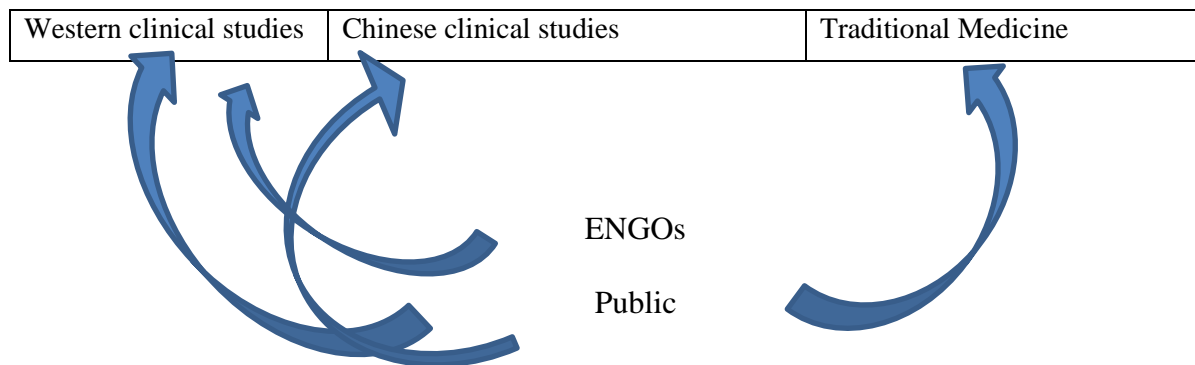


Fig. 1. ENGOS and public deference to scientific authority

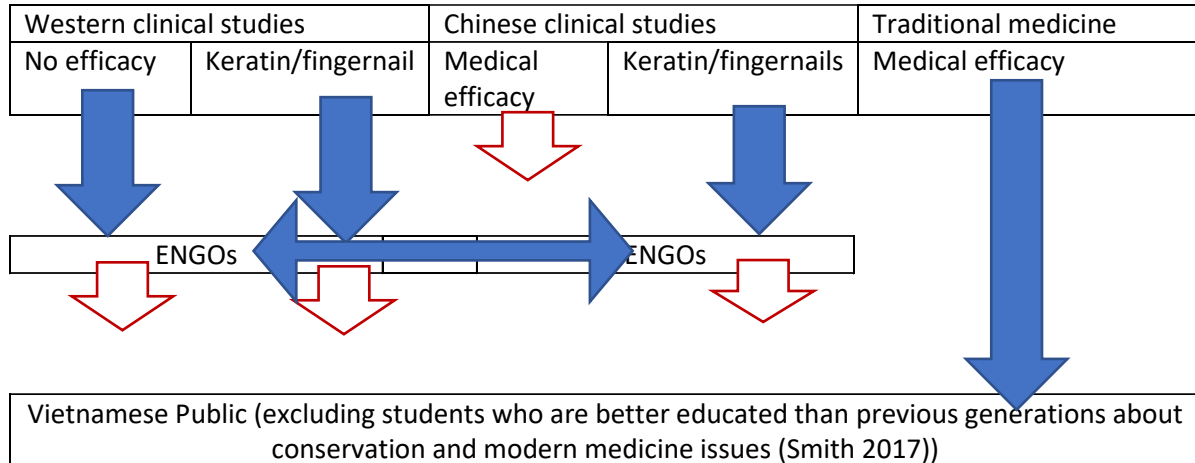


Fig. 2. Transmission of “no medical efficacy”, “medical efficacy” and “fingernail” messages from three scientific authorities to the Vietnamese public regarding pharmacology of rhino horn. (Blue arrows show successful transmission. Red arrows show unsuccessful transmission.)

The interview transcripts suggest that audiences may have lost trust in the ENGOs as sources of information, because they felt the fingernail message was inaccurate and unscientific, hence not credible. They were also angry, because the “VWP” frame was culturally insensitive by portraying users as irrational and ignorant (Beck, 1992). It may be posited along with Beck’s arguments that as a poor version of scientific reports the “fingernail” message “frittered away” rationality and credibility. Brossard and Nisbet (2006) found that the public rely more on who to trust rather than scientific knowledge. ENGOs may have overlooked the importance of culture (Anderson, 1997) and religion (Brossard and Nisbet, 2006) in the creation of the fingernail frame and put public trust on the line. As previously discussed (Smith, forthcoming) ENGOs in Vietnam have pre-existing trust, credibility and legitimacy issues, resulting in them de-branding some campaign outputs.

5. CONCLUSION

This paper builds on previous research about a key science frame, the “Voodoo Wildlife Parts” Frame (Smith 2017, 2018 forthcoming), in ENGO media outputs in Vietnam to reduce demand for rhino horn, by exploring the trust and credibility issues that arose in response to the fingernail messaging.

The findings illustrate that the use of framing analysis identifying framing sites (Entman, 1993) and influencing factors of frames (deVreese 2005; Scheufele, 1999) was an effective method to explore trust and communication issues in science communication. The methodology expanded on the methods used by Blood, Putnis & Pirkis (2002). The approach enabled the exploration of attitudes and aspects of the audience, communicator, text and culture, which potentially impact trust and credibility issues.

The study revealed variations in the evaluation of the medical worth of rhino horn among scientists, the ENGOs and their audiences. These variations of opinion influenced the

heuristics of trust and credibility for audiences concerning the ENGOs' science communication. The results suggest that audiences with preconceived beliefs may not trust messages that oversimplify scientific information. The study also revealed a potential institutionalisation of the division of scientific opinion (Anderson, 1997, p. 115) between the ENGOs and Western scientific studies on one side and the scientific studies of the pharmacological effects of rhino horn done in Asia on the other.

This paper reveals that the ENGOs excluded from their media outputs, the results from the scientific experiments that rhino horn was not indispensable, and it could be substituted with aspirin or paracetamol or a range of other sustainable TCM alternatives such as horns from water buffaloes, domestic cows and goats. Information about horn alternatives were not present in the press release sample, despite ENGOs being tied to science for their legitimacy.

A possible recommendation for ENGOs that have claimed that rhino horn has no medicinal worth, would be to admit there is a scientific debate on the issue. Admitting mistakes is a key principle of public relations to win back trust with the public (Stockwell, 2005) and it would be better in the long term to base the campaign on facts that have scientific backing. While admitting the mistake, Stockwell (2005) suggests that the ENGOs could turn the message into a positive by suggesting a cheaper scientifically proven alternative such as water buffalo horn, domestic cow horn or goat horn. ENGOs must weigh up, however, if they should again try to compete with the existing audience frames regarding rhino horn, as Lakoff (2010) argues that it is impossible to negate a frame without activating it. Another recommendation is for ENGOs to commission an independent randomised double-blind trial on humans by a mixed team of Western and Asian scientists.

There is an implication for further research into ENGOs' processes and reasoning behind the exclusion of scientific information and the potential for bias in the framing of scientific reports and peer reviewed scientific articles regarding topics at the intersection between IWT and TCM. Beck (1992) argued that scientists operate in a powerful economic and cultural magnetic field and stressed the moral requirement for stronger protection of scientists to make findings without political, economic or cultural influence (p. 82).

As this paper has outlined, ENGOs in Vietnam used framing strategies involving fingernail and keratin devices rather than employing evidence from scientific studies. The demand for a traditionally important medicine ingredient stemmed from the public choosing different scientific authorities than ENGOs chose. ENGOs deferred to Western science, while the Vietnamese public and Chinese scientists deferred to the Eastern science of Traditional Medicine. Regardless of the division, the practice of environmental campaigning using a hollow science frame that denied existing scientific evidence has raised serious trust and credibility issues for ENGOs with the Vietnamese public. Thus, choosing whether to exclude potentially damaging scientific information represents a risk that ENGOs need to weigh up against the important task of building their credibility and legitimacy. As Beck (1992) argues "the (il)logic, cooperation and opposition of scientific perception may need to be displayed.

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REDUCING DEMAND FOR RHINO HORN IN VIETNAM WITH THE FINGERNAIL METAPHOR

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