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New Media and Market Competition: A Niche Analysis of Television News, Electronic News, and Newspaper News in Taiwan

Shu-Chu Sarrina Li

With the rapid development of communication technologies, Taiwan's news market has undergone a great transformation. Adopting niche theory from organizational ecology, this study analyzed competition among three news media in Taiwan. A telephone survey was conducted to examine the level of perceived gratification provided by television news, electronic news, and newspaper news. The findings showed that strong competition exists between newspapers and television news, and that television news has gained superiority over newspapers.

The news media in Taiwan have been under heavy regulation for the past several decades, with television news under particularly tight government control. People in Taiwan have complained frequently that news from the three television networks was not neutral, but rather, favored the government. Recently, however, with the lifting of martial law as well as legalization of cable television, the situation has undergone a great transformation. Martial law in Taiwan was lifted in 1988, and this allowed the news media much more freedom in reporting than it ever had before. The driving force behind the prosperous development of news media in Taiwan did not, however, come from the lifting of martial law alone, but also from the legalization of cable television. Taiwan has had cable television for more than twenty years, but it was not legalized until 1993. With the legalization of cable television came fierce competition in Taiwan's television market because the many satellite television signals in the Asia-Pacific area could enter homes directly via cable television. Because of the long dissatisfaction with the news produced by the

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three television networks, satellite news channels are now particularly popular on the island (Li, 1995; Li, 1996; Li & Chiang, 1998).

More than five Chinese news channels began operations in Taiwan following the legalization of cable television. All of these news channels provide 24-hour news with intensive analyses of important issues. In the past, due to limited time for detailed news information, the three major networks complemented rather than competed against newspapers. Now, with 24-hour news channels available, television news in Taiwan has become a strong competitor for newspapers.

In addition to the satellite news channels, the Internet also exerts an important influence on Taiwan's news market. With improved Internet technology, more people in Taiwan are using the World Wide Web for various purposes. According to a survey by the government's Management Information Commission (Lai & Liang, 1998), by early 1998, more than two million people were Internet users in Taiwan, and their purposes for Internet use were: looking for information (89.6%), learning (53%), entertainment/chatting (47.8%), communicating (40.4%), and shopping (10.6%). As information searches are the most important purpose for Internet use, electronic newspapers are becoming prevalent in Taiwan. The first electronic newspaper (www.chinatimes.com.tw) was established in September, 1995, and is operated by one of the two largest daily newspapers, *The China Times*. By early 1998, there were twenty-two professional electronic newspapers in Taiwan (Tsai, 1998). All of the electronic newspapers in Taiwan were launched either by traditional newspapers and television stations, or by computer companies. Although Internet users in Taiwan account for only about 15 % of the total population (Tsai, 1998), some studies predict that electronic newspapers will become an important news medium in the very near future (Lai & Liang, 1998; Yang, 1996).

Market Competition and Niche Theory

For media economists, market competition consists of direct and conscious actions taken by companies competing against one another (Adams, 1993; Burnett, 1992; Davis & Walker, 1990; Rogers & Woodbury, 1996). However, organizational ecologists define market competition by the use of resources, so when two organizations are utilizing the same resources, they are competing against each other. According to organizational ecology, the impact of environments is much greater than that of internal organization operations; thus, the factor that determines organizational survival is not the efficiency of its operation, but rather, how well-suited an organization is to its environment. The key to understanding the fitness of an organization to its environment is niche theory. Niche theory describes organizational resource utilization patterns. When one organization is using the same resources as another organization, the two are overlapping in their use of resources. When the degree of overlap increases, competition intensifies. So, by observing the uses of resources by organizations, ecologists are able to study the redistribution of resources brought about by market competition (Carrol, 1987; Dimmick, 1993;

Dimmick, 1997; Dimmick, Patterson, & Albarran, 1992; Freeman & Hannan, 1983; Hannan & Freeman, 1989).

Niche theory has never been empirically investigated outside the US, and it is particularly suitable for understanding the competitive relationship between the emerging electronic news industry and the traditional news media in Taiwan, so this study employs niche theory to analyze competition among three news media—television news, electronic newspapers, and traditional newspapers—to understand how market competition influences resource utilization patterns of these three media in Taiwan.

According to population ecologists, both plants and animals have to rely on environments for the resources they need to survive. However, because resources are limited in environments, all populations in the same environment have to share resources to survive. If populations exceed what the resources can support, some of them will become extinct. The study of population ecology explains why some populations are able to survive during periods of scarce resources while others are not. According to population ecologists, the main reason populations survive is because they are well-suited to their environments (Carroll, 1987; Freeman & Hannan, 1983; Hannan & Freeman, 1989).

Scholars in organizational studies discovered that environments significantly influence the acquisition of resources as well as the internal operations of organizations as is the case with plants and animals. Hence, the perspective of population ecology should help explain the relationships between organizations and their environments (Hawley, 1968; Aldrich, 1969; Dimmick & Rothenbuhler, 1984a).

Niche theory explains how competing organizations interact and coexist in environments with limited resources. A niche can be defined as the resource utilization patterns of populations, and since the resources one population uses often come from more than one source, niches contain several dimensions (Dimmick, 1997; Dimmick & Rothenbuhler, 1984a, 1984b; Ricklefs, 1979; Pianka, 1983; Hutchinson, 1978). A population is a group of similar organizations possessing common characteristics, so television stations can be a population. If several populations utilize the same resources, they constitute a guild. Competition exists within a guild because the populations within a guild share the same resources.

Niche breadth measures the area of a niche, and contains both the number and magnitude of resources utilized by a population. A specialist medium has a narrow niche and requires only a few types of resources. On the other hand, a generalist medium has a broad niche because it requires a wider range of resources. Specialists are more efficient in utilizing resources, but when there are tremendous changes in environments, specialists may not have sufficient flexibility to adjust for survival. Generalists are able to deal with changes in environments, but are less efficient in terms of consuming resources (Dimmick, 1993; Dimmick, 1997; Dimmick & Rothenbuhler 1984a, 1984b).

Niche overlap is the degree to which two populations share the same resources. Competitive superiority is an index designed to measure the superiority of one

medium over another in terms of resource-utilization ability. When the overlap between two populations is high, the superior population may take over the niche space of the inferior one. Competitive displacement occurs when a population appropriates part of the niche space of another competitor. If the appropriation is total, then competitive exclusion occurs, which reduces the defeated population to extinction. Within the media industry, the competition rarely entails competitive displacement; the more frequent consequence of competition is competitive displacement (Dimmick, 1993; Dimmick, 1997; Dimmick & Rothenbuhler 1984a, 1984b).

According to Dimmick (1993), the three most important resources in media industries are *advertising income*, *audience* and *media content*. Examining the uses of these three resources enables researchers to understand the competitive advantages among media.

Dimmick and Rothenbuhler (1984a) gathered data on advertising income in the United States from 1928 to 1982 for five media, and investigated variations in niche breadth and niche overlap among the five media over the 55 years. Classifying advertising income as national, local, spot, and classified, Dimmick and Rothenbuhler discovered that when broadcast television first appeared in the 1950s, the niche overlap between it and radio was extremely high. To survive, radio increased its consumption of local advertising income, allowing broadcast television to capture the national advertising dollars. Dimmick and Rothenbuhler (1984a) found the competition between broadcast television and radio during this time could be well explained by the phenomenon of competitive displacement. Before the appearance of broadcast television, radio was a generalist. With its superiority, broadcast television was able to appropriate radio's niche space. By becoming a specialist, radio was able to coexist with broadcast television. Dimmick and Rothenbuhler also found the phenomenon of competitive displacement in another study (1984b). This study showed that as the degree of overlap became intolerable, radio and broadcast television as well as newspapers and broadcast television attempted to differentiate themselves from one another in order to coexist in the same environment. As a result, radio and broadcast television had become very different media by 1960, as had newspapers and broadcast television (Dimmick & Rothenbuhler, 1984b).

As cable television developed rapidly during the 1980s, Dimmick et al. (1992) discovered that broadcast television had the largest niche breadth among radio, broadcast television, and cable television. However, their study found that cable television was gradually invading the niche space of broadcast television because it had the highest degree of overlap with broadcast television and its niche breadth was increasing year by year. Furthermore, measurements of competitive superiority indicated continually higher degrees of superiority of cable television over broadcast television during the 1980s (Dimmick et al., 1992).

Combining the theory of uses and gratifications with niche theory, Dimmick reasoned that audience perception of the need satisfaction provided by broadcast television and cable television is a resource that can be measured to calculate the niche breadth, niche overlap, and competitive superiority of these media. According

to Dimmick, uses and gratifications research assesses the similarities and differences among the media in terms of their capabilities to meet audience needs. The concept of gratification is similar to that of utility in niche theory. Dimmick (1993) conducted two questionnaire surveys eight months apart to investigate audience perceptions of the two media. The findings from the first survey showed that the degree of niche overlap between broadcast television and cable television was high, with cable television having a broader niche. His data also indicated that cable television was superior to broadcast television in every respect. The second survey yielded very similar findings, except for showing that the superiority of cable television versus broadcast television was increasing, so the study predicted that cable television would appropriate more of broadcast television's niche space in the near future.

Albarran and Dimmick (1993) examined gratifications to measure the level of audience satisfaction achieved by five video media: broadcast television, cable television, VCRs, premium cable, and pay-per-view cable. Their findings showed that the fiercest competition was between broadcast television and cable television, followed by premium cable and pay-per-view cable, and that cable television and VCRs had the highest scores on superiority, followed by broadcast television and premium cable. This study illustrates that merging niche theory with gratification research is an effective way to understand competition among media industries.

Finally, media content is also one of the critical resources in media industries, so analyzing the content of various media allows researchers to examine the competitive relationships among media. Li (1998) investigated the impact of satellite television on television networks in Taiwan by looking at the niche spaces and niche overlaps of television programs. Upon collecting and analyzing programming data on the three television networks in Taiwan over seven years, Li discovered that increasing competition from satellite television narrowed network television's niche breadth, forcing it to give up some program types and focus on other programming for which it was better qualified. This study also found that the degree of overlap between network television and satellite television was very high, which led to the prediction that a further narrowing of programming niche breadth would be inevitable for network television to survive.

Methodology

With the rapid development of satellite technology and the Internet, Taiwan's traditional newspapers have to compete with both 24-hour news channels and emergent electronic newspapers. According to Dimmick and his associates, audience perception of need satisfaction provided by a medium is one dimension of that medium's niche. Therefore, researchers are able to assess the niche breadths, niche overlaps, and competitive superiorities among various media by measuring the level of need satisfaction offered by that medium (Dimmick, 1993; Albarran & Dimmick, 1993). This study measured audience and reader perceptions of need satisfaction

provided by the three news media (traditional newspapers, electronic newspapers, and television news) to analyze the competitive relationships among the media.

Variables

Three major variables were considered. Niche breadth is the number and magnitude of resources used by one population, and it measures the range of need satisfaction a medium gives its audience on a gratification utility dimension. If a medium offers a broad range of gratifications on a specific dimension, then the medium has a generalist resource utilization; otherwise, its pattern of resource utilization is that of a specialist. Niche breadth was calculated using the formula in Dimmick (1993):

$$\text{Niche Breadth} = \frac{\sum_{n=1}^N \left[\frac{(\sum_{k=1}^K GO_n) - Kl}{K(u-l)} \right]}{N} \quad (1)$$

In this formula, u is the upper bound of the scale and l the lower bound. Study respondents were asked to indicate their degrees of satisfaction with 26 gratification items coded along a seven-point scale ranging from seven, "totally agree" to one, "totally disagree." Thus, u and l are seven and one, respectively. GO is the obtained rating a gratification item received on a scale. N is the total number of respondents who use a medium, and n the first respondent. K is the number of scales on a dimension, and k is the first gratification scale. According to Dimmick (1993), this formula is in fact a measure of a departure-from-generalism index because the highest score measured means maximal generalism, while lower values indicate decreasing generalism.

The second major variable of the study is niche overlap. As stated above, niche overlap is employed by organizational ecologists to assess the degree of competition between two populations. A high degree of niche overlap means a high degree of perceived similarity in gratification obtained from media i and j . The degree of niche overlap was calculated using the formula from Dimmick (1993):

$$\text{Niche Overlap} = \frac{\sum_{n=1}^N \sqrt{\sum_{k=1}^K \frac{(GO_i - GO_j)^2}{K}}}{N} \quad (2)$$

In formula 2, GO is the obtained gratification rating for medium i or j . N is the number of subjects using both i and j , and n is the first subject. When all respondents gave the same rating to the media i and j across all gratification items on a dimension, the measure of niche overlap was zero, which means complete overlap.

Therefore, the higher the degree of overlap, the lower the score this formula yields. A high degree of overlap indicates media are good substitutes for each other, and a low degree of overlap indicates that the two media are complementary rather than competitive.

The third important variable is competitive superiority. As stated above, this measures audience perceptions of need satisfaction to indicate which of a pair of media is better. A significantly higher superiority score indicates that a medium is superior to another medium. Following the measurement used by Dimmick (1993), the competitive superiority of one medium over the other was calculated using the following formulas:

$$\text{Superiority } S_{A>B} = \frac{\sum_{n=1}^N \sum_{k=1}^K m_{A>B}}{N} \quad (3)$$

$$\text{Superiority } S_{B>A} = \frac{\sum_{n=1}^N \sum_{k=1}^N m_{B>A}}{N} \quad (4)$$

Formula 3 is used to calculate the superiority score of medium *A* over medium *B*, and formula 4 the superiority of medium *B* over medium *A*. The value $m_{A>B}$ sums up the differences between the ratings of *A* and *B* for those items on which *A* was ranked higher than *B* by one respondent. *K* is the number of scales for a resource dimension. Taking $m_{A>B}$ of all the respondents for all *K* scales and then multiplying by the total number of respondents yields the superiority score of medium *A* over medium *B*. By the same token, $S_{B>A}$ is the superiority score of medium *B* over medium *A*. For *A* to be superior to *B*, two conditions have to be satisfied: $S_{A>B}$ must be greater than $S_{B>A}$, and the *t*-test on the means of the two media must be significant.

Questionnaire Design and Data Collection

This study assessed the level of need satisfaction provided by the three news media to measure niche breadth, niche overlap, and competitive superiority. Since no appropriate questionnaires were available, the author had to construct a questionnaire. The construction of the questionnaire involved two steps. First, intensive interviews were conducted with 11 adults who reported using the three media on a regular basis. Participants were asked open-ended questions about their media use motivations and need satisfactions. Responses to these interviews were used to draft a telephone questionnaire including 30 gratifications sought and 30 gratifications obtained questions (see Dimmick, 1993).

Second, the questionnaire was pre-tested using a mall intercept sample of 407

adults. The results showed that each of the gratifications sought correlated significantly with each of the gratifications obtained. According to Dobos (1992), the continuing use of a certain medium is determined not by the gratifications sought, but by the gratifications obtained by audiences from this medium, the author therefore decided not to include the gratifications sought items in the final questionnaire. A principal components factor analysis of the gratifications obtained items using the varimax method revealed the presence of four factors. Items with loadings below .40 were deleted. The final questionnaire contained 26 gratification obtained items, four questions about the frequency and history of on-line newspaper reading, one question about the importance of newspapers, radio news, television news, and electronic news, and four questions about age, education, profession, and sex.

In September 1998, a nationwide telephone survey was conducted with a systematic random sample of 768 adults. The sample was drawn from the most recent telephone directories in Taiwan, yielding 4,000 initial numbers. A "one" was added to the last digit of each telephone number to include unlisted numbers (Babbie, 1995; Wimmer & Dominick, 1997). Excluding business numbers, disconnected numbers, and no-answers ($n = 2,850$), the response rate was 67%. The calls were made by 10 research assistants supervised by the author. Among the 768 respondents, 120 used electronic newspapers on a regular basis, three indicated that they used only newspapers and electronic news, and one claimed to watch television and read electronic newspapers for news. The telephone survey was finished in one month.

Findings

Gratification Dimensions of the Study

Responses to the 26 questions on gratifications obtained were processed by the SPSS package for factor analyses of principal components using the varimax method. Table 1 shows the four-factor solutions for the three media. The first factor contains eight gratification items, most of which are related to absorption of information, and is similar to the cognitive factor in the studies by Dimmick (1993) and Albarran and Dimmick (1993). The eight items include getting interesting information, obtaining topics for chatting, helping make decisions, getting humorous information, obtaining job-related information, offering professional information, and killing time. The second factor contains eleven gratification items and is called the efficiency and surveillance factor because it includes two sets of items; the first set addresses the efficiency of media use, and the second the function of environmental surveillance.

The third factor has four gratification items and is called the gratifications opportunities factor because all of its items address one issue, providing convenience for the respondents. This factor is similar to the opportunity factor in Dimmick's study (1993). The fourth factor is called the proactivity factor because its three items allow respondents to take action.

Table 1
Gratifications Obtained

	Television	Newspaper	Electronic
Factor 1: Cognitive			
Interesting information	0.56	0.51	0.74
Topics for chatting	0.52	0.47	0.34
Help make decisions	0.66	0.74	0.49
Humorous information	0.67	0.67	0.43
Job-related information	0.69	0.68	0.41
Killing time	0.56	0.69	0.60
Professional information	0.73	0.73	0.73
Improve self	0.70	0.74	0.76
<i>Alpha</i>	0.87	0.89	0.91
Eigenvalue	1.56	10.44	1.78
Variance Explained	6.0%	40.1%	6.8%
Factor 2: Efficiency and surveillance			
Using the shortest time to know what happened	0.57	0.52	0.65
Vicarious experiences	0.66	0.69	0.72
Relaxing self	0.56	0.52	0.59
Know what others doing	0.55	0.57	0.57
Know what happened	0.66	0.56	0.42
Know fashion trends	0.55	0.51	0.38
Reporting more reliable	0.58	0.58	0.62
Know what officers' doing	0.52	0.50	0.79
Provide complete reporting	0.51	0.49	0.52
Instant updates	0.56	0.66	0.29
Know others' opinions	0.41	0.62	0.39
<i>Alpha</i>	0.87	0.89	0.91
Eigenvalue	9.79	1.59	12.04
Variance Explained	37.7%	6.1%	46.3%
Factor 3: Gratification opportunities			
Use it any time	0.77	0.76	0.78
Use it on any occasion	0.69	0.78	0.85
Have vivid graphics	0.50	0.51	0.65
Provide diverse news	0.54	0.51	0.71
<i>Alpha</i>	0.70	0.73	0.82
Eigenvalue	1.05	1.21	1.34
Variance Explained	4.0%	4.7%	5.2%
Factor 4: Proactivity			
Easy to keep information	0.76	0.68	0.46
Ease of checking previous information	0.75	0.77	0.51
Ease to complain	0.68	0.63	0.84
<i>Alpha</i>	0.76	0.68	0.70
Eigenvalue	1.34	1.07	1.26
Variance Explained	5.1%	4.1%	4.8%

After collecting telephone-interview data, reliability analysis was performed on all of the factors for each of the three media. The Cronbach's *alphas* for the four factors were all above .60, with most higher than .80. Table 1 contains this information.

Niche Breadth of the Three Media

Niche breadth measures the range of perceived gratifications provided by each of the three media. Using 26 gratification items, this study yielded four factors, each of which represents one gratification utility dimension. The formula developed by Dimmick (1993) was applied to calculate the niche breadths of television news, electronic news, and newspaper news. Table 2 shows the results.

Table 2
Niche Breadth for Television News, Electronic News, and Newspaper News

	Television	Electronic	Newspaper
Cognitive	0.59	0.65	0.68
Surveillance	0.67	0.62	0.60
Opportunities	0.68	0.54	0.62
Proactivity	0.36	0.70	0.59
<i>N</i> of Respondents	764	117	767

Note: 0 = Minimum possible breadth; 1 = Maximum possible breadth.

Newspapers were found to provide the highest level of satisfaction for readers in terms of cognitive gratification, while television news had the lowest niche-breadth value in this factor, which is consistent with the nature of the two media. Newspapers are text-based and television video-based. Thus, newspapers are able to more fully develop their text strengths by going into detail. Conversely, the strength of television is its vivid presentation, so television isn't able to offer much detailed language-based information to its audience. Television had the highest niche-breadth value for the second factor, efficiency and surveillance, while newspapers had the lowest value. This finding indicates that television and newspapers are both information media, but focused on different information aspects. Newspapers are perceived to be good at providing information easy for cognition, while television is thought to offer better help in surveying environments. In addition to surveillance, efficiency is an aspect of the second factor which includes greater reliability, more rapid updates, more complete reporting, quicker ways to know what happened, and enhanced vicarious experiences. Therefore, in terms of which medium is more efficient, television news was perceived to be the best among the three media.

For the opportunities factor, television news provided the greatest level of satisfaction to its audience and electronic newspapers the least. The opportunities factor

includes items such as, "use it any time," "use it on any occasions," "have vivid graphics," and "provide diverse news." It seems reasonable that electronic newspapers had the narrowest niche breadth on this factor because personal computers are not available everywhere in Taiwan and the bandwidth of the Internet currently available does not allow much traffic on it.

The last factor is the *proactivity factor*. Electronic newspapers had the highest level of audience gratification on this factor, while television news had the lowest. A special aspect of this factor is that the niche breadth of electronic newspapers is much wider than that of television news; in fact, the value of electronic newspapers on this factor is almost double that of television news. The proactivity factor contains items such as "ease of keeping information," "ease of checking previous news," and "ease of sending complaints to the medium provider," all of which are characteristics of electronic newspapers (Aronson, Sylvie, & Todd, 1996; Chyi & Sylvie, 1998; Mueller & Kamerer, 1995). Therefore, it is no wonder electronic newspapers had the highest value for this factor.

Taken as a whole, the data in Table 2 show that television news has a wider range of gratification than electronic newspapers and electronic newspapers, which have very similar niche breadths.

Niche Overlap

Niche overlap measures the substitutability of two media. High niche overlap indicates that two media serve similar audience needs, while low niche overlap shows that the two media provide different need satisfactions to audiences. The formula developed by Dimmick (1993) was used to calculate niche overlap for the three media. Table 3 contains the results of these calculations.

Table 3
Niche Overlap Values for Television News, Electronic News,
and Newspaper News

	TV/Electronic	TV/Newspaper	Newspaper/ Electronic
Cognitive	2.78	2.34	2.87
Surveillance	2.26	2.15	2.66
Opportunities	2.30	1.77	2.47
Proactivity	4.47	2.74	2.37
N of Respondents	114	763	116

Note: 0 = Maximum overlap; 6 = Minimum overlap. The value of niche overlap calculated from Dimmick's formula (1993) has an inverse relationship with the degree of niche overlap, with a lower value of niche overlap indicating a higher overlap between two media.

The data in Table 3 indicate that for cognitive, surveillance, and opportunities, the highest degree of niche overlap was between television and newspaper news, followed by television and electronic news. The lowest degree of overlap was between newspaper and electronic news. The highest degree of overlap for the proactivity factor was between electronic newspapers and newspapers, and the lowest overlap between television news and electronic news. Table 3 shows that television news and newspapers have a very high degree of overlap in the opportunities dimension. Furthermore, electronic newspapers and television news were very different media in terms of the proactivity dimension in that their overlap value on this factor was the highest. Taken as a whole, Table 3 shows that television news and newspaper news had the highest degree of niche overlap among the three media, and electronic newspapers and newspapers had the lowest.

Competitive Superiority

The formula in Dimmick's study (1993) was used to calculate competitive superiority scores for two of the three media on all four factors. If the superiority score of one medium was greater than that of another medium on a factor, then a *t*-test was performed to compare the means of the two media on that factor. A significant *t*-test difference could be interpreted to mean a medium was superior to another on that factor. This study had four gratification utility dimensions, so 12 *t*-tests were performed to examine the superiority between two of the three media. The results of the *t*-tests are shown in Table 4.

In terms of the degree of competitive superiority between television news and electronic news, the data in Table 4 show significant differences in three of the four gratification dimensions. The superiority score of television news (3.90) for the surveillance factor was slightly higher than that of electronic news (3.60), but the *t*-test showed no significant difference, indicating that television news was not found to be superior to electronic news on this factor. Electronic news was found to be superior to television news in cognitive and proactivity factors because the superiority scores of electronic news on both factors were much higher than those of television news, and the *t*-tests showed significant differences between the two media on these factors. However, television news had a higher degree of superiority for the opportunities factor than electronic news because its superiority score was significantly higher. To summarize the superiority measurement data for television news and electronic news, this study discovered that electronic news was perceived to be better than television news on two of the four factors. Television news was only superior to electronic news in one dimension. Hence, overall, electronic news appears to be better than television news in terms of the degree of competitive superiority.

Comparing newspapers and television news, Table 4 shows that television news

Table 4
Superiority Measurements of the Three Media

Factor	TV/Electronic	TV/Newspaper	Electronic/ Newspaper
Cognitive	<i>N</i> = 114	<i>N</i> = 760	<i>N</i> = 116
Superiority scores	(1.82)(6.05)	(1.26)(5.37)	(3.13)(4.98)
	<i>t</i> = -4.79***	<i>t</i> = -14.49***	<i>t</i> = -1.81
Surveillance	<i>N</i> = 114	<i>N</i> = 762	<i>N</i> = 116
Superiority scores	(3.90)(3.60)	(5.70)(1.44)	(4.96)(3.85)
	<i>t</i> = .32	<i>t</i> = 13.76***	<i>t</i> = 1.02
Opportunities	<i>N</i> = 114	<i>N</i> = 763	<i>N</i> = 115
Superiority scores	(3.94)(0.67)	(2.54)(0.99)	(0.76)(4.19)
	<i>t</i> = 7.07***	<i>t</i> = 9.52***	<i>t</i> = -6.75***
Proactivity	<i>N</i> = 114	<i>N</i> = 760	<i>N</i> = 116
Superiority scores	(0.08)(7.67)	(0.33)(4.41)	(3.47)(0.64)
	<i>t</i> = -19.41***	<i>t</i> = -26.35***	<i>t</i> = 6.86***

Note: *** $p \leq .001$, ** $p \leq .01$, * $p \leq .05$.

was found to be superior to newspapers in two dimensions, surveillance and opportunities. However, newspapers were shown to be better than television news on the other two dimensions, cognitive and proactivity. Therefore, neither television news nor newspapers were perceived to be superior.

This study found significant results on only two of the four dimensions when electronic news and newspapers were compared. Newspapers were found to be superior to electronic news in opportunities, but were found to be inferior to electronic news in proactivity. Neither medium was found to be superior to the other for the cognitive and surveillance factors. Taken as a whole, superiority measurement results for electronic news and newspapers show that the two media were perceived to be almost equal in terms of their degrees of competitive superiority.

Discussion

This study considered four gratification dimensions: cognitive, efficiency and surveillance, opportunities, and proactivity. The affective factor considered in two other studies (Albarran & Dimmick, 1993; Dimmick, 1993) was not considered. The reason for the lack of an affective factor may be that the previous studies examined cable television, VCR use, broadcast television, and radio, all of which are more

entertainment-oriented, while this study focused on news media, which are more information-oriented. Consequently, the affective aspect did not emerge as a factor.

The niche-breadth findings in this study suggest that television news has the widest range of gratifications between the three media. Newspapers and electronic news were found to be almost equal in niche breadth. However, it is surprising to see that television news had a wider niche breadth than did newspapers on the opportunities factor. The opportunities factor offers convenience for audiences or readers, which used to be the strength of newspapers. This study found it has become the strong point of television news, perhaps because 24-hour news channels and an 80% cable penetration rate in Taiwan have made television news more competitive than newspapers on the opportunities factor.

Newspapers and television news had the highest degree of niche overlap, indicating that the two news media provide similar degrees of gratification to their audiences or readers than the others. Therefore, the competition between newspapers and television news was found to be stronger than between any two other media. Furthermore, this study discovered that electronic newspapers had a higher degree of niche overlap with television news than with newspapers, indicating that the competition between television news and electronic news is stronger than that between newspapers and electronic news.

Television news and newspapers, as well as newspapers and electronic newspapers, were found to be equal in measurements of competitive superiority. Summing up all the findings of the study, it was found that television news rather than electronic news is a strong competitor for newspapers. With approximately equal superiority scores and a high degree of niche overlap, newspapers and television news were found to be in strong competition with each other. Clearly, the wider degree of niche breadth television news enjoys over newspapers gives television news a better position than newspapers. Television news performed very poorly on the proactivity dimension. With call-in shows now becoming more popular in Taiwan, television news will probably become superior to newspapers in the near future. It is no wonder that most newspapers in Taiwan are trying to have their own versions of electronic newspapers, since by combining audio-visual presentations, newspapers are able to compete with 24-hour television news channels.

This study found that electronic newspapers do not currently present much competition in Taiwan's news market because only about 16% of the respondents used electronic newspapers on a regular basis. Furthermore, the study discovered that electronic newspapers compete more with television news than with newspapers. At the present time, the bandwidth available for the Internet does not allow much traffic, so most electronic newspapers in Taiwan try to produce their on-line news using as many text-based presentations as they can. With the bandwidth expansion planned for the near future, audio-visual presentations will be more prevalent in electronic newspapers. Therefore, it is expected that electronic newspapers will become very competitive with television news in the near future.

In terms of the strengths and weaknesses of each of the three news media, the data in Table 4 show that television news was perceived to be strong in the opportunities factor, but weak in both the cognitive and proactivity factors. Television news was superior to newspapers, but equal to electronic newspapers in the surveillance factor. Television is both a visual and aural medium, which makes cognitive processing more difficult. Hence, it is no wonder that it was perceived to be poor in the cognitive factor. In order to correct this limitation, television news should try to use as many graphics and figures as it can to make information processing easier for viewers. Another weakness of television news is its perceived lack of proactivity, which is a kind of technological limitation. However, with the arrival of interactive television in the near future, television news may soon eliminate this weakness. For example, one of the 24-hour news channels in Taiwan started using the concept of the "Web-in" to do news broadcasting. According to *Media News in Taiwan* ("ETTV news," 2000), this news channel combines Internet technology with news broadcasting such that viewers can express their opinions regarding news issues during a news broadcast.

According to Table 4, the strength of newspapers lies on their cognitive capacity, but they were shown to be weak in the surveillance dimension. Newspapers were perceived to be superior to electronic newspapers but inferior to television news in the opportunities factor. As for the proactivity factor, newspapers were superior to television news but inferior to electronic newspapers. Newspapers' inability to update news reports as quickly as the other two news media may be the reason they were perceived to be weak in the surveillance function. One way to correct this weakness would be to publish both evening and morning editions and have more detailed news information in the evening editions. At the present time, the largest two newspapers in Taiwan have evening editions, but these are less detailed compared to the morning editions. To gain an advantage in the opportunities dimension, newspapers may have to improve their front-page design so readers can quickly see what news issues are on the remaining pages. Furthermore, improving the printing quality of newspapers to help readers carry them around more easily is another way to enhance newspapers' opportunities capacity.

The data in Table 4 show that electronic newspapers were strong in proactivity, but weak in the opportunities dimension. They were superior to television news but equal to newspapers in the cognitive factor. The reasons electronic newspapers are perceived to be weak in the opportunities factor may be that personal computers are expensive and operating them is more complicated than using television remote controls. With the possibility that television monitors may be used to access the Internet, the opportunities capacity of electronic newspapers may be greatly enhanced.

Conclusions

Niche breadth, niche overlap, and competitive superiority were analyzed to understand the competitive relationships among television news, electronic news, and newspaper news in Taiwan. Analyzing the study data showed that strong competition exists between newspapers and television news, and that television news has gained superiority over newspapers. This study discovered that the niche theory was useful in investigating the competitive relationships among the three media because the analyses of niche breadth, niche overlap, and competitive superiority for each of the three media showed their strengths and weaknesses. By addressing their weaknesses as well as exploiting their strengths, it is possible for media to enhance their competitive advantages. Furthermore, this study found that the combination of niche concepts and uses and gratifications scales were theoretically helpful in understanding the competitive relationships among the three media.

Audiences are valuable resources for the media industry. To remain competitive, media have to persuade their audiences to continue using their products. According to the theory of uses and gratifications, the most important factor for continued use of a certain medium is the gratifications audiences obtain from the medium (Rubin, 1994). Dobos' study (1992) also discovered that it was gratifications obtained, not gratifications sought, that resulted in continuing use of a certain medium. Therefore, this study suggests that combining niche concepts with the uses and gratifications scales in future studies would be useful.

The niche breadth values in Table 2 can only give us an idea of comparative niche breadths among the three news media. However, the data in Table 2 do not show how much of the difference between two media in niche breadths can be interpreted as constituting a significant difference, and neither can the data in Table 3. Therefore, the values of niche breadths and of niche overlaps should be viewed as complementary data to the competitive superiority findings. This may be the greatest limitation of niche theory. It may be plausible for future researchers to consult with statisticians and work out a way to measure the degrees of significance among niche breadths or niche overlaps.

Future studies can be conducted in two ways: (a) adopt a longitudinal approach to better understand variations in competition among the three media so long-term predictions concerning resource distribution among the three news media can be made; and (b) calculate niche breadth, niche overlap, and competitive superiority not only for audiences' perceptions, but also for advertising income and media content. As stated above, the three key resources in the media industry are advertising income, audiences, and media content. To obtain a broader picture of the competitive relationships among the three media, niche breadths, niche overlaps, and competitive superiorities of the three media with respect to all resources should be analyzed simultaneously.

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