A Comparative Study on New and Old Media based on Information Behavioral Requirements

Kyu Hyung No
Hyun Gon Kim
Yop Pak

Working Paper 8901

JUNE 1989
KOREA INFORMATION SOCIETY DEVELOPMENT INSTITUTE

A Comparative Study on New and Old Media based on Information Behavioral Requirements

1. Introduction

New information services have been rapidly developed and supplied as a result of the great progress of the information technology. However, it is debated as to how these new information services would be used to promote efficiency of the human information behaviors. The subject of this debate has been continuously raised both in practice and in the policy making process. This study is designed to empirically investigate information behavior by comparing new media with old media. For this study, we first reviewed the previous studies in this field and conducted a series of surveys to find out the types of requirements which need to be satisfied in order for any information behaviors to occur, which were termed information behavior requirements(IBRs) and how new and old media satisfy these requirements at different situations. Finally, we presented the substitutability index which indicate the degree of possibility for a new medium to replace an old medium. On the basis of the research results, we suggested several policy alternatives for the supply of new media.

2. Literature Review

The concept of information behavior includes a wide range of human behaviors related to information handling such as producing, distributing, manipulating, processing, collecting, and so on. This study, however, categorized this variety of information behaviors into three types according to the approach used in behavioral sciences and also from the viewpoint of information users. The three types are information collecting, information processing, and information communicating.

Information collecting refers to simply collecting new information in order to adjust oneself to the environment through personal and/or mass media. Included in this category of behaviors are listening to radio news, watching TV programs and reading newspaper columns. Information processing, on the other hand, involves handling of the collected data and information to make them useful. Examples of behaviors in this category are calculating daily expenditures and writing official documents. Information communicating is any type of human behaviors to exchange information for working and living. Existing information media, both old and new, are also classified according to these 3 types of information behaviors. Old and new media, categorized in this way, are presented in the Table 1.

Since all information behaviors are made to adjust to the constantly changing environment, the purpose and type of any behavior will be dependent on the specific situations. In this study, based on the result of national survey on time usage, we undertook workplace and home as the two different situations into consideration. In sum, the variables of this study are the types of information behaviors (collecting, processing, communicating), types of information media (old, new) and the situations (work-

Table 1. Classification of Old Media and New Media

type	old media	new media
information collecting	daily newspaper economic newspapaer magazine, TV, radio	audiotex videotex teletex
information processing	typewriter manual work	word processor personal computer
information communicating	telephone, mailing telex, business trip face to face communication	facsimile PC communication picture phone video conference

place, home).

The previous studies which dealt with human information behaviors have been carried out to identify the characteristics of each medium. These studies showed that individuals tended to choose a specific medium to satisfy his or her specific goal.

The two major hypotheses that prevail from this perspective are the social presence hypothesis and the information richness hypothesis.

Social presence, described by Short, Williams and Christie (1976), is the degree of realistically feeling the existence of the speaker in the process of communication. For example, we feel the social presence of the speaker more realistically through communicating by means of telephone than that of letter. The degree of social presence, then, depends on sociability, warmth, personalness, sensitivity and other characteristics of the medium being used. The social presence is the most vivid in the order of face to face communication, audio and visual communication such as

video-conference and communication by telephone, respectively. The printed medium has the least vivid social presence.

According to this hypothesis, we choose a specific medium in accordance with a certain situation in order to meet the degree of social presence required. For instance, while the medium with higher social presence is preferred when solving conflicts or carrying out any negotiations, the medium with low social presence is effective when routine information is exchanged.

The information richness hypothesis was proposed by Daft and others (1981) when they studied the communication behavior in organizational settings. They argued that each medium differed in its capacity to convey information. Factors that contribute to these differences among media are the speed of feedback, types of channel (eg. audio, visual, audio-visual), the degree of sensitivity and the language being used. Such factors are termed, in this hypothesis, the information richness.

The degree of information richiness is in the descending order of face-to-face communication, telephone conversation, informal document, formal document and numeric data exchange. According to this hypothesis, a medium with information richness appropriate for a specific task is chosen.

With increasing interests in new media, several studies have been conducted on their introduction. Picot et al. (1982) dealt with choice behavior of new medium in an organizational setting. They found that a certain media was preferred when it met the task requirements better than other media. Task requirements, important in making a choice of media, are found in two dimensions; One is cognitive dimension including rapidness, complexity, reliability and accuracy and the other is affective dimension including stimulation, comfortableness, validity, formality and secrecy. This study investigated to what extent telephone, face- to-face

communication, letter, telex and facsimile can satisfy each requirement. However, this study only dealt with the media characteristics that satisfy the task requirements and neglected other factors like personal characteristics and situational attributes which actually affect the choice of media. Although a certain medium well meets its psychological requirement such as stimulation, it can be hardly selected when it's price is too high. The more specific study on the use of new medium in real situation was done by Steinfield (1986). He studied to what extent each factor can affect the using behavior of electronic mail in office setting by multi-regression method.

3. The Research Model

This study tries to identify the information behavior requirements and the medium satisfying each requirement, whether it is old or new.

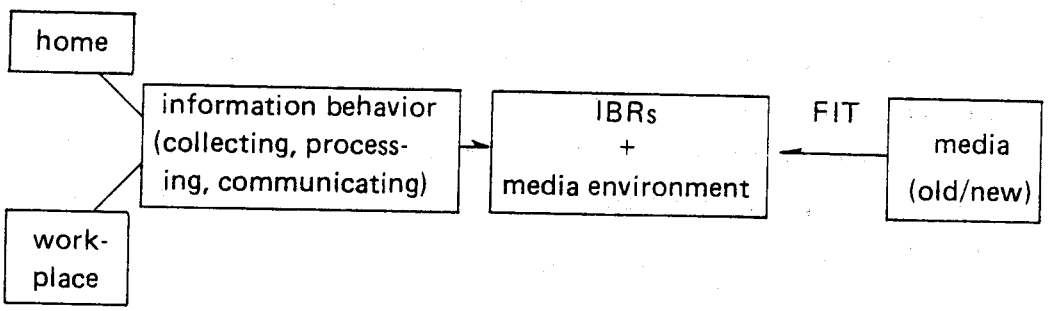
With the supposition that information behavior is affected by the environment, we tried to identify requirements relating not only to the psychological factors, but also to the social and cultural factors. And since we defined the relationship between old and new media as that of a substitutional one, we compared new media in conjunction with old media. Based on this rationale, we designed our research model as follows.

First, we identified information behavior cases occuring in workplace and home, and we categorized those cases into three types, namely, collecting, processing and communicating. Such information behavior cases are performed by choosing a medium from a wide range of media. The choice, however, may be influenced by the information behavior requirements and the constraints imposed by the social and cultural environments. The choice is

also made on the basis of the degree of fitness to satisfy the requirements.

Figure 1 presents the research model.

Figure 1. Research Model of Information Behavior



4. Research Procedure

There are three stages in this study: one preparatory survey and two steps of main surveys. The preparatory survey was conducted to collect information behavior cases at home and workplace by means of in-depth interview. For 3 days, we interviewed 30 adults who were students, housewives, businessmen and civil servants, and collected 53 information behavior cases. These were categorized into three groups according to the types of information behaviors; 25 cases for information collecting, 13 for information processing and 15 for information communicating. Among them, we selected 2 cases for each type of information behaviors(collecting, processing, communicating) and for each place (workplace, home), thus 12 cases in total. The criteria for selection were representativeness and appropriateness to the research. The selected 12 cases are presented in the Table 2.

Table 2. 12 Cases of Information Behavior

type	place	cases
information collecting	home	• obtain economic news. • obtain information on stock market for a prospect of new investment.
	workplace	• obtain traffic information for business trip. • observe the current activity in R&D of foreign companies.
information processing	home	• keep household accounts. • arrange address, phone number and sex of acquaintances.
	workplace	• draw up several papers with similar contents to be sent to foreign branches. • draw up a paper necessary for cancelling lease contracts of office.
information communicating	home	• inquire the welfare of one's spouse in another area. • suggest a mountain climbing on Sunday to friends who are scattered in several regions.
	workplace	• exchange opinions among directors for the establishment of sales strategy of new products. • distribute the meeting schedule and other details to the concerned organizations.

In our in-depth interview, two questions were posed for the subjects; factors that were important in information behavior cases and medium that satisfied these factors. We analysed the responses of the interviewees using the content analysis method. Among these factors, 21 factors were selected for use in the questionnaire of the main survey.

We also considered the factors discussed in the literature review.

These factors are called information behavior requirements(IBRs). These information behavior requirements(IBRs) are divided into two: common factors for all types of information behaviors and specific factors for each type of information behavior. The whole list of IBRs is presented in the following Table 3.

Table 3. Informaton Behavior Requirements & Media Evaluation Items

common		· economy · correctness · accessibility · variety · newness · convenience in choosing time · easiness of use · speediness · friendliness · independency · reliability · secrecy · completeness
specific	collecting	· easiness for storage · complexity
	processing	· sincerity · correctability · easiness for storage
	communicating	· sincerity · feedback · complexity

On the basis of 12 information behavior cases and 21 IBRs, two types of questionnaires were made. The first questionnaire was designed to assess the importance of each IBR by subjects who are experts in this field. Each case was presented to a subject with a list of IBRs. Subjects were asked to rate the degree of importance on the Likert-type 7 point scale (7 is the most important, 4 neutral, 1 the least important). The subjects for the first questionnaire were researchers at KISDI (Korea Information Society Development Institute), who had educational background in behavioral science. The sample size was 36 (men 30, women 6).

The second type of questionnaire, made up also of 12 cases and 21 IBRs, was designed to survey the preference pattern of users in choosing media to meet specific IBRs under different circumstances. In this questionnaire, a subject was asked to choose any two media which would best satisfy IBRs of the given information behavior case. For this survey, subjects were drawn from a directory of experts in the new media technology. Using the mail survey method, we sent the subjects an introductory letter, a questionnaire and a reminder letter. As a result, 223 subjects (43% response rate) were included in the final analysis.

5. Result

The data analyzing procedure is as follows: first, the ratings of the IBRs according to the types of information behaviors were analyzed, and with those ratings, new and old media were compared under the selected information behavior cases.

1) Information Collecting

The following Table 4 shows the average and standard deviation of respondents' ratings on each of IBRs in information collecting.

Table 4. The Ratings of IBRs (information collecting)

ranking	IBRs	mean	standard deviation
1	correctness	6.74	0.53
2	newness	6.68	0.50
3	reliability	6.63	0.62
4	completeness	5.96	0.95
5	variety	5.89	1.19
6	speediness	5.83	0.96
7	easiness for use	5.54	1.28
8	accessibility	5.53	1.30
9	dependency	5.37	1.11
10	economy	5.35	1.42
11	convenience in choosing time	5.30	1.36
12	easiness for storage	5.26	1.30
13	friendliness	4.22	1.47
14	secrecy	4.13	1.75
15	complexity	3.96	1.34

As seen in Table 4, IBRs can be divided into 4 groups. The first group consists of accuracy, newness and reliability whose ratings are very high with the least standard deviation values. Completeness, variety and speediness are included in the second group whose standard deviation value is twice that of the first group. The fourth group includes friendliness, secrecy and complexity whose importance ratings are below the middle value(4). In particular, secrecy has the largest standard deviation (1.75). We could find consistency in all respondents that they considered the factors of the first group the most important for information

b. Case 2 (home): obtaining information on stock market

As seen in Table 6, consulting with experts in rated higher with respect to accuracy and reliability, but most of other factors are better satisfied by a videotex. In particular, videotex is highly evaluated in speediness, choosing time and complexity, all of which are not satisfied by old media.

Table 6. Media Evaluation (collecting; case 2)

IBRs	videotex	consulting with experts
correctness	0.48	0.79
trustfulness	0.36	0.57
newness	0.49	0.50
variety	0.52	0.46
completeness	0.54	0.59
accessibility	0.16	0.02
speediness	0.69	0.13
economy	0.02	0.12
easiness for use	0.31	0.04
independency	0.50	0.25
convenience in choosing time	0.63	0.12
easiness for storage	0.19	0.03
friendliness	0.21	0.17
complexity	0.69	0.31
average	0.36	0.26

c. Case 3 (workplace): obtaining the traffic information for business trip to a local district

Here, the results of the comparison made between a telephone

collecting. Information behavior cases and preferred medium in each case are presented as follows:

a. Case 1 (home): obtaining economic news

In this case, we compared economic newspapers and videotexes. A videotex is ranked higher in speediness and complexity, but lower in economy, easiness to save and availability. From this, it can be said that a videotex is superior in satisfying the functional requirements but inferior in meeting the situational requirements to an economic newspaper.

Table 5. Media Evaluation (collecting; case 1)

IBRs	economic newspaper	videotex
newness	0.39	0.43
correctness	0.74	0.46
trustfulness	0.63	0.37
variety	0.63	0.43
accessibility	0.46	0.10
easiness for use	0.43	0.24
speediness	0.16	0.45
completeness	0.66	0.65
economy	0.72	0.00
convenience in choosing time	0.34	0.63
independency	0.53	0.37
easiness for storage	0.83	0.25
friendliness	0.50	0.12
complexity	0.03	0.59
average	0.44	0.32

inquiry and a videotex are presented. A videotex is evaluated higher in sufficiency, variety, and easiness for storage but lower in easiness for use and accessibility.

However, there is no big difference between the two media in view of the total average of all IBRs. It implies that a videotex is not considered as a more effective medium than a telephone inquiry.

Table 7. Media Evaluation (collecting; case 3)

IBRs	telephone inquiry	videotex
correctness	0.80	0.73
newness	0.87	0.87
reliability	0.81	0.81
easiness for use	0.81	0.37
independency	0.58	0.44
completeness	0.29	0.81
accessibility	0.93	0.23
speediness	0.86	0.69
convenience in choosing time	0.56	0.63
variety	0.26	0.78
economy	0.93	0.14
easiness for storage	0.07	0.76
friendliness	0.73	0.27
complexity	0.28	0.89
average	0.55	0.53

d. Case 4 (workplace): observing the current activity in R&D of foreign company

We compared computer database services with professional magazines. Computer database is evaluated higher in speediness and newness but lower in warmth. However, as seen in the total average, there is no big difference between the two media.

The introduction of computer database to replace the functions of professional magazines is dependent on how much a company emphasizes IBRs of the first group (accuracy, newness, reliability). If these IBRs are conceived more importantly than any other IBRs, then new media will be able to easily replace old media.

Table 8. Media Evaluation (collecting; case 4)

IBRs	professional magazine	computer DB
correctness	0.37	0.46
newness	0.31	0.58
reliability	0.38	0.45
completeness	0.38	0.48
easiness for use	0.50	0.64
speediness	0.38	0.83
easiness for storage	0.82	0.71
accessibility	0.82	0.30
economy	0.90	0.21
convenience in choosong time	0.63	0.64
independency	0.64	0.39
easiness for use	0.76	0.47
complexity	0.30	0.27
friendliness	0.83	0.23
average	0.50	0.42

2) Information Processing

In information processing including manipulating, editing and compiling data, the importance ratings of the IBRs are shown in the following table.

Table 9. The Ratings of IBRs (information processing)

ranking	IBRs	mean	SD
1	correctness	6.47	0.67
2	reliability	6.04	1.38
3	newness	5.85	1.54
4	easiness for storage	5.76	1.03
5	easiness for use	5.63	1.25
6	correctability	5.54	1.31
7	economy	5.50	1.35
8	completeness	5.47	1.28
9	speediness	5.28	1.37
10	secrecy	5.15	1.68
11	convenience in choosing time	4.90	1.40
12	accessibility	4.75	1.55
13	sincerity	4.58	1.56
14	friendliness	4.25	1.57
15	variety	4.17	1.62
16	independency	3.96	1.61

At a first glance, we can notice that SD values of IBRs in information processing are greater than those in information collecting. We also divided these IBRs into several groups. The first group consists of accuracy, reliability and newness, which are also evaluated as the most important requirements in infor-

.mation collecting. The second group includes easiness to save, easiness to handle and easiness to correct, which are specific to information processing behavior. It clearly shows that, in information processing, not only rapidity, reliability and newness are important as common IBRs but also easiness to handle, correct and save are important as specific IBRs.

In comparison of new and old media, we are interested in personal computers with many applications as a new medium. Here, we compared manual work with PCs. Table 10 shows the result.

From this table, we can notice that the results of comparison between computer and manual work are very consistent in all of information processing cases. Requirements such as accuracy, reliability, easiness to save, easiness to correct, completeness, speediness and variety are well satisfied by PCs while requirements such as economy, secrecy and convenience in choosing time are better satisfied by manual work.

Other requirements failed to show clear difference. This result shows that PCs are superior in the functional aspects but inferior in other aspects such as secrecy and economy. These weak points, although not critical in information processing, can be solved with the further advancement of technology.

Table 10. Media Evaluation (information processing)*

ranking \ cases / IBRs	home 1: household accounts	home 2: telephone number	workplace 1: papers to send out	workplace 2: cancellation of contracts
	PC & S/W vs. manual work	PC & S/W vs. manual work	WP vs. manual work	WP vs. manual work
1 correctness	+++	+++	+++	+++
2 reliability	+	++	+++	+++
3 newness	++	+	++	++
4 storage	+++	+++	+++	+++
5 utility	++	++	+++	++
6 correctability	+++	+++	+++	+++
7 economy	---	---	---	---
8 completeness	+++	+++	+++	+++
9 speediness	++	+++	+++	+
10 secrecy	--	---	---	---
11 convenience..	--	-	--	--
12 accessibility	*	*	+	+
13 sincerity	++	+	*	+
14 friendliness	*	-	*	+
15 vareity	+++	+++	+++	+++
16 independency	*	-	*	*

*The difference is computed by subtracting the average value of manual work from that of PCs with many applications. Here, the absolute value of the differences in the range of 0 ~ 0.1 is designated as *, 0.11 ~ 0.20 as + or -, and 0.21 ~ 0.30 as ++ or --. When the difference is greater than 0.31, it is expressed as +++ or ---. In this scale, + shows that new media is superior and - shows the other extreme.

3) Information Communicating

Table 11 shows the averages and SD values of IBRs in information communicating. The most distinctive feature in the table is the large SD values, which means that there is a wide range of opinions regarding the importance of IBRs for this type of information behavior. It is also found that accuracy, reliability and newness are regarded as the most important factors as in the results of information collecting and processing. Especially, those requirements such as secrecy and other emotional factors are important for information communicating.

Table 11. The Ratings of IBRs (information communicating)

ranking	IBRs	mean	SD
1	correctness	6.49	0.96
2	reliability	6.22	1.19
3	feedback	6.08	1.32
4	speediness	5.81	0.96
5	easiness for use	5.76	1.01
6	newness	5.53	1.65
7	sincerity	5.49	1.49
8	completeness	5.33	1.44
9	economy	5.31	1.59
10	accessibility	5.25	1.26
11	convenience in choosing time	5.18	1.34
12	secrecy	4.72	2.17
13	friendliness	4.64	1.50
14	vareity	4.43	1.71
15	independency	4.07	1.85
16	complexity	3.76	1.04

a. Case 1 (home): inquiring the welfare of one's spouse

We compare a telephone, a letter, and a picture phone in this case.

A telephone is highly evaluated in meeting the requirements of warmth, accuracy, secrecy, feedback and easiness to communicate. A letter is the most superior in sincerity and keeping secrecy. A picture phone, although it's the most sophisticated medium, is less preferred to old media.

Table 12. Media Evaluation (communicating; case 1)

IBRs	tele-phone	letter	picture phone
sincerity	0.46	0.86	0.29
correctness	0.69	0.19	0.57
secrecy	0.70	0.88	0.08
feedback	0.94	0.04	0.86
easiness for use	0.92	0.31	0.26
accessibility	0.93	0.66	0.06
speediness	0.89	0.01	0.43
friendliness	0.96	0.80	0.06
convenience in choosing time	0.85	0.26	0.36
reliability	0.69	0.35	0.55
independency	0.77	0.57	0.19
economy	0.69	0.91	0.00
completeness	0.33	0.46	0.32
complexity	0.32	0.06	0.94
newness	0.81	0.03	0.54
variety	0.31	0.22	0.60
average	0.70	0.41	0.38

b. Case 2 (home:) suggest a mountain climbing to friends

We compared a telephone and a picture phone which are regarded as having similar functions. A telephone is evaluated better than a picture phone in all factors but variety and complexity. Especially, a telephone is preferred for its economic use, speediness and easiness in communicating.

Also we compared PC communication with facsimile. PC communication is evaluated a little better than a facsimile in

Table 13. Media Evaluation (communicating; case 2)

IBRs	tele-phone	picture phone	PC comm.	fax
correctness	0.56	0.52	0.23	0.36
feedback	0.93	0.85	0.14	0.02
reliability	0.54	0.43	0.22	0.34
easiness for use	0.88	0.27	0.24	0.27
speediness	0.83	0.43	0.30	0.32
economy	0.82	0.01	0.14	0.06
convenience in choosing time	0.69	0.28	0.39	0.35
newness	0.76	0.47	0.31	0.30
completeness	0.33	0.26	0.50	0.46
sincerity	0.30	0.21	0.12	0.22
accessibility	0.86	0.15	0.19	0.10
variety	0.23	0.54	0.48	0.50
friendliness	0.91	0.20	0.12	0.13
independency	0.64	0.23	0.23	0.10
complexity	0.20	0.97	0.28	0.21
secrecy	0.65	0.14	0.29	0.07
average	0.63	0.37	0.26	0.24

feedback, secrecy and independency. A facsimile is evaluated somewhat better in correctness, reliability, and sincerity. In other factors, these two media did not differ greatly. From this result, we can infer that PC communication and facsimile have a competitive relationship.

c. Case 3 (workplace): exchange opinions among directors of the company

This case describes business decision making processes among executive directors who are seperated geographically. On the ground that decisions are made based on discussions held by business trips, telephones, facsimiles and video conferencing, we first compared telephones and facsimiles. Table 14 presents the result. A telephone is far better than a facsimile in feedback, independency, accessibility and friendliness. And a telephone is considered a little advantageous in secrecy, speediness and its economic use. However, compared to telephones, a facsimile is preferred in variety, reliability, accuracy, complexity and completeness.

Next, we compared business trips with video conferencing. The former is better in terms of sincerity, completeness and keeping secrecy. Video conferencing, however, is superior to business trips in terms of speediness, newness, feedback, variety and complexity. From this result, we can see that the new media such as video conferencing will be introduced more easily with the increasing importance of situational constraints such as time.

Table 14. Media Evaluation (communicating; case 3)

IBRs	tele-phone	fax	trip	video conference
secrecy	0.18	0.08	0.89	0.07
reliability	0.25	0.42	0.43	0.37
correctness	0.24	0.34	0.51	0.45
speediness	0.75	0.56	0.00	0.30
newness	0.43	0.51	0.06	0.49
completeness	0.15	0.29	0.56	0.35
feedback	0.81	0.05	0.36	0.69
easiness for use	0.74	0.67	0.00	0.07
variety	0.10	0.42	0.33	0.54
sincerity	0.11	0.20	0.65	0.14
accessibility	0.84	0.41	0.04	0.13
complexity	0.06	0.17	0.65	0.94
economy	0.58	0.34	0.02	0.02
convenience in choosing time	0.56	0.62	0.01	0.07
independency	0.56	0.17	0.30	0.12
friendliness	0.85	0.40	0.23	0.05
average	0.45	0.35	0.31	0.30

d. Case 4 (workplace): distributing the meeting schedule

This case is distributing routine information such as announcing committee meeting to its members simultaneously. A telephone, a facsimile and PC communication were considered. We first compared a teelphone to a facsimile. A telephone is preferred for satisfying feedback, speediness and warmth, and is considered as a comfortable, economical and accessible information medium in

comparision with a facsimile. A facsimile, on the other hand, is preferred for sending complete information. Then, we compared a facsimile with PC communication where the former is found to be excellent in reliability, speediness and sincerity. As a result of comparison, we can infer that a facsimile is more easily adopted than PC communication.

Table 15. Media Evaluations (communicating; case 4)

IBRs	tele-phone	fax	PC communi-cation
correctness	0.47	0.45	0.32
reliability	0.43	0.52	0.25
newness	0.64	0.46	0.37
feedback	0.96	0.04	0.10
speediness	0.84	0.43	0.17
easiness for use	0.85	0.32	0.20
economy	0.86	0.09	0.09
completeness	0.26	0.59	0.50
sincerity	0.24	0.37	0.16
accessibility	0.86	0.19	0.18
convenience in choosing time	0.70	0.43	0.36
friendliness	0.90	0.26	0.10
secrecy	0.47	0.22	0.34
variety	0.12	0.66	0.57
independency	0.67	0.15	0.25
complexity	0.16	0.32	0.27
average	0.59	0.345	0.26

6. Prospect

Based on the above empirical results, we formulated a substitutability index (SI) which means the degree of substitutability of a new information medium for an old medium.

The formula for SI is as follows:

$$SI = \frac{\text{total IBR's preference rate for a new medium}}{\text{total IBR's preference rate for an old medium}}$$

The SI indicates the relative degree of satisfaction of a certain new medium for IBRs of the presented information behavior cases comparing to a competitive old medium. The calculated values of SI are presented in the following Table 16.

The table shows that the decreasing order of substitutability is information processing, collecting and communicating. This result shows that word processing and some applications of personal computers as new media have high possibilities of being adopted for effective information behavior. As for places of information behavior, new media can be more easily introduced to workplaces than home and this is true no matter which type of information behavior may be involved.

Table 16. The Values of Substitutability Index

	cases	old media	new media	SI	rank
collec-ting	home 1 (economic news)	economic newspaper	VTX	0.73	10
	home 2 (stock market)	economic newspaper	VTX	0.75	9
	workplace 1 (traffic information)	telephone inquiry	VTX	0.96	6
	workplace 2 (current R & D)	professional magazine	computer DB	0.84	7
proces-sing	home 1 (accounts)	manual work	PC & S/W	1.19	4
	home 2 (phone number)	manual work	PC & S/W	1.23	3
	workplace 1 (papers to send out)	manual work	WP	1.31	1
	workplace 2 (cancelling contracts)	manual work	WP	1.25	2
commu-nicating	home 1 (inquire one's spouse)	telephone telephone	PC comm. FAX	0.27 0.20	16 17
	home 2 (mountain climbing)	telephone telephone	PC comm. FAX	0.41 0.38	14 15
	workplace 1 (exchange opinions)	telephone telephone business trips	PC comm. FAX video conference	0.53 0.78 0.97	12 8 5
	workplace 2 (distribute schedules)	telephone telephone	PC comm. FAX	0.44 0.59	13 11

7. Summary and Conclusion

The empirical results demonstrate that there exist common important IBRs irrespective of types and places of information behaviors concerned. These requirements are accuracy and reliability. The results also show that there exist specific IBRs on each type of information behaviors; for example, newness, completeness and speediness are important factors in collecting, easiness to save and correct are vital in processing and feedback, speediness and comfortableness are important in communicating. And, finally, there are also different IBRs depending on places. For instance, in information collectiong, variety, accessibility and economy are considered important at home, while easiness to save is more important at workplaces. On the other hand, in processing, completeness is important at home while newness and secrecy are important at workplace. In communicating, sincerity is considered more important at home, but newness and secrecy are more important at workplace. Therefore, we must acknowledge that there exists a great variety of IBRs depending on types and places of information behavior, and each medium can satisfy specific IBRs by its own characteristics. Then, it would be helpful to introduce and use a specific medium according to the type and place of information behavior.

Based on our analysis, we can predict a future prospect of new media supply. In information processing behavior, new media have a high possibility to be widely used both at home and workplace. The most viable new media, therefore, are those relating to information processing such as PC with a variety of applications. However, it seems difficult for new media to replace old media in information communicating behavior. In other words, since

telephones are most widely used as a typical medium for information communicating, no new media can easily susbstitute for telephones. Rather, new media can supplement telephones to promote the efficiency of information behavior as new media can add a great deal of functions, such as compactness, completeness and complexity that telephones do not have.

<References>

1. Short, J., Williams, E. and Christie, B., The Social Psychology of Telecommunications, 1976.
2. Christie, B., Face to File Communication: A Psychological Approach to Information Systems, 1981.
3. Picot, A., Klingenberg, H. and Kranzle, H. "Office Technology: A Report on Attitudes and Channel Selection from Field Studies in Germany", Communication Yearbook 6, 1982.
4. Steinfield, C.W., "Computer-mediated Communication in an Organizational Setting: Explaining Task-related and Socio-emotional Uses", Communication Yearbook 9, 1986.
5. Daft, R.L. and Lengel, R.H., "Information Richness: a New Approach to Managerial Behavior and Organization Design", Research in Organizational Behavior, Vol.6, 1981.
6. Rogers, E.M., Communication Technology - The New Media in Society, 1986.
7. Lengel, R.H., Managerial Information Processing and Media Selection Behavior, unpublished Ph.D dissertation, Texas A & M Univ., 1983.