Using media to educate public on biotechnology

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Abstract

This paper seeks to understand how mass media can be used to educate the public about biotechnology. Masterman (2001) model of communication is used as the theoretical framework. Four Malaysian mainstream newspapers Utusan Malaysia, Berita Harian, New Straits Times and The Star were content analyzed. The findings indicate more in-depth articles need to be published to educate public about biotechnology. The newspapers are unable to do this because most of the reports on biotechnology are in the form of news writing. In conclusion, we found that the media has been unsuccessful in its role to teach the public on biotechnology.

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1. Introduction

Biotechnology is nothing new issue in the history of human civilization. Biotechnology has grown over the years since the time of Babylon and ancient Egypt. These ancient communities founded the means to produce beverages and foods such as bread, wine, yeast, soy sauce and tempeh (cured bean), without realizing that their activities are actually referred to biotechnology. Today, biotechnology knowledge has grown by leaps and bounds and it is used to extend the shelf life of agricultural products and increase the quality of foods and drinks (Noorzihan, 2007). In this regard, conventional method of biotechnology is defined as a process in which bacteria and fungus are used without prior knowledge of the genes (Ahmad Parveez, 2004). But the term biotechnology was only introduced in 1980s by Meischer, a scientist who used the term in researching DNA in the nucleus.

The Chairman of Springhill Management Ltd who is also a Malaysian biotechnologist, Dr Kim Tan Tze stated that biotechnology created the fourth revolution. It succeeded three other revolutions i.e. agriculture, industry and information technology. He claimed that the biotechnology revolution will expand further and yield superb returns on investment which is estimated to be worth billions of dollars in terms of profit for investors. This situation will encourage scientists and entrepreneurs to research and invest more resources into biotechnology with the aim of achieving maximum returns. He added that the market for today’s medicines and drugs is estimated at US$27.1 billion (RM102.98 billion) and this is expected to increase further to US$45.8 billion (RM174.04 billion) in 2006 (Harris, 2004).
In an effort to introduce and educate the public about biotechnological issues, the Malaysia government sees the important and influential role of newspapers in disseminating information to the general public. It also allows readers to share their ideas and views which will contribute towards a better perception and understanding of the technology. Hasmah Zanuddin & Yuana King (2006) argue that newspapers could become alternative media for public to voice out their opinions and views. On a broader scale, newspapers could also function as a resource for educating the public. Thus Malaysian newspapers have introduced the concept of newspaper in education (NIE) to the Malaysian schools, especially to educate the use of English and Malay language among primary and secondary school students.

On the other hand, newspapers have the power to communicate important issues to the general public. They do this through the publication of news which can either positive or negative. This potential has always been realized by owners of newspapers in highlighting important issues affecting the general public. The reading public will better understand issues that may have a direct and profound impact on their life (Faizal Mohd Salleh, 2000). The non-reading public will be left behind on issues affecting them. Thus, the newspapers will dominate what will be thought and discussed by the people.

Eyck & Williment (2004), both professors of biotechnology at Michigan State University, found that during the early years of biotechnology in the West the media were actively educating the public by reporting on technology and science. These reports were later slanted rather negatively as the general public became more and more educated. Through education, knowledge of biotechnology among the American communities increase and they started to protest the use of technology to enhance agricultural products. They are worried about the effects of consuming biotechnological altered and improved products on their biological health and the environment.

However, the scenario in Malaysia is different. The media only began to focus on biotechnology issues after the Malaysian government announced the launching of the National Biotechnology Policy on 28th April 2005. From this date, biotechnology issues receive greater public attention, especially among researchers of this field. Government organizations such as the Malaysian Biotechnology Cooperation (MBC), research institutes like the Malaysian Agricultural Research and Development Institute (MARDI), Malaysian Palm Oil Board (MPOB), farmers and students are interested in the development of the technology. They depended on the mass media (see Normah Mustaffa et al. (2009), Mus Chairil Samani (1997) for the latest development in this field. The Malaysian mass media have been rather quick in reporting issues that are highlighted by the ruling government. Thus, events attended by local ministers and government officials are reported in both print and electronic media, especially in mainstream newspapers.

Therefore, this paper seeks to understand how mass media can be used to educate the public through the various types of reporting on biotechnology issues in mainstream newspapers. Four mainstream newspapers, Berita Harian, Utusan Malaysia, New Straits Times and The Star, were selected for this study. The first two are Malay language dailies while the latter two are English language dailies. A ten-year period was chosen for this study which is five-years before and after the launch of the National Biotechnology Policy.

2. Biotechnology issues

Durant et al. (1998) in his study of 13 European Union countries found that mass media are the main source of information and the platform for public to discuss and debate issues actively. While, Gaskell et al. (2001) said that Western society is strongly dependent on the media to get news of current issues. In two different studies in Europe, both Durant et al. (1998) and Gaskell et al. (2001) found evidence that media are able to influence reader’s thought processes. In addition, the media provide an opportunity for public to actively discuss current issues without any objection from any particular parties or the government.

Smeltzer (2008), an assistant professor of media at the University of Western Ontario, Canada did a study on the biotechnology issues in alternative media in Malaysia. She found that the coverage of biotechnology issues in the alternative media is absolutely limited. In discussing this issue, she said that the mainstream media do not have the freedom to cover any issues. She writes rather critically and attacks on the government policies clearly show her negative view about the media in Malaysia. She said the media focus only on government agendas which are issues relating to politic and economic. Thus, the media never seriously consider reporting of other issues especially
biotechnology issue. As a result, the media is busy reporting the two main issues without looking at biotechnology issue which is important to meet the needs of the Malaysian community.

Hoban (2002), a biotechnology researcher in the United States found that the Western media tend to focus on the important issues affecting society. Thus, members of the Western society have only to look towards the news for their needs. Although the media has reported the relevant information but the study found that many highly educated people felt that the reporting of biotechnology-related information was still inadequate. In his study to determine the level of awareness of American towards biotechnology issues, he found that the people do not have a problem on the reported issues but they are nonetheless worried and concerned about the impact of biotechnology in their daily life.

Lambraki (2002), an European biotechnology researcher conducted an exploratory study of attitudes towards genetically modified foods in a sample of 35 Canadian consumers. Based on word associations, semi-structured interviews, and self-administered questionnaires, the results were analyzed using both qualitatively and quantitatively methods. This study found that the majority of consumers have a limited understanding of genetically modified foods. Most of them expressed a need for more information and 23/25 (66 percents) identified “unknown human effects” as a perceived risk associated with genetically modified foods. Consumer’s perceptions were influenced by knowledge. The most significant factors that determined people’s attitudes towards the technology included marital status, educational attainment, naturalness, necessity and ethics of genetically modified foods, as well as specific applications and technological advancements.

McCombs & Shaw (1972) argued that the media does not directly influenced people’s mind but focuses the public attention on reported issues. Morris & Adley (2001) in their article stated that Irish society is highly interested on the issue of genetically modified organisms. The survey was conducted in 1989 and it was found that there were three major Irish print media that received reader’s feedbacks regarding the applications of modern biotechnology. In Ireland, the print media play an important role in disseminating information to the public about foods. Morris & Adley (2001) found that 53 percent of respondents admitted that they obtained information about biotechnology and food from newspapers and magazines. The study was conducted on three daily newspapers in Ireland, i.e. Irishman Times, Independent and Irishman Examiner using content analysis for three years starting from 1997 until 1999.

These literatures showed that Masterman (2001) model of communication can be used as the theoretical framework to examine the possibility of using the mass media as a mode to educate the Malaysian general public on biotechnology issue.

3. Method

Content analysis was used to analyze media coverage of biotechnology issues in mainstream newspapers in Malaysia. The method was chosen because it allows the researcher to determine the type of content published. Content analysis is defined as a systematic method to identify the content of the recorded information (Walizer & Wiener, 1978). This is supported by Krippendorf (1980) who argued that this method is the best research technique for the studying and analyzing of communications because of its systematic, objective and quantitative nature.

These three characteristics require uniformity in the process of coding and analysis of items, which involve the construction of coding books and sheets to carry out the studies (Hansen, 2008, Wimmer & Dominick, 1991). The coding books contain the operational definition of every variable in order to obtain consistent and precise results. Objectivity will ensure that personal bias of researchers is excluded in the process of coding and analyzing the results. Statistical analysis was used in interpreting and analyzing of data (Hansen, 2008, Wimmer & Dominick, 1991). In maintaining and ensuring reliability of coding, the inter-coder reliability tests were carried out. An inter-coder reliability score of above .9 was obtained in this study.

Since the population of the study is a ten-year period, the researchers opted for sampling of the mainstream newspapers. The sampling was done on the assumption that biotechnology issues reported in the mainstream press has a normal distribution. The method of sampling proposed by Stempel & Westley (1989) was used in this study. It involves the construction of two constructed weeks for every year of the study with one day in the week chosen from each month to construct the two weeks.

The four newspapers were chosen for this study because the majority of the reading public preferred these newspapers (Nielsen Media Index Survey, 2008). The Index was created based on a survey among 10,000
Malaysian respondents aged 15 years and above in June 2008. The survey found that the mainstream media dominate Malaysian viewing and reading patterns with television and radio garnering 90 percent of the population, while the newspaper is about 45 percent. The usage of Internet also showed a marked improvement within a five-year period garnering 20 percent of the population. Andrea Douglas, Executive Director of Malaysian’s Nielsen Media Research said that traditional media such as print media, television and radio are the best medium for Malaysians to obtain news and information about a particular issue. With the advent of Internet and digital media, the usage of this new media is expected to increase tremendously.

A report by Audit Bureau of Circulation in June 2008 showed that *Utusan Malaysia* has a circulation of 181,346 copies daily. *Berita Harian* has a circulation of 183,187 copies daily. *New Straits Times* and *The Star* have a daily circulation of 120,770 copies and 295,479 copies daily, respectively (Michelle, 2008).

4. **Analysis of data**

A total of 172 news items on biotechnology were coded from the four mainstream newspapers during the entire ten years period. The breakdown of news item according to years is as follows: 11 items or 6.4 percent (2001), 22 items or 12.8 percent (2002), 27 items or 15.7 percent (2003), 6 items or 3.5 percent (2004), 34 items or 19.8 items (2005), 10 items or 5.8 percent (2006), 12 items or 7 percent (2007), 13 items or 7.6 percent (2008), 25 items or 14.5 percent (2009), and 12 item or 7 percent (2010). The distribution of items coded during the ten years period is rather normal. It peaked in 2005 when the Malaysian government announced the launching of the National Biotechnology Policy. In 2009, there was a slight surge in items coded because the government was focusing on health and agricultural issues.

The surge in reporting of biotechnology issue in 2002 and 2003 is due to the controversy relating to the cloning of a baby girl named Eve in 2002. There was an uproar in the media with objection coming from people of various walks of life and in Malaysia, where Islam is the official language, the protest is expected because it runs contrary to Islamic laws and values. The two Malay language dailies, *Utusan Malaysia* and *Berita Harian*, played to issue to the gallery.

Over 10 year period, biotechnology issues were mostly covered by the Malay newspapers with *Berita Harian* publishing 59 items (34.3 percent) and *Utusan Malaysia* 58 items (33.7 percent). The *New Straits Times*, which is an English language daily, publishes 48 items (27.9 percent) with *The Star* recording the least amount of news items, a total of 7 articles (4.1 percent). This finding indicates that media owners have the power to determine what issue will be published.

The modern method of biotechnology received greater coverage as compared to the conventional method with each having 159 items (92.4 percent) and 13 items (7.6 percent) respectively. The implementation of the government’s biotechnology policy garnered 53 items (30.8 percent), followed by 26 items on research (15.1 percent) and 14 items (18.1 percent) on pharmaceuticals. The least covered themes were food and industrial uses which amounted to 1 item (0.6 percent) and 2 items (1.2 percent) respectively.

Government minister and company chief executive officers are the most sought after source of news stories with 31 items (18.0 percent) and 23 items (13.4 percent) respectively. Most of the stories on biotechnology are published in the form of news with a total of 90 items (52.3 percent) while features stories amounted to 82 items (47.7 percent).

5. **Conclusion**

These findings indicate that newspapers failed miserably in disseminating specialized issue such as biotechnology. The coverage of such issue in the printed mainstream mass media is rather selective and inconsistent. Biotechnology issues did not receive sufficient coverage in the mainstream media. This is rather surprising because the biotechnology initiative is championed by the ruling coalition. Biotechnology has been identified by the government as an engine for national development. Although the mainstream media are owned by the members of the ruling coalition, they are still free in determining the types and intensity of issues to be covered. Thus, they are never bound by the agenda of the ruling government.
The selected newspapers in this research did not offer any in-depth analysis of biotechnology issue although some of the issue relating to ethic can be rather sensitive. Thus, newspapers cannot be entrusted to play the role of educating the general public on biotechnology issue. Newspapers are better disseminators of general issues that relate the general public. Thus, they are often seen vigorously highlighting political, economic and social issues.

In this respect, newspapers have the advantage over broadcast media in giving a broader perspective for any political, economic or social issue. Newspapers can be read repeatedly or referred back and it can never be the same for television or radio news broadcasts. Thus, newspapers continue to enjoy the support of its readers although technological developments have managed to improve the quality of television and radio programs.

The former Prime Minister, Tun Abdullah Ahmad Badawi admitted that the government failed in getting the public to engage in biotechnological issues. He conceded that the local media seldom or rarely discuss and debate about this issue. On this point Smeltzer (2008) points out that member of the Malaysian society are switching to alternative media for their information needs. This is especially true among the young educated urban people.

Biotechnology can be seen as a scientific issue rather than a social issue but it still receives substantial coverage by the local mainstream media. The considerable amount of coverage on this issue in the local mainstream media could be related to the fact that it is an important to the ruling government. This study did not find any articles that debate or object to the formation of the National Biotechnology Policy. This reinforces the perception of outsiders that the Malaysian mainstream media fully support and never criticized any government policies.

References