# The social aspects of science communication in the books for general audience after Fukushima Daiichi nuclear disaster

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**一般書における科学コミュニケーションの分析――福島第一原発事故を題材として――**

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## 要約

本研究は、福島第一原発事故後、間もない時期に出版された、一般読者向けの書籍 5 冊を対象として、その内容を分析し、科学コミュニケーションが科学的事実や科学者組織について、詳細な科学的知識を持たない人たちに伝達する際の問題点を議論したものである。まず焦点を当てたのが、現在、科学的に正しい見解が定まっていないと思われる、低線量放射線による被ばくの危険性に関する議論、および、危険閾についてのガイドラインを提出している組織である「ICRP」（International Commission on Radiological Protection）の信頼性を操作するような記述である。そこでは、科学的な論争における重要な論争点が提示されておらず、また、執筆者の立場により、ICRP の信頼性を高めたり貶めたりするような記述が恣意的になされていることが明らかとなった。このように、科学的論争を、科学的事実に関する議論の場ではなく、関与する科学者や組織の信頼性の問題としてフレームして、読者を説得する手法について、本論文は「信頼性戦争（Credibility war）」方略と名付け、その問題点を、科学的事実への理解が欠如した読者を安易に特定の立場に誘導してしまうこと、また、読者が確証バイアスによりその立場を堅持する結果につながりやすいことにあると指摘した。続いて、科学コミュニケーションのスタイルとして、「知識的に優位な立場の科学者」が、「知識が欠如した一般市民」に「教え授ける」という「欠如モデル」による説得レトリックの存在を指摘した。さらにその問題点として、このモデルがトピックに対しての自我関与がそれほど高くない一般大衆（つまりは、福島第一原発事故の直接被害を受けない層）により強く機能する可能性と、心理的リアクタンスの喚起により、コミュニケーション内容の理解が妨げられる可能性を指摘した。最後に、新しくみられる科学コミュニケーションの一例として、中川（2011）に着目し、一般市民が自らの行動を選択する責任を保持していることを前提にした科学コミュニケーションのあり方の可能性について議論した。そのうえで、放射線被ばくの健康への直接的結果だけではなく、それがもたらす社会的帰結がもたらす影響も総合的に評価したうえで、リスクを評価せねばならないという状況認識の重要性、またリスクを背負う人自身が、リスク評価を行う必要を前提とした科学コミュニケーションが今後求められることを論じた。

## Key words

science communication, citizen-based decision-making, persuasion, risk communication, nuclear disaster

## 1. Introduction

How can we construct good science communication? What is the condition for that? One naïve answer would be that the accuracy and plainness are the important components for “good science communication.” However, since the roles of science communication go beyond simply providing scientific knowledge, accurate and plain communication is not the only matter to consider. Science communication is inevitably associated with the practical and sometimes ethical choices that individuals or societies make for personal well-being and risk-taking, or social policy makings. Therefore, meta-level and social level considerations, such as the legitimacy of producing scientific information, the social relationship between the provider (i.e., scientist) and receiver (i.e., citizen) of such information, and the implications of the communicated information for social receivers’ personal and social actions, are also important points when judging the quality of science communication.

The quality of science communication is a crucial issue to the extent that the topic concerns serious risks for the life and the social system, and the contents of the communicated information have the significant impact to guide the decisions influencing the well-being of the citizens. This is particularly true to the case for controversial issues, in which the conflicting views are communicated from various sources since the “scientific truth” is still hard to determine, and the strategies to manipulate the legitimacy of scientific information must be carefully

examined. In this respect, the science communication on the Fukushima Daiichi nuclear disaster is one of the most important topics to be focused in our era in Japan.

This paper examined the generic texts reported in scientific and technical communication in the books for general audience on the issue of the Fukushima Daiichi nuclear disaster and the risk of radiation. We selected five books as the targets of the analyses. These books were those published right after the disaster (within three months after the Great East Japan Earthquake which occurred on March 11, 2011), paperbacks published for general readers, and inexpensive (below 1,000 yen, approximately $ 10). The target five books were as follows.

(1) Takarajima Henshūbu, eds. The easiest to understand true story about radioactivity. (Sekaiichi wakariyasui hōshanō no hontō no hanashi) Takarajimasha. Published on April 20, 2011.
(2) Masao Tomonaga, Basic knowledge about radioactive contamination in 45 minutes! (45 pun de wakaru: hōshanō osen no kisochishiki) Magazine House. Published on May 19, 2011.
(3) Katsuhiro Saitō. The basic knowledge about radioactivity that you should know. (Shitte okitai hōshanō no kiso chishiki). Saiensu Ai shinsho. Published on Jun 1, 2011.
(4) Keiichi Nakagawa. The secrets of radiation. (Hōshasen no himitsu). Asahi Shuppansha. Published on May 26, 2011.
(5) Noriyuki Mizuno, Yoshiyuki Yamasaki, and Atsuto Fujiwara. Emergency commentary! The Fukushima Daiichi nuclear disaster and radiation. (Kinkyū kaisetsu! Fukushima daiichi genpatsu jiko to hōshasen). NHK Shuppan shinsho. Published on Jun 8, 2011.

## 2. The focuses of the paper

In the analyses of the texts, we first focused on how the text mentioned International Commission on Radiological Protection (ICRP). ICRP is an advisory body providing recommendations and guidance on radiation protection and strategies. While the recommendations from ICRP become the basis for the Radiation Hazard Prevention Act in various countries including Japan, there is a controversy regarding the risks of radiation, particularly, that of low-dose radiation exposure (Koide, 2011a; Nakagawa, 2011). Therefore, the information on ICRP and the nature of its recommendation should play a critical role in considering the quality of science communication as a guide for citizens to make various choices. As discussed in more detailed manner later however, either the explanatory descriptions for ICRP are not enough, or it suffers a problem of credibility manipulation. The paper focused on this point and examined the concrete descriptions on this issue. The examination was guided by social psychological models of persuasion, which have empirically examined the effect of credibility manipulation on attitude changes induced by persuasive messages.

Second, we focused on the power relationship between society (i.e., citizens) and science (i.e., scientists) that was implicitly assumed in science communications. This focus was guided by the idea that science has to answer the needs of citizens and the society, and science communication is an important route for science to relate with citizens (Fujigaki, 2008). Therefore, the nature of the relationship that the communication implicitly assumes, especially the power relationship, must be examined carefully to evaluate the quality of science communication. Examination of the assumed power is also important in regard to its relations to the perception of expertness of scientists. According to French & Raven (1959), expertness is one of the five power basis, which enables the person who possess knowledge or expertise to influence the attitudes and behavior of others. If the expertness of the scientists is emphasized in the communication, it will create the unequal power relationship between scientists and citizens, and the communication may have the authority to influence the attitude and behavior of citizens to the undesirable degree. Therefore, the analysis of communication should be made in terms of scientists' attempt to manipulate the power relationship by emphasizing their expertness. Such attempt would be evaluated as problematic if it leads to paternalism and deprivation of citizens' willingness to exert a control over their own life matters (Fujigaki, 2008; Todayama, 2011). Guided by these considerations, we analyzed the power relationship between the scientists and the citizens that was implied by the texts.

## 3. Academic disagreements in the risk of low-dose radiation and evaluation of ICRP

There is a controversy regarding the risks of low-dose radiation exposure. That is, some scientists advocate the serious risk of low-dose radiation while others consider that the risk has not been proved scientifically (Saito, 2011; Koide, 2011a). However, as Todayama & Karasawa (2013) indicated, there are few texts provide a detailed discussion of these arguments. Among the five books targeted in this paper, all the texts except for Saito (2011) indeed state that the national standards are based on ICRP recommendations, but only Mizuno, Yamasaki, & Fujiwara (2011) and Takarajima Henshūbu (2011) describe the characteristics of this advisory body in depth. Besides, their explanations contrast sharply.

In Mizuno et al., (2011), ICRP is described as "… a nonprofit organization of experts on radiation, independent of governments. It is not an international organization to which governments affiliate as members." (p.111). ICRP recommendations are described as "the most powerful authority in this field," and the text goes on to state that the safety standards of World Health Organization (WHO), the International Atomic Energy Agency (IAEA), and various national governments are based on the recommendations (p.112).

Furthermore, the principles underlying ICRP recommendations are introduced "to ensure as little radiation exposure as is

rationally possible, with considerations of economic and social impacts." It is also elaborated as "considering the potential effects on both society and the economy such as health hazards, the occurrence of widespread panic, and the possibility of everyday life being severely restricted, it was decided that countermeasures and standards should be defined." (p.112). It is noteworthy that preventing widespread panic is given equal weight to reducing the health risks of radiation exposure.(1) This is most likely because the author of this book was one of the Japan Broadcasting Corporation (NHK) commentators covering the incident; their concerns might be more on the social impact of the incident rather than scientific facts per se.

In contrast, Takarajima Henshūbu (2011) is unique in its critical stance regarding ICRP. It states that ICRPs' fundamentally "prioritizes the nuclear industry over safety" and mentions the following criticism: "ICRP is close to the nuclear industry. It uses convenient calculations to explain radiation exposure and allow the release of radiation into the environment." (p.38). In the "points" column, which summarizes the content of the individual sections, the following sentence is included: "Relying on ICRP standards is dangerous. There is no such thing as being too careful when it comes to internal exposure." (p.38).

Another unique feature of Takarajima Henshūbu (2011) text is the mention of the European Committee on Radiation Risk (ECRR), which is an academic organization on radiological protection that assumes a different position from that of ICRP. The Committee was established in 1997 to perform a risk analysis independent from various national evaluation agencies. Its members include public and occupational health experts, epidemiologists, sociologists studying "risk society," legal experts, politicians, and non-governmental organizations (NGOs). The wide variation of members' expertise helps to establish a broader base than ICRP. ECRR's Scientific Secretary Christopher Busby is a physical chemist and the founder of the environmental NGO Green Audit, which reflects the close ties that ECRR share with the Green Party.

ECRR criticizes ICRP on the following two points. First, ICRP's adherence to the linear no-threshold model (LNT) has a following undesirable consequence. The model acknowledges the causal relationship between radiation exposure and health hazards as long as the linear correlation is found between them. Therefore, if the radiation exposure and the occurrences of cancer do not show linear relationship, especially in case we have more occurrences of cancer than the linear relationship predicts, the LNT model tends to ascribe the extra occurrences to some causes other than radiation exposure.

Second, ECRR criticizes that ICRP's model does not consider the characteristics of a "sievert." As a unit of measurement, a sievert represents the total energy absorbed by organs or tissues, which is divided by the total mass of those organs or tissues and then averaged. As such, when radioactive molecules are absorbed (a typical example is when particles of plutonium are inhaled into the lungs), they emit a concentrated burst of alpha rays which focus on a small area of the body. This "hot particle" effect, in which the small surrounding area receives a massive absorbed dose, is not accounted for in ICRP's calculations. On the other hand, ECRR weighting factors include hot particles and heterogeneous internal responses to exposure, thus providing a model that increasingly focuses on internal exposure. For example, strontium-90 penetrates the bone and binds itself to DNA rather easily, as well as undergoing beta decay (the second event theory). Therefore, it is recommended that a weighting factor of 300 should be used for this radioactive isotope. The unique features of the ECRR model include that it conforms to the steps "absorbed dose, equivalent dose, and effective dose" used in the ICRP model while introducing new weighting factors to reflect the effects of heterogeneous internal responses to exposure.

Actually, Takarajima Henshubu (2011)'s criticism does not go into such detail. It also summarizes the ECRR's criticism as somewhat inaccurate description that ECRR "emphasizes that receiving low doses of radiation over a long period of time is more harmful to the human body than receiving a single large dose of radiation." (p.38).

The risks of low-dose radiation have not necessarily been scientifically determined. However, provisional "scientifically appropriate" standards must be established to guide governmental policies and citizens' decision making for their own behavior. People expect the scientists to give some sort of standards as a matter of urgency. As a result, scientists are forced to make a commitment despite the existence of uncertainty. Furthermore, the commitment is inevitably influenced by the decisions regarding how scientific research should proceed as well as the political and social stances to undertake. This creates a situation in which citizens should take into consideration "who" formulated the standards and his or her social and political stance when evaluating the appropriateness of adopting the standards as the rule to regulate the society. At the root of government standards is the need to provide citizens with materials on which they may base their decisions. Then, it would be desirable to provide both a "standardized explanation" (in the above sense) as well as anti-standardized explanation. Of course, it should include the information concerning each explanation's foundation, the counterarguments, the characteristics and the standpoints of the advocators of each explanation, and the history of the debate between them.

## 4. The credibility war and its problems

Takarajima Henshūbu (2011) should be esteemed for providing counterarguments from the ECRR, but it is unfortunate that these are only used to suggest that the "nuclear industry-affiliated" ICRP cannot be trusted (p.39). Without the rationales for ECRR's arguments, the readers of the book cannot judge if the ECRR's criticism is scientifically legitimate to accept and

the standard recommended by ICRP is to be discarded. In such a circumstance, the readers have to rely on the clues such as the perceived social status, expertness, and trustworthiness of these organizations. In this sense, Takarajima Henshūbu (2011) adopted the communication strategy to handle the issue as the "credibility war," not as the matter of scientific debates. Admittedly, this would not be the intent of the authors, and the claims would be made that the general audience will not be interested in, or do not understand, the details of complicated scientific debate. This claim may be shared by other books which did not provide with the information on the controversy.

Still, the strategy to omit the explanation on the scientific debates on the effect of low-dose radiation, or the strategy to focus on the credibility of ICRP rather than the content of the scientific debate, seems to cause some problems to hinder the judgment based on scientific facts. At least, two problems should be pointed out from social psychological perspective. First, the manipulation of the credibility of ICRP will lead to the acceptance or rejection of the standard without knowing what it really is. The studies on persuasion conducted by social psychologists have repeatedly demonstrated that people are likely to endorse the advocated opinion guided by peripheral cues, such as the credibility of advocators, not by the quality of the message itself (Hovland & Weiss, 1951; Petty & Cacioppo, 1986). This is particularly the case for those who are less motivated to invest cognitive resources to process the messages and those who lack the basic knowledge to understand the content of the messages. These characteristics actually fit to those of "general public." That is, the audience of these books seems to be the classes who are vulnerable by the strategies of credibility manipulation.

Second, the simplistic presentation of the debates may lead to the confirmation bias. The confirmation bias refers to our tendency to make inferences and judgments in the direction to be consistent with existing knowledge, expectations, beliefs, and wishes (Klayman & Ha, 1987). When the information concerning the debate is missing, the audience would "fill in" the views and ideas that are consistent with what they know or believe. Of course, the "filled in" information is often arbitrary and scientifically inaccurate, and consequently, the audience would construct scientifically invalid representation of radiation's impact.

Therefore, it seems to give us a lesson for an essential condition of science communication; it is important to offer scientific foundations and evaluations for each explanation when experts differ in their opinions. Then, directions on how non-experts should judge and act must follow to them, if they are to be made, when communicating risks in situations with uncertainty.

## 5. Persuasive rhetoric

Both ICRP and ECRR believe that there is no threshold for low-dose radiation risks. In reality, no matter how low the radiation dose, some degree of exposure cannot be avoided after the Fukushima disaster regardless of location. Even if we live in somewhere far away from Fukushima, there is a chance to consume the food contaminated by radiation. Therefore, once we have determined that there is a risk, we must decide on a strategy to avoid its impact.

In determining the strategy, we have to consider that the risk is not limited to the health risk which is directly associated with the radiation exposure. The risks would include unemployment, the loss of income and pride due to the predicament of being forced to evacuate one's home, the costs of avoiding "contaminated" food and water, and the interpersonal conflict among family or community members due to the difference in their opinion how to cope with the threat of radiation exposure. The actions to avoid the exposure inevitably lead to (sometimes drastic) changes of our life style, and the risks associated with such changes are wide-ranged and serious. Indeed, various health problems, such as influenza, peptic ulcers, and brain structure changes, associated with the psychological distress after the Great East Japan Earthquake are reported (e.g., Kanno et al., 2012; Tohma et al., 2012). Therefore, as Mizuno et al. (2011) says, "it is necessary to have a clear understanding of the risks of radiation, the affiliated risks it presents, and the effort required to avoid radiation when deciding how to respond," (p.113) or that "unnecessary exposure should be rationally avoided as much as possible." (p.148).

The issue is whether this "rationality" cannot be reduced to scientific rationality and who "decides how to respond … based on a clear understanding." The risks include social and personal risks, and the impact of these risks cannot be evaluated scientifically. In this respect, the scientists cannot exclusively possess the authority to decide how to respond. Regarding this point, there has been a trend that should be noted in scientific communication on radiological protection since the Fukushima Daiichi nuclear disaster.

Prior to the Fukushima Daiichi nuclear disaster, scientific communication which aimed at the general public focused on the debate surrounding the "safety" of nuclear power when talked about radiation risks. It would be safe to conclude that the following type of communication style was dominant: "It would be laudable if we held debates from a scientific viewpoint about the effect of factories and treatment plants on the environment as well as that of nuclear power. But the opposition to nuclear reprocessing plants seems to be largely emotional and sentimental. It appears to be mired in negative opinions based on simplistic impressions that "radioactivity = scary" and "radioactivity = environmental pollution." There seem to be a lack of concrete or real debates on the safety of the facilities themselves or the radioactive materials that they emit." (Ōtsuki, 2008, p.15).

These statements are typical examples of the communication in the "deficit model," in which non-experts' fear and opposition are seen as nothing more than an emotional reaction created from the lack of scientific knowledge (Dickson, 2005). Should they be inculcated with proper scientific knowledge, their fear

would disappear and they would lose every reason to object. Communication based on the deficit model assumes that the aims of science communication are to enlighten citizens who lack the scientific knowledge, and persuade them to behave as the scientists consider as the best. For these attempts to succeed, experts must behave as they monopolize their expert knowledge. Therefore, they use the following communication style: "I understand everything. If I were to give you my knowledge, you would understand how safe nuclear power is, so you should trust me." This communication style does not typically provide data or academic evidence to support their arguments. Although providing the objective evidences and references are the fundamental rules of academia, scientific communication aimed at the general public ignores this rule. The strategy in this communication style could be called "persuasive rhetoric."

Setting aside the validity issue of science communication, we should note that the strategy of persuasive rhetoric has some problems as a "persuasion strategy." First, this strategy is not very effective to those who are motivated to think seriously about the issue (Petty & Casioppo, 1986). The general recommendation from the findings in persuasion studies is that these audiences are more likely to react to o the quality of the persuasive message. Therefore, the message without the data or some form of evidence will be evaluated in a negative manner.

Second and more serious problem is that the strategy is likely to evoke the psychological reactance among the audience. Psychological reactance is a motivationally aroused state that occurs when one perceives the threat to behavioral freedoms (Brehm, 1966; Brehm & Brehm, 1981). We generally believe (and want to believe) that we have freedom to select what, when, and how to conduct our behavior, and are motivated to protect the freedom of choice. Therefore, when we are exposed to an authoritative persuasion which directs us how to behave, we feel the fear for loss of further freedom, and try to re-establish the threatened freedom. One way to re-establish the freedom is to reject the message, or adopt the attitude which is opposite to the persuasion (Worchel & Brehm, 1970; Ringold, 2002). In addition, the reactance is often accompanied with hostility, aggressive feeling, and derogation toward the sender of the message who limits the freedom (Kohn & Barnes, 1977). Therefore, an attempt of persuasion with persuasive rhetoric is likely to fail if it evokes the reactance.

Despite these problems, the persuasive rhetoric has been used regardless of whether the communicator is pro- or anti-nuclear power. The style of communication that proclaims "If you just listen to me, you are sure to become anti-nuclear power" can also be placed into the category of persuasive rhetoric. Unfortunately, some best-selling books advocating anti-nuclear power are not completely free of this rhetoric. For instance, see the readers' review on Amazon.com for Koide (2011a; 2011b).[(2)] About one year after the publication, more than 100 reader reviews posted, and one of them stated, "However, the sources are not provided, so it is impossible to distinguish between what is simply the author's opinion and what is a scientifically proven fact. After reading it, I was left feeling confused".[(3)] It is important to note that this review was posted by a member of the general public. He or she recognized the most serious problem of nuclear power is the highly radioactive waste it produces, approved of the arguments in the book, but indicated that the lack of sources was a shortcoming. On one hand, it may show the maturity of the general public as the recipients of science communication. However, we also have to note that this might be the rare case. The persuasive rhetoric seems to have a certain effect for the general public to naturally accept the arguments. Considering the problems stated above, the persuasive rhetoric may have succeeded to the extent that the general audience is the passive recipient of the message, and considered the choice should be made under the guidance of authorities, not by themselves.

## 6. A new direction

Nevertheless, we can see a small but important change in scientific communication regarding nuclear power and radiation after the Great East Japan Earthquake. Undoubtedly, the incident brought about a diminishment in the authority of nuclear power experts. In addition, the question of how to protect ourselves from radioactive contamination must now be faced without reference to being either pro- or anti-nuclear power. Due to this factor, the power of persuasive rhetoric, at least in regard to radiation risks, is diminishing. Being comforted or frightened is irrelevant to the responses necessary to deal with the actual radiation. A phrase that succinctly sums up this change is to "know how to be frightened"

Nakagawa (2011) is particularly noteworthy in this respect; it presents the general point of ICRP recommendations and various standards, and explains the logics behind them. Then the text concludes as "we must take into consideration both the various risks and the psychological burden that are attendant upon safety regulations and the risks of exposure, and choose the 'less objectionable' option." (p.130). The following sentence is a crucial one: "Those who will actually bear the risks should be the main voice in the debate, and the strategies to cope with the risks should be flexible so that they accommodate the needs posed by the actual conditions." (p.130). This sentence argues that the main body who should weigh the risks and "decide how to respond based on a clear understanding" are neither government officials nor scientists but those who would actually bear the risks. In other words, "unnecessary exposure which should be rationally avoided as much as possible" is not only determined by scientific rationality but also by social rationality. From this viewpoint, Nakagawa (2011) suggests the following:

(1) Since a coping strategy based on a presupposed average level of exposure is not appropriate, personal dosimeters that

will enable detailed responses tailored to individual levels of exposure should be distributed to residents (pp.136-137).

(2) Justification of protection plans (showing that the amount of inconvenience caused was justified) is as important as the optimization of protection plans (balancing the detriments caused by the exposure with the economic and social detriments caused by the plan) (p.137).

(3) The decision-making process should be transparent and the data that led to the adopted protection plan should be made available so that third parties can review them (p.138).

(4) The drafting process of radiation protection plans should be designed such that residents themselves may play an active role in the process (p.142).

The author indeed practiced the third suggestion in its writing. That is, Nakagawa (2011) cites academic papers and "ICRP Publication 111" on radiation protection in an emergency situation. It also indicates the source of the latter.

To summarize these proposals, Nakagawa (2011) advocates the need to escape from the paternalism in building the radiation protection plans. In regard to this point alone, Nakagawa (2011) and Koide (2011b) are in broad agreement. In a discussion of food standards, Koide (2011b) states, "It is certainly not the case that things are safe simply because they fall below a standard threshold," and "Why not mark each food product with its level of pollution so that consumers can see them? If the level of pollution on a food product is properly displayed, then people could make their own decisions about whether to consume the product. The current situation enables others to make the decisions about standards that impact our own lives, which is fundamentally wrong. What is important is that we have to decide by ourselves whether to allow ourselves to be exposed to radiation." (p.95). This argument on personal responsibility is extended to citizens who previously allowed the use of nuclear power until something actually went wrong: "You may all think I didn't know anything about nuclear power … The government and the power companies who said it was safe are the ones to blame ... I am not responsible … But those who are deceived share a certain amount of responsibility for their own deception" (p. 94).

Persuasive rhetoric is one form of paternalism that occurs in communication. As long as non-experts continue to follow those they identified as authorities, paternalism will continue. Continuing this attitude leads to "I can't tell which is which… i.e., not knowing who is trustworthy." However, in the post-3.11 world in which we are forced to live with radioactive contamination (whether we like it or not), it is necessary to switch from scientific communication that "persuades" us to believe the putative future safety or danger, to scientific communication that aids the citizen-based decision-making process in regard to actual radiation protection. As we have seen, the first tentative step toward making this switch has already occurred, and the maturity of citizens to accept the responsibility for "making their own decision" is needed.

## Notes

(1) Both Tomonaga (2011) and Mizuno et al. (2011) refer to panic. However the two texts presented contrastive views for the cause and the result of panic. The former concluded that the Three Mile Island incident itself actually caused the panic (p.19) but the latter stated that the government did not release the needed information of the accidents immediately for the fear of panic and this had the opposite result of setting off panic and the increase of the damage (p.108).

(2) We do not argue that Koide's writings always adopt the persuasive rhetoric, while we consider that the example mentioned in the text is worth noting since the problem of the persuasive rhetoric was pointed out by a public reviewer.

(3) "We cannot tell whether this book is fiction or non-fiction" by Ponta, 2011/7/15.

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