PRINT MEDIA AND MODERN SUBJECTS: A TRANSCENDENTAL EXAMINATION

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Introduction. The social function of modern libraries has been to collect print media systematically. It is often said that the naissance of modern subjects is inherently connected to print media. In order to analyze the relationship between print media and the modern subject, this paper establishes a basic formal framework within which the formal characteristics of different media can be comparatively examined, and clarifies the status of print media in relation to the construction of the modern subject.

Method. Our perceptive and cognitive framework is necessarily constricted by the very nature of communication media. Therefore, to investigate the relationship between communication media and the modern subject, a transcendental approach is indispensable. However, assuming a transcendental subject would push us back into the same closed circuit we would be trapped in by taking an empirical approach. In order to compare various communication media from the point of view of constraints on communication, both the manner in which messages can be communicated and kind of messages that can be communicated were comprehensively examined in a transcendental, speculative way. A general list of 18 features for comparison of different media (GLF), which includes 14 features relating to spatial-temporal constraints and four features relating to representational constraints, was proposed and used to examine and evaluate the characteristics of 17 different communication media.

Results. Among the features listed in the GLF, we identified eight as the most influential traits of communication media contributing to the establishment of modern subjects. The 17 communication media were circumstantially compared with respect to these eight features. The results of this comparison led us to the conclusion that print media best meet all these conditions.

Conclusion. Comparing different communication media using the GLF framework, we concluded that print media incubate, establish, and reinforce the modern subject more effectively than other communication media, including manuscripts, bulletin boards, audio-visual materials, telephones, broadcasting media, email, and the Web.

1. Introduction

The social function of modern libraries has been to collect printed materials systematically and, by enabling people to access these materials, to distribute knowledge and information (Umino & Toda, 2001). In the production, accumulation and distribution of knowledge and information, a privileged status has been accorded to print media. People look up encyclopedias to confirm information, it is a sine qua non of modern society that its basic rules are written down in the form of law and made available in printed form, and it is recognized that even the unity of a language is constructed and maintained by means of print media (Anderson, 1991; Karatani, 2004). More importantly, it is often said – albeit in a rather impressionistic way – that the naissance of modern subjects is inherently connected to print media. This latter point is the main concern of this paper.

The privileged position of print media appears to be under threat recently, with the advent and explosive growth of the Internet. Instead of retrieving and reading information in printed form, people pinpoint and retrieve specific information from the Web in a more flexible manner. The Internet has become such a natural part of our daily life in many areas of the world that it is sometimes claimed that it will eventually replace print media, with the Web as a whole taking the place of modern libraries. To contradict this claim, it is often pointed out that a substantial proportion of content on the Internet is inaccurate and/or fragmentary. However, it is also true that not a small proportion of the information conveyed by print media is in fact inaccurate; we cannot rely solely on the inaccuracy of the information on the Internet to defend the value of print media and libraries. It is also inconvenient to resort to arguments based on the accuracy of content when discussing the relationship between the media and the modern subject, because people who are misinformed and full of inaccurate knowledge are perfectly capable of being – or of being treated as – modern subjects in modern society.

To analyze the relationship between print media and the construction of the modern subject, what is necessary is not to resort to simplistic and impressionistic arguments for or against the Internet, print media, the Web or libraries based on the concept of accuracy, but to clarify the essential nature of the formal aspects of print media in contrast with other media. This paper establishes a basic formal framework within which the formal characteristics of different media can be comparatively examined, and clarifies the status of print media in relation to the construction of the modern subject. Section 2 sets out our basic methodological standpoint and approach. Section 3 introduces a detailed list of features that can be used to compare different media. On the basis of this list of features, the essential characteristics of print media and how these relate to the construction of the modern subject are discussed in section 4.

2. Methodological Framework

2.1 Communication media and modern subjects

The social functions of communication media can be identified from a variety of viewpoints and at a variety of levels. From the point of view of economics, we can investigate the function of communication media in relation to the development of production and consumption activities. In the socio-political arena, administrative, legal, and/or judicial issues can be observed in relation to the arrangement of communication media. The form and mode of science and our thought is also influenced by communication media.

In modern society, all these questions assume the existence of human beings as modern subjects. The essential feature of modernization is to assume and require a person to be fully independent at all levels of social activity. Basic features of modern society – universal suffrage, democratic participation, human rights, private property, the market economy – all presuppose the modern subject.

Modern subjects are created in the course of an individual's development, as s/he forms an identity as a singular personality. The crucial point about identity formation is that it is completely dependent in any age upon communication media (in its broad sense). Therefore, the most essential function of media in our society is incubating and establishing the modern subject. As mentioned above, it is often said that it is print media that contribute to the construction of the modern subject. To examine that claim is the aim of this paper.

2.2 Transcendental approach

The English word "subject" has a dual meaning: it denotes both "a person who thinks, feels, or intends actively" and "a person who is controlled or influenced by another passively." Modern subjects clearly manifest this duality. Modernized society forces people to be conscious of who they are all the time. Modern subjects are characterized by intensive self-reflection that introduces "twofold subjects" into identities. The concept of the twofold subject means that modern subjects are not only active masters of the world but also passive slaves under a constellation of external "power," a point that was vividly demonstrated by Michel Foucault in *Surveiller et punir: naissance de la prison* (Foucault, 1975).

We are here faced with a methodological problem. If the construction of the modern subject is strongly tied to a specific arrangement of communication media and if we are still in the modern age – as we arguably are – our perceptive and cognitive framework is necessarily limited by the very nature of the communication media that we are trying to examine. This forces us to give up an empirical approach toward addressing the issue. For instance, even if we collected the opinions of a large number of people about communication media through interviews and questionnaires, the only information we would obtain is what these people think about communication media, not about how communication media function. From the point of view of the present problematique, an empirical approach – often wrongly equated with objectivity – would produce nothing more than information about the distribution of people's subjective understanding of print media. Observing how people behave within the current media environment is another possible approach, but would suffer from the same problem because the observer would be constrained by the very media environment s/he was attempting to observe.

To investigate the relationship between communication media and modern subjects, a transcendental approach (Kant, 1787) is therefore indispensable. Assuming a transcendental subject, however, would push us back into the same closed circuit we would be trapped in if we took an empirical approach. This study therefore adopts the standpoint of "Kantianism without a transcendental subject," to borrow the words of Paul Ricoeur in describing the work of Claude Levi-Strauss (Ricoeur, 1963). In order to do so, we take a hypothetic-deductive approach and logically deduce the basic traits of the modern subject (in section 2.3) and the formal features of different communication media (in section 3). Note that the concept of transcendentalism is regulative and not constructive. Simply taking a hypothetic-deductive or logical approach does not guarantee a transcendental approach; the transcendental approach is a process of trying to be transcendental, with a rigid and concrete hypothetic-deductive approach producing temporary footholds at each step. Incidentally, this means that to concretely take part in this process is a necessary precondition for criticizing the arguments and findings derived from the transcendental approach.

2.3 The basic nature of the modern subject

The basic nature of the modern subject can be postulated as follows:

- S/he must represent him- or herself. This can be characterized as the ability to ask questions. If one cannot ask questions, one cannot actively represent oneself;
- S/he is regarded as having a consistent identity. This is manifested in the way that the law assumes the consistency of personal identity. This requires two different relations. First, a person must have a reflexive relationship to him- or herself in the past. Second, in relation to other people, a person must maintain the concept of a generalized "other" because otherwise his or her identity may change in the face of different people;
- The minimal essence of his or her identity should remain consistent in different possible worlds. Otherwise, a person would logically be reduced to a bundle of specific features, which is equal to the effacement of identity (cf. Kripke, 1981). To refer to possible worlds, it is necessary for a person to have the ability to decontextualise him- or herself and to actively construct contexts different from the context within which s/he is directly placed.

Note that all of the above are related in some way or another to the construction of meta-self. To represent oneself, one needs to have the sense of representing oneself; to maintain a consistent identity, one needs to take the viewpoint that one maintains one's own identity; one's objective features may be lost in another world but one can still maintain one's identity, which is the very function of meta-self; for the thought processes of decontextualization and recontextualization to be activated in the first place, one needs the sense of reflexive self, which is derived by and at the same time constitutes meta-self.

3. General List of Features for Comparison of Different Media

3. 1. Two modes of communication

"Communication media" can be defined as the social means by which people transmit messages to others, and the essential function of communication media can be understood as the extension and amplification of human communication by transmitting and receiving these messages. Looking back over human history, we can see that the development of new forms of media has typically – though not always – involved a reduction of constraints on the transmission and reception of information in two senses: a successive reduction of constraints on 1) the *manner* in which messages can be communicated and on 2) the *kind of message* that can be communicated.

For example, with regard to 1), face-to-face conversation was the only means available for conveying the sound of the human voice until the 18th century. When the telephone was invented by Graham Bell and Thomas Edison in the late 19th century, the spatial restrictions on receiving the sound of a person's voice were drastically reduced. Since the advent of radio broadcasting and mobile phones in the 20th century, such spatial restrictions have been reduced even further. At the same time, additional information, such as body language, present in face-to-face communication was lost in telephone and radio communication.

The history of visual media provides an example with regard to 2). When photography was invented by Henry Fox Talbot and Louis Daguerre in the early 19th century, the sensory restrictions on transmitting visual information were reduced. These restrictions were reduced even further with the advent of movie theaters and television broadcasting in the 20th century. In these media, however, the three-dimensional nature of the sensory input was lost, reducing information to a two-dimensional media space.

In order to compare various communication media from the point of view of constraints on communication, we comprehensively examined both 1) and 2) in a transcendental, speculative way, and enumerated general features for media comparison. These features are described in the following sections.

3.2 Space and time constraints

With regard to 1), the manner in which messages can be transmitted and received, space and time are the constitutive and determining factors. According to Kant, space and time are both pure forms of intuition and pure intuitions not only in communication but in all human experience. Space and time precede and structure all experience of individual outer objects and inner states.

Formally, space and time can be treated in the same manner, as both are characterized by "location" and "distance," though the dimensionality of space and time differs, i.e. space has three dimensions but time has only one. When we examine location-based constraints on communication, points of space/time without range can first be identified. Secondly, the range of space/time can be identified, meaning the constraints on mobility in space/time.

As Table 1 indicates, multiplying {space and time} by {location point, location mobility, and distance} by {transmitting and receiving}, we can logically deduce 12 features for media comparison as listed below (in the discussion that follows, each feature is referred to by the abbreviation in square brackets]).

[S1] Freedom with regard to transmission location
[S2] Freedom with regard to reception location
[S3] Spatial proximity of transmission and reception points
[S4] Spatial remoteness of transmission and reception points
[S5] Spatial control of transmission
[S6] Spatial control of reception
[T1] Freedom with regard to transmission time
[T2] Freedom with regard to reception time
[T3] Temporal proximity of transmission and reception points

[T4] Temporal remoteness of transmission and reception points
[T5] Temporal control of transmission
[T6] Temporal control of reception

Table 1: Features for comparing space-time constraints

		Space	Time
Location	Transmission	[S1] Freedom with regard to transmission location	[T1] Freedom with regard to transmission time
	Reception	[S2] Freedom with regard to reception location	[T2] Freedom with regard to reception time
Distance	Proximity	[S3] Spatial proximity of transmission and reception points	[T3] Temporal proximity of transmission and reception points
	Remoteness	[S4] Spatial remoteness of transmission and reception points	[T4] Temporal remoteness of transmission and reception points
Control	Transmission	[S5] Spatial control of transmission	[T5] Temporal control of transmission
	Reception	[S6] Spatial control of reception	[T6] Temporal control of reception

S1 indicates the potential number of points in space from which one could transmit a message using a particular communication medium. S2 indicates the potential number of points in space at which one could receive a message using a particular communication medium, regardless of the spatial transmission point.

S3 indicates how close spatially the transmission and reception points could be, and S4 indicates how far apart these points could be. S5 and S6 indicate the degree to which one could move around while transmitting/receiving a message.

T1 indicates the potential number of points in time at which one could transmit a message using a particular communication medium. T2 indicates the potential number of points in time at which one could receive a message using a particular communication medium, regardless of the temporal transmission point.

T3 indicates how close in time the transmission and reception points could be, and T4 indicates how far apart in time these points could be. In other words, T3 represents "immediacy," and T4 "recordability."

Although we cannot move against the current of time, we can conceive of temporal mobility in terms of "speed." T5 and T6 thus indicate the degree of flexibility one has in changing the transmission and reception speeds.

Time passes in one direction and it never flows in the reverse direction. On the other hand, space expands in three dimensions, and one can transmit messages toward receivers in various directions. We therefore need to consider constraints on spatial direction. We deduced two features for media comparison in this regard:

[D1] Multidirectionality of transmission
[D2] Bidirectionality between transmitters and receivers

D1 indicates the constraints on the number of transmitting directions, meaning the potential number of receivers one could transmit the same message to at the same point in time using a particular communication medium. D2 indicates the constraints on interactivity between transmitters and receivers, in other words whether it is possible for transmitters and receivers to switch their positions at a given moment using the same communication medium. D1 and D2 can be algebraically regarded as the topological restrictions of the directed graph defined within the set of all transmitters and receivers.

3.3 Constraints on representation

With regard to 2), the kind of messages that can be transmitted and received, modes of representation are the constitutive factors. Every message is represented in either a linguistic or a nonlinguistic way. Only language enables us to perceive, think and ask questions (Hoffer, 1973), but some messages are represented in a nonlinguistic manner, such as paintings and drawings, and recordings of natural sounds.

On the other hand, messages are produced to appeal to certain human senses. Although opinions vary as to the definition of human senses, it is generally agreed that a minimum of nine senses should be recognized; sight, hearing, taste, smell, touch, thermoception, nociception, equilibrioception, and proprioception. However, we can be fairly certain that only sounds and visual images allow us to convey information or knowledge in our society with a minimum level of communicative accuracy and efficiency.

As Table 2 indicates, multiplying {linguistic and nonlinguistic} by {auditory and visual}, we can logically deduce four features for media comparison as listed below:

[M1] Spoken language
[M2] Written language
[M3] Nonlinguistic auditory information
[M4] Nonlinguistic visual information

Table 2: Features for comparing representational constraints

	Linguistic	Nonlinguistic
Auditory	[M1] Spoken language	[M3] Nonlinguistic auditory information
Visual	[M2] Written language	[M4] Nonlinguistic visual information

These features indicate the constraints on the representation of communicated messages. M1 indicates how effectively one could transmit a message verbally using a particular communication medium. M2 indicates how effectively one could transmit a message by writing letters and characters. M3 indicates how effectively one could transmit nonlinguistic sounds or wordless music, and M4 indicates how effectively one could transmit nonlinguistic graphics or wordless video.

The set of 18 features described above (S1-S6, T1-T6, D1-D2, M1-M4) are proposed as a general list of features for comparison of different media (hereafter, GLF), which can be used to analyze the media environment of people no matter where or when they live. As we adopted a transcendental approach, the list is universal and comprehensive and thus applicable to human societies at any place and in any age.

4. The Essential Significance of Print Media

4.1 Comparison of modern media

In this section, we make use of GLF to discuss the question of which medium most effectively incubates, establishes, and reinforces the modern subject.

We selected 17 different media utilized in our society for comparison in this study. Table 3 lists these 17 media and describes the action(s) that typify "transmitting" and "receiving" for each of them. The list of different media is by no means comprehensive, but the set of 17 types that we selected is sufficient for characterizing print media and their essential significance.

Since media are not static but develop and acquire additional functions, we placed some limits on the communicative functions attributed to each type of media. For example, audio files and audio-visual files can be sent by email, but we do not consider this function here, as this allows us to compare "Email" as a type of media with "Letters" and "World Wide Web" more clearly. In the same way, we define "Movies" as a medium shown only at a movie theater in public space to compare with "Audio-visual materials" more clearly. We also define "Audio materials" and "Audio-visual materials" as me-

dia with physical substance like tapes, discs, or cards which are distributed to people in the marketplace. It means that we consider these media neither as contents on the Internet, nor as media used for private communication. The "Notes" column of Table 3 shows the limits we placed on the communication functions attributed to each medium and comments about its coverage.

Table 3: Communication media selected for comparison

Media	Transmitting	Receiving	Notes
Face-to-face conversations	to speak	to hear	without any mechanical devices
Performances	to perform	to see	including singing, dancing, playing, and public speaking
Manuscripts	to pass	to read	only written language and still images
Pictures	to show	to see	only still images
Print media	to distribute	to read	only written language and still images
Bulletin boards	to display	to see	only still images, including posters and signboards
Handouts	to distribute	to see	including handbills, fliers, and brochures
Letters	to post	to read	only written language and still images
Audio materials	to distribute	to hear	not including private use
Audio-visual materials	to distribute	to see	not including private use
Movies	to show	to see and hear	only in theaters
Land phones	to speak	to hear	not including facsimiles
Mobile phones	to speak	to hear	not including email
Radio broadcasting	to broadcast	to hear	not including text broadcasting
Television broadcasting	to broadcast	to see and hear	including portable televisions
Email	to send	to read	only written language and still images
World Wide Web	to upload	to see and hear	including Web sites, BBS, SNS, blogs, and so on

It is impossible to evaluate each feature in the GLF as ratio data or interval data, because the strength of the constraints defies measurement in numerical terms. Therefore the 18 items are evaluated according to an ordinal scale, and the 17 different media are ranked in relation to each feature in ascending order of constraints allowing the same rank. The results are shown in Table 4.

4.2 Conditions for establishing modern subjects

In section 2.2, we noted how modern subjects are characterized by an intensive self-reflection that creates a twofold identity consisting of an active and a passive sphere. This results in individuals forming a solid "meta-self" that supervises the subject. We then outlined the basic nature of the modern subject in section 2.3.

Using the GLF, we identified the following eight features as the most influential traits of communication media contributing to the establishment of modern subjects.

Representational constraints: M1, M2

Spatial constraints: S2, S4

Temporal constraints: T2, T4, T6

Directional constraints: D1

Firstly, in reference to M1 and M2, a medium must be able to represent messages linguistically in order to establish modern subjects. This is almost a truism, because only languages allow an individual to ask questions, which, as noted above, is a sine qua non of being a subject. It is true that all media allow one to experience for oneself what someone else has gone through. However, if the internalization of someone else's eyes is to help build the meta-self, a medium must convey not only that person's emotions or feelings but also their reflective intellection and thinking, which in turn equates to asking oneself questions and answering them oneself. Linguistic information is an absolute precondition for thinking about something.

Second, in reference to S2, S4, T2, and T4, the weaker the space and time constraints on receiving are, the more effectively a medium can incubate, establish, and reinforce modern subjects. It is necessary for the formation of meta-self that one is able to receive someone's thoughts without dependence on space and time, for it takes a certain amount of time to reflect and internalize someone else's eyes. A

medium that has strong spatial or temporal constraints does not allow enough time for introspective thinking that fosters consciousness of meta-self. This is related to the issue of decontexualising oneself and thinking of possible worlds. The intellectual experience of time-space operation habitually and unconsciously fosters the active sphere of modern subjects everywhere in modern society.

Comparing space and time, temporal constraints are more important than spatial ones. One must voluntarily continue to refer to messages from others as a means of resisting the constant threat of oblivion, even though building meta-self is unconscious process. Receiving messages is time-consuming, and the formation of the modern subject is even more time-consuming. The time delay is closely related to maintaining a consistent identity. Therefore a medium which allows freedom in regards to *when* a message is received but not *where* it is received (e.g. bulletin boards) makes a more significant contribution to the formation of modern subjects than a medium which allows freedom in regards to *where* a message is received but not *when* it is received (e.g. television).

Thirdly, in reference to T6, it is also essential to the formation of modern subjects that one can autonomously control the speed at which messages are received. It is here that written language has an advantage over spoken language. Even though one can partially modify the speed or use the pause function when using a playback device to receive audio or audio-visual messages, one cannot entirely control the time when assimilating speech on the spot. On the other hand, one can entirely control the time when assimilating messages represented by written language. As this allows one to delay or postpone the receipt of the whole message, it contributes to the construction of a persistent identity.

Fourthly, D1 must be pointed out as a directional constraint. Thus far, we have discussed the conditions governing the communicative capacity of different media, regarding individual media unit as a social device. However, media can work on subjects not only on an individual unit but also in an aggregate manner or as a set. Regarding each medium as a collective entity or set of social devices, D1 is significant. The process of subject formation is stimulated by reception of the thoughts of the 'generalized other' in the public sphere. Mass or formal media contribute more effectively to modern subject formation than personal or informal media.

Table 4: Comparison of 17 modern media

Media	Spatial constraints						Temporal constraints						Directional constraints		Representational constraints			
	S1	S2	S3	S4	S5	S6	T1	T2	T3	T4	T5	T6	D1	D2	M1	M2	M3	M4
Face-to-face	1	16	1	16	1	13	5	12	1	12	1	10	13	1	1	13	8	12
Performances	14	14	13	14	7	13	14	12	1	12	4	10	9	17	1	12	7	11
Manuscripts	2	1	3	1	3	4	5	1	1	1	8	1	13	4	11	1	11	10
Pictures	2	1	3	1	3	4	5	1	1	1	8	1	13	7	11	8	11	5
Print media	11	1	3	1	9	4	11	1	1	1	8	1	4	9	11	1	11	5
Bulletin boards	9	16	1	16	9	13	1	9	14	9	8	1	9	9	11	1	11	5
Handouts	2	1	3	1	7	4	5	1	1	1	8	1	10	9	11	1	11	5
Letters	10	1	15	1	9	4	1	8	17	1	8	1	10	7	11	1	11	5
Audio materials	12	6	7	6	9	1	11	1	12	1	8	9	4	9	9	13	1	13
Audio-visual	12	6	7	6	9	9	11	1	12	1	8	9	4	9	3	9	1	2
Movies	14	13	13	14	9	13	14	11	1	9	5	10	4	9	3	9	1	1
Land phones	8	15	9	8	9	13	5	12	1	12	1	10	16	1	7	13	8	13
Mobile phones	5	8	9	8	1	2	5	12	1	12	1	10	16	1	7	13	8	13
Radio	16	8	16	12	9	2	14	12	1	12	5	10	2	9	9	13	1	13
Television	16	8	16	13	9	10	14	12	1	12	5	10	2	9	3	9	1	2
Email	5	8	9	8	5	10	1	1	14	1	8	1	4	4	11	1	11	13
The Web	5	8	9	8	5	10	1	9	14	9	8	1	1	4	3	1	1	2

We compared the 17 different communication media with respect to these conditions. As can be seen in Table 4, with regard to spatial and temporal constraints, manuscripts, pictures, print media, and handouts received the same score, as all four are ranked in the first position for all five comparison features (S2, S4, T2, T4, T6). With regard to directional constraints, pictures and print media ranked higher than manuscripts and handouts (D1). So far as representational constraints are concerned, pictures ranked lower than the other three media (M2). We thus concluded that print media best meet all these conditions.

5. Conclusion

This study aimed to clarify whether print media incubate and establish human subjects. As the modern subject has a twofold nature, a transcendental approach was employed to investigate communication media, which contribute to the formation of the modern subject.

Communication media were comprehensively compared with regard to their communicative capacity using a list of 18 different features. The results of this comparison show that print media most effectively incubate, establish, and reinforce the modern subject.

The modern subject is imprinted with another duality after full-scale social modernization: the economical initiative in consumer society and the political initiative in civil society. Both subjects possess an active phase and a passive one, but we can hypothesize that economical initiatives are apt to be more passive, because the late capitalism of advanced consumer societies produces consumers' desires endlessly. Economic behavior may tend to make the ego absolute, while political behavior may tend to make it relative.

We have already concluded that print media are more flexible than other media with regard to receivers' time-space operations. The intellectual experience of time-space operation habitually and unconsciously fosters the active phase of modern subjects. On the other hand time-space compulsion on intellectual activities accelerates the passive phase of modern subjects. Print media roughly correspond to political initiatives and audio-visual media to economical initiatives. Friedrich Kittler demonstrated that subjects created on the basis of literary culture were transformed following the introduction of audio-visual culture around 1900 (Kittler, 1986). This point basically conforms with our discussion.

Consumer society is in danger of exaggerating the economical ego without control and debilitating political initiatives. We are investigating in our next study whether print media sustains political subjects through the time-space operation on intellectual speculation.

Acknowledgments

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