

WORKING PAPER NO. 65/02

**Individual and cross media
communication in converging
media environments**

A review of research on the antecedents
and effects of communication using
various media in marketing contexts

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THE ECONOMICS OF TELECOMMUNICATIONS

This working paper is one of a series of papers and reports on telecommunication economics published by the Institute for Research in Economics and Business Administration (SNF) as a part of its telecommunication economics program. The main focus of the research program is to study the deregulation process of the telecommunication industry, and the economic and organizational consequences of changes in markets, technology and regulation. Being started in 1992, the program is now in its fourth period ending in 2005/2006. The program is financed by Telenor AS.

SNF-project no. 6500 "Mobile and Channel Integrating Electronic Commerce".
The project is funded by The Research Council of Norway, Telenor, Den Norske Bank, A-Pressen, Ericsson and Easy Park.

INSTITUTE FOR RESEARCH IN ECONOMICS AND BUSINESS ADMINISTRATION

BERGEN, OCTOBER 2002

ISSN 0803-4028

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Abstract

Recent years there has been an increase in the number of media accessible for marketing communication and distribution. In particular, the adoption of interactive media has increased significantly. One of these media are access to the Internet by computers but now several services are also offered through mobile devices such as mobile phones and personal digital assistants. Most companies intend to take advantage of these new interactive media. Thus, their choice is to take advantage of the new media as a supplement to the media they already use (unrelated) or to take advantage of the new media as a complement to the traditional media (related). Another related issue is also how the new media may substitute existing media for marketing communication and distribution. No matter what decisions companies make in their media and marketing communication strategies their decisions should be built on knowledge of why customers are using different media, how customers use them, and the effects of using different media, whether as stand-alone media or in cross media consumption.

In this report we review research focusing on the antecedents of media adoption and effects of adopting different media. Both research on media adoption within organizations and media adoption in everyday life contexts is included in the review. Most of the research reviewed has focused on antecedents and effects of adopting individual media. Only a few studies have focused antecedents or effects of combining the use of several media - integrated media environments. Although we want to focus on an integrated media environment in this report, studies of individual media consumption have been included in the review. The reason for including these studies is that the understanding of antecedents and effects of single media adoption is valuable for understanding adoption of media in an integrated media environment.

Although the review only has revealed a few studies of antecedents and effects of media adoption in integrated media environment, two theoretical and empirical traditions seem to be dominant in research on integrated media environments. Integrated marketing communication (IMC) has focused the effects of using different media in combination to increase the persuading effect of marketing communication.

Although most of the studies within the IMC tradition are descriptive and normative, empirical contributions have typically focused on the effects of customers' attitudes toward advertised brand when exposed for advertisements presented in media combinations. In addition to the IMC tradition, the uses and gratification tradition has focused on gratification overlap between different media. Most of these studies have been undertaken in everyday life contexts.

The review indicates a lack of research on the antecedents and effects of adoption of media in an integrated media environment. Even though cross media consumption is now common in modern media environments, no studies have been found comparing interactive media such as Internet, interactive TV and mobile interfaces. The implication of this is that the time is now right for conducting studies of antecedents and effects of adoption in integrated media environment in general, and studies of interactive media in an integrated media environment in particular. For studies focusing antecedents of integrated media environment, uses and gratification research seems to be a promising point of departure. For studying the effects of integrated media environment, and in particular effects measured using attitudinal measures, the IMC tradition, seem to be the most fruitful perspective.

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1 Introduction

The last decade, new interactive media have been introduced on the marketplace for communication in organizational contexts and for interpersonal communication and social purposes in everyday life contexts. Among such media are personal computers with access to Internet and e-mail. In addition, mobile devices give new possibilities for communication using voice telephony, text messaging, multimedia messages, e-mail, etc. In a commercial setting, the motives of companies offering communication and distribution using various media are often based upon a combination of cost reduction and customer service improvement. New interactive media are often proposed to reduce costs. This is one of the reasons why the financial industry and the tourism industry, in addition to many other industries, have focused more on interactive media the last few years. In addition, interactive media improve the accessibility of commercial services for the customers. Banks are now available 24 hour a day every day of the week. Also tourism products can be ordered from our homes, often at a cost lower than using the traditional travel agencies or tour operators. Thus, in addition to cost reduction, new interactive media also add value to consumers.

An interesting question is whether these new media substitute traditional media or if they are adopted as a supplement for traditional media. One way to shed some light on these questions is to investigate the motivation (antecedents) for using different media and the effects of using these media. Media that are used for the same purposes with similar effects have a high level of overlap. Thus, the chance that one of the media outperforms the other is high. If two media are used for different purposes with different effects, the media will probably supplement each other. Such media are often termed as being complementary.

In this report we review studies of the antecedents of media adoption/use and effects of media adoption/use. The review is rather broad, building on literature from information system theories, marketing communication, uses and gratification studies, studies of computer mediated communication, diffusion theories, and domestication theories. To understand the adoption of media combinations, it is important to

understand the antecedents of adoption of single media as well as how media substitute or complement each other. Thus, this review focuses on antecedents and effects of single media in addition to antecedents and effects of using combinations of media for various purposes.

1.1 Media and media channels?

Often the word media and channel is used interchangeably in the literature. However, Daft and Lengel (1984) describe media and channel as two distinct constructs. For face-to face medium the corresponding channels are described as visual and audio. For telephone, the corresponding channel is audio. This is also in line with Moriarty (1996) who define channel as any physical means of transmitting a message - speech organs, ear-drum, retina, telephone wires, and fiber optics. The term media is used by Moriarty to describe various sources of content presentation, such as television or newspapers. However, Emmers-Sommer and Allen write "The effects of certain media (such as pornography)..." (p. 479), illustrating that media is a construct used in many ways.

In this report we will mainly use "media" as a term including face-to-face communication, telephone, various forms of written information sources (print), personal computer, mobile phone, personal digital assistant, radio, television, etc. Several studies have focused on the Internet as a medium. Unless otherwise stated, access to the Internet in this report implies accessing the Internet using a computer. However, because the word "channel" has been used in several articles as a synonym for what we define as a medium in this report, channel will now and then be used in stead of the word "medium". For example, in integrated marketing communications, the terms media channels and media are used interchangeably of different advertising channels, such as magazines, newspaper, TV, radio and the Internet.

1.2 Use of various media

In Norway, Norsk Mediebarometer is among the main sources describing the use of various media in Norway. Table 1.1 shows the development in media use among Norwegians in the period from 1991 to 2001.

Table 1.1: The share of persons in Norway using various media (Vaage, 2002).

	1991	1996	1999	2001
Newspaper	84	82	81	78
TV	81	82	84	85
Radio	71	59	60	56
LP/cassett/CD	43	37	44	47
Text-TV		30	37	35
Weekly paper	21	18	15	14
Periodical	18	16	15	13
Comics	11	10	9	8
Home-PC		12	21	33
Video	10	9	9	9
Internet			18	34

The results indicate a growing importance of the Internet and home-PC while radio and weekly paper have shown a decreasing user rate in the period reported. The results from Norsk Mediabarometer (table 1.1) can be compared to the use of media in the US. Results from a study of the development in media use in US in the period from 1995 to 1999 are presented in table 1.2.

Table 1.2: The share of persons in USA using various media (Stempel, Hargrove and Bernt, 2000).

	1995	1999
Local TV news	71	59**
Network TV use	67	60**
Daily Newspapers	59	54*
Radio News	49	57**
Radio Talk Show	20	28**
News Magazine	31	27*
Grocery Store Tabloid	11	6**
Political Magazine	8	8
Internet	5	35**
On-line Service	3	19**

*p<.05/**p<.01

The results show an increase in the use of radio (for news and talk shows), Internet and on-line services. As in the study reported by Vaage (2002), the results clearly illustrate the growing importance of Internet and interactive media.

Recent developments in mobile communication services imply that the mobile phone is becoming an increasingly important communication and information distribution

medium. A study by Barwise and Strong (2002) reports an overall penetration of mobile phones at almost 70 percent in the UK (August 2001). In some user segments there is a penetration rate of almost 80 percent (18 - 24 years). Voice is reported as the key application for mobile phones, but SMS is increasing very fast. In their study the following percent of mobile users were reported to use SMS services.

Table 1.3: The use of SMS services among owners of mobile phones in UK.

Years:	14-15	16-17	18-24	25-34	35-44	45-54	55-64	65+
Percent:	97%	94%	93%	81%	74%	50%	38%	23%

The results show that the use of SMS services is very high among the youngest users. As can be seen, age has a negative impact on the use of SMS services. In Norway a study by Ling (2002) shows the development in percent of Norwegian teens who own a mobile telephone. The results are presented in table 1.4:

Table 1.4: Percent of teens in Norway who own a mobile telephone by age and gender.

Age	1997		1999		2001	
	Male	Female	Male	Female	Male	Female
13	3	2	35	43	83	80
14	6	1	59	49	82	87
15	17	6	64	73	82	92
16	21	12	73	79	90	96
17	19	4	67	78	89	98
18	30	13	78	68	92	100
19	43	27	81	83	90	98
20	68	20	88	78	86	100

The results show two important developments. First, there has been an enormous increase in the adoption of mobile telephones among teens in Norway from 1997 to 2001. Second, adoption rates were higher among boys than girls in 1997, whereas girls had higher adoption rates than boys in 2001. Ling (2002) also relate age to the use of voice and SMS among men and women. Interestingly, SMS is used more on a daily basis than voice among users below 25 years. For older users, voice is used more heavily than SMS.

The results from the reported studies illustrate the growing importance of new interactive media. Thus these media should be included when planning media use for communication both in everyday life context and in organizational context.

1.3 A framework

Below we present a model that illustrates the elements focused in this report. As can be seen, we focus on both antecedents of media use and effects of media use.

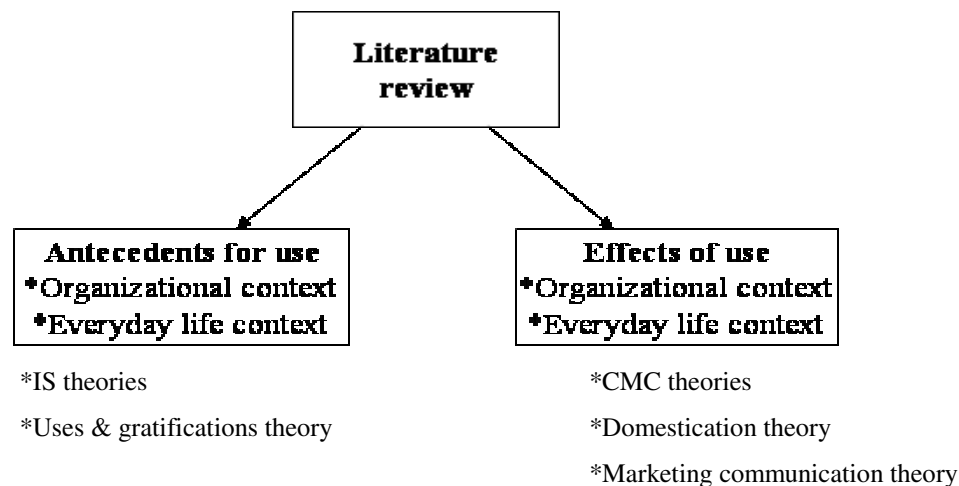


Figure 1.1: Description of the purposes and theories presented in the report.

In chapter 2, a review of research on the antecedents of media use for various purposes is reported. In this review, literature from information systems (IS) research and uses and gratification research is focused (Katz, Blumler and Gurevitch, 1974). Studies from the IS-literature typically describe and explain media adoption by individual users applying cognitive and social theories of decision-making. In uses and gratification theory, media use and choice are deemed conscious efforts to fulfil certain cognitive and affective needs. Typically, the gratifications obtained from media use are presented as perceived by the audience. Uses and gratification studies may also be used to describe how media are used (actual use) or to describe effects of media use - gratifications obtained. However, in this report we use the studies from uses and gratification research to describe the gratifications as motives for media use (antecedents of use).

In chapter 3, effects of media use are presented. Here, studies of computer mediated communication (CMC) and marketing communication is reviewed in addition to domestication studies. Domestication research typically studies the adoption and use of media in everyday life (Silverstone and Hirsch, 1992). However, the main focus of the domestication studies is on the societal effects of the domestication of media, that is, the process in which the use of media becomes integrated into our everyday life (Pedersen, 2002).

Chapter 4 is dedicated to studies focusing on antecedents and effects of using mobile devices. The reason for this focus is that mobile services are particularly relevant to this project. In addition, we focus on studies of synergies and integration of media (chapter 5). Research on the use of combinations of media is very rare. In particular research with an integrated perspective that includes new interactive media is difficult to find. Also, for this part of the review, we will review research focusing on antecedents of media integration and the effects of using combinations of media. The theoretical perspectives reviewed in this chapter will mainly be based on what is applied in integrated marketing communication (IMC) (Thorson and Moore, 1996; Schultz and Kitchen, 1997), studies from the uses and gratification literature (Flanagin and Metzger, 2001; LaFerle, Edwards, and Lee, 2000), and a few industry studies. In the final chapter, we present a few potential research areas that we find interesting based on what we have learned from the literature review undertaken in this report about antecedents and effects of using single media and integrated media.

1.4 Important questions

Applying figure 1.1, the main research questions we focus in this review are:

RQ1. What are the main antecedents of media use under various conditions?

RQ2. What are the main effects of individuals' use of various media under varying conditions?

In addition to these questions, research on the use of combinations of media (integrated media environments) is reviewed in this report. Thus, the third question studied in this report is as follows

RQ3. What are the main antecedents and effects of individuals' use of media combinations in an integrated media environment?

2 Antecedents of media use

As mentioned in chapter one, this review is based on theories focusing both organizational and everyday life contexts. First we present studies focusing on antecedents of media use in organizational contexts (chapter 2.1). In chapter 2.2 research on antecedents of media use in general social and everyday life contexts is reviewed.

2.1 Antecedents of media use - organizational contexts

Research on the choice of media for communication and distribution in an organization is primarily found within the tradition of IS-research. In particular, the fields of computer mediated communication (CMC), computer supported collaborative work (CSCW) and adoption research include studies of relevance to understanding the antecedents of media use in organizational contexts. In addition to the studies from the IS-literature, uses and gratification studies have also investigated the antecedents of media use in organizations. Although these studies seem to be fewer in organizational contexts, they make up a larger contribution when it comes to media use antecedents in everyday life and social contexts (see chapter 2.2).

2.1.1 Studies in information systems research

Straub and Karahanna (1998) divide existing determinants of media choice into 1)task related, 2)medium related, 3)social environment related, and 4)task-medium fit related. Webster and Trevino (1995) divide antecedents of media choice into rational explanations and social explanations. Trevino, Webster and Stein (2000) divide factors affecting media choice into objective factors, social factors and person/technology factors. To generalize, this illustrates that there may be rational motives, social motives, or situational motives for media choice. In addition, symbolic motives are often included among the antecedents of media choice (Trevino, Lengel and Daft, 1987), although this motive is also treated as a social motive in some studies (Webster and Trevino, 1995). In addition, individual differences may affect media choice. The discussion in this chapter is based on five motives for media choice; rational motives, social motives, situational motives, symbolic motives, and

individual characteristics. In addition, studies from the uses & gratification tradition are presented, including a diversity of motives.

Rational motives

Rational motives point to a situation where the user makes rational decisions of what kind of medium is considered the most effective in a given situation. Most often, it is supposed that individuals choose the medium that best fulfils task requirements.

Media richness theory

In 1984, Daft and Lengel proposed the media richness theory. In short, the theory proposes that message *ambiguity* influences media choice. When meaning is ambiguous, rich media will be used. Rich media is defined as media with a) the availability of instant feedback, b) the utilization of multiple cues, c) the use of natural language rather than numbers to convey subtleties (Trevino, Lengel and Daft, 1987), and to convey feelings and emotions (Trevino, Lengel, Bodensteiner and Gerloff, 1990)¹. Face-to-face communication is considered the richest medium, while e-mail and memos are defined as more lean media.

In a study among 65 managers in 11 organizations, Trevino, Lengel and Daft (1987) found support for their propositions that "for communication when content ambiguity is high, managers will use rich media, while for communication with low *content ambiguity*, managers will choose lean media". This is further supported in several studies, e.g. Webster and Trevino (1995)², Trevino, Webster and Stein (2000). Donabedian, McKinnon and Bruns Jr. (1998) found that managers' demand for rich media increased as *task variety* increased while managers' demand for rich media decreased as *task analyzability* (task is easy to analyze) increased. Other studies supporting the information richness theory are Daft, Lengel and Trevino (1986), Lengel and Daft (1988), Russ, Daft, and Lengel (1990). However, a study by Dennis and Kinney (1998) did not find any support for the media richness theory. In a study of computer mediated and video mediated communication, matching media to task equivocality did not improve group performance. Other studies also have found

¹ As referred in Alexander, Penley and Jernigan (1991).

² However, the relationship was in the opposite direction of the theories prediction for telephone and letters.

results that disconfirm the information richness theory, see for example El-Shinnawy and Markus, 1992; Jones, Saunders, and McLeod (1988), Markus (1994), and Rice (1992).

Trevino, Webster and Stein (2000) argue for the differentiation between antecedents for media *choice*, which is related to an individuals' specific decision to use a medium in a particular situation, and media *use*, which refer to an individuals' usage of a medium over time. While they argue for the importance of message equivocality or media choice, *job equivocality* is found to influence media use. In their study they found support for the hypothesis that job equivocality was associated with higher meeting use. Media richness as a characteristic of the medium, rather than based on the message equivocality, was also found to have a general positive effect on media choice (Trevino, Webster and Stein, 2000). Results showed that perception of high *media richness* were positively associated with media choice. *Message complexity* may be related to the equivocality construct. Fisher, Maggi and Rammer (1990) revealed a negative effect of message complexity on the use of telephone.

Social presence theory

Social presence refers to the degree to which a medium permits communicators to experience others as being psychologically present (Short, Williams and Christie, 1976). Communication tasks differ in their requirements for social presence (King and Xia, 1997). Social presence theory argues that communicators assess the *degree of social presence* that is required in different situations and tasks, and choose a communication medium that fits the social presence required. High social presence calls for media such as face-to-face meetings, whereas e-mail and paper-based mail are suitable when low social presence is required (Straub and Karahanna, 1998). Thus, the theory argues for a rational media choice based on the requirements of the social environment.

Technology acceptance model

A theoretical perspective that has had tremendous impact on explaining media use is the technology acceptance model (TAM) (Davis, 1989; 1993). In this model, users' perception of media *ease of use* and users' perception of media *usefulness* are proposed to influence *attitudes toward using* a medium. Furthermore, attitudes toward

using a medium are predicted to explain *intention to use a medium*, and through this, actual use of a medium. In addition to these relations, perceived ease of use is suggested to have a positive effect on perceived usefulness. This is because high level of perceived ease of use increases users' ability to take advantage of the medium. Also, a direct relation is proposed between perceived usefulness and intention to use the medium. This is explained by users instrumental media use. Although they may not have a positive attitude toward using a medium, they may use the medium because it increases their potential for increased salary, promotions, etc - *instrumental reasons for use* (Davis, Bagozzi and Warshaw, 1989).

The model has been used by several researchers to explain adoption of various media. Mainly, the model has been used to explain the adoption of specific applications, such as e-mail. For example, Trevino, Webster and Stein (2000) found support for the positive effect of perceived ease of use on attitudes toward new communication media. However, they did not find support for the effect of perceived ease of use on actual use of new communication media.

TAM is based on the theory of reasoned action (TRA) first described by Fishbein and Ajzen in 1975 (Davis, Bagozzi, and Warshaw, 1989). This model has been further developed into the theory of planned behaviour (TPB) (Ajzen, 1985; 1991). In addition to the *media attributes* and *social norms* included in theory of reasoned action, *perceived behaviour control* is assumed to have a positive effect on media use. TPB has been applied to explain the adoption of such diverse systems as spreadsheets (Mathieson, 1991), computer resource centers (Taylor and Todd, 1995), and recently, electronic commerce services (Battacherjee, 2000), just to mention a few examples. The role of subjective norm in TPB when compared to TAM is somewhat unclear. Davis et al. (1989) and Mathieson (1991) found no support for a direct relationship between subjective norm and intention to use. The lack of findings has been attributed to little social pressure to use the systems studied by both Davis et al. (1989) and Mathieson (1991). Later, a significant relationship has been found both in studies in organizational (e.g. Moore and Benbasat, 1993) and electronic commerce settings (Battacherjee, 2000). In a recent study, Venkatesh and Davis (2000) also found strong support for a direct link between subjective norm and intention to use in a study pooling results across four different studies and settings.

The inclusion of behavior control in the TPB-model represents a valuable addition to the explanatory power of TPB when compared to TAM. Both Mathieson (1991) and Taylor and Todd (1995) found that the addition of behavioral control made their TPB-model explain more of the variance in intention to use than the TAM-model did. In TPB behavioral control encompasses two components. The first component is "facilitating conditions" representing the resources required to use a specific system. Examples of such resources are time, financial resources or other ICT-related resources. The second component is self-efficacy; that is "*an individual's self-confidence in his/her ability to perform a behavior*" (Taylor and Todd, 1995, p. 150). TPB and TRA have both been criticized for not suggesting operational components or determinants of behavioral attitudes, subjective norm and, to some extent, behavioral control. When compared to the TAM-model, the lack of operational components or determinants of behavioral attitudes is particularly obvious.

To meet some of this criticism, many researchers have suggested specific components or determinants of the attitudinal concepts of the TPB-model. For example, Battacherjee (2000) suggests incorporating the TAM model in TPB with perceived usefulness and ease of use as the determinants of attitudes towards use. He also suggests subjective norm may be determined by external and interpersonal influence, and that the two components of perceived behavioral control may also be treated as the determinants of behavioral control. Taylor and Todd (1995) suggest what they term a decomposed TPB which also includes the TAM model in the attitudinal part of TBP, but they also include compatibility as a third determinant of attitude towards use, mainly inspired by the diffusion model of Rogers (1995). The determinants of subjective norm are believed to be context dependent, and in the case of Taylor and Todd (1995), peer influence and superior's influence are suggested. In non-organizational contexts, Battacherjee's (2000) determinants generally seem more relevant. Finally, the decomposed TPB suggests self-efficacy, resource facilitating conditions and technology facilitating conditions the most relevant determinants of behavioral control.

Trevino, Lengel and Daft (1987) mention several other rational arguments for media choice. The following eight points refer to rational arguments that can influence

media choice. Mainly the points focus on the influence of message characteristics, purpose for communication, and general situational issues: 1) A message is difficult to interpret, non-routine message where mutual understanding is required. For such messages, face-to-face seem to be the dominating media. 2) Importance of auxiliary cues as body language and voice inflection. Also for such reasons, face-to-face seems to be the preferred medium. 3) Discussion, give and take, questions and spontaneous exchange are important, and feelings and emotions should be expressed. In such situations, face-to-face communication is clearly preferred. 4) Situations where confidentiality is important. Here, face-to-face is the preferred medium. 5) Situations that require immediate feed-back. In such situations, face-to-face and telephone are the two media chosen. 6) Also, in situations where the initiator of communication wants to influence the receiver (negotiate, sell, persuade), face-to-face or telephone are the two media used. 7) For simple routine messages and messages that do not require feed-back, e-mail is reported to be the preferred medium. 8) However, when the message sent is very detailed and has to be carefully studied by the receiver, written media is chosen.

Te'eni (2001) points to the importance of companies' *communication strategies* for media choice. Communication strategy, he defines as the "means by which communication goals can be defined" (Teeni, 2001, p. 265). Communication strategies mentioned by Teeni (2001) are contextualization (build an explicit interpretation of the communication issue as opposed to noting only the core message), affectivity (inclusion of emotional components in the communicated message), control by testing and planning the communication (overseeing and adjusting the communication process to ensure effective communication), perspective taking (whether the receiver's view and attitudes are a target of the communication, or whether they are left outside the scope of communication), and attention focusing (the sender attempts to direct or even manipulate the receiver's processing of the message). Depending on the strategy, media that best fulfil the strategy will be chosen. According to Teeni (2001), media attributes important when matching media and communication strategy are interactivity (potential for immediate feed-back), channel capacity (potential to transmit a high level of cues and languages), and

adaptiveness (potential to adapt a message to a particular receiver)³. Based on this, Teeni (2001) propose that; 1) for control, high interactivity is most effective, 2) for contextualization, high channel capacity is most effective, 3) for affectivity, high channel capacity is most effective, 4) for perspective taking, high adaptiveness is most effective. All propositions emphasize the importance of matching communication strategies with suitable media to attain effective communication that fulfils the communication goals.

Social motives

The underlying rational-choice model of media richness theory has lately been challenged by social influence theory. The main proposition of social influence theory is that variations in *social forces* such as *work group norms* and *co-worker and supervisor attitudes* may affect media choice (Fulk, Schmitz, and Steinfield, 1990; Webster and Trevino, 1995). Webster and Trevino (1995) found support for a positive relationship between social influences and choice of new media, such as e-mail. Interestingly, they also found that the effects of social elements were weaker than the effects of rational elements for choice of *traditional* media. On the other hand, they found partly support for their hypothesis that social influence had a stronger effect than rational influence on the choice of *new* media. The result indicates that the stage of a medium in the *media life cycle* can influence the effects of potential antecedents of media choice.

Fulk, Steinfield, Schmitz and Power (1987) present a model explaining media use from a social information processing perspective. Traditional models from the media characteristic perspective presuppose media attributes as objective and inherent physical attributes recognizable by users. Furthermore, while the media characteristics perspective argues that salience of media attributes is a function of individuals' perception of media attributes and task attributes, the social information processing perspective proposes that salience of media attributes is a function of the assessments of co-workers (including supervisors). At last, while the media characteristics perspective argues that media choice processes are rational, and based upon a matching of media attributes with task requirements, the social information

³ The definitions for the media attributes are based on Zack (1993) and Daft and Lengel (1984).

processing perspective proposes that media choice processes are rationally influenced by *past statements and behaviours* as well as by *social norms*. Based on these presuppositions, the following model explaining antecedents of media choice is suggested:

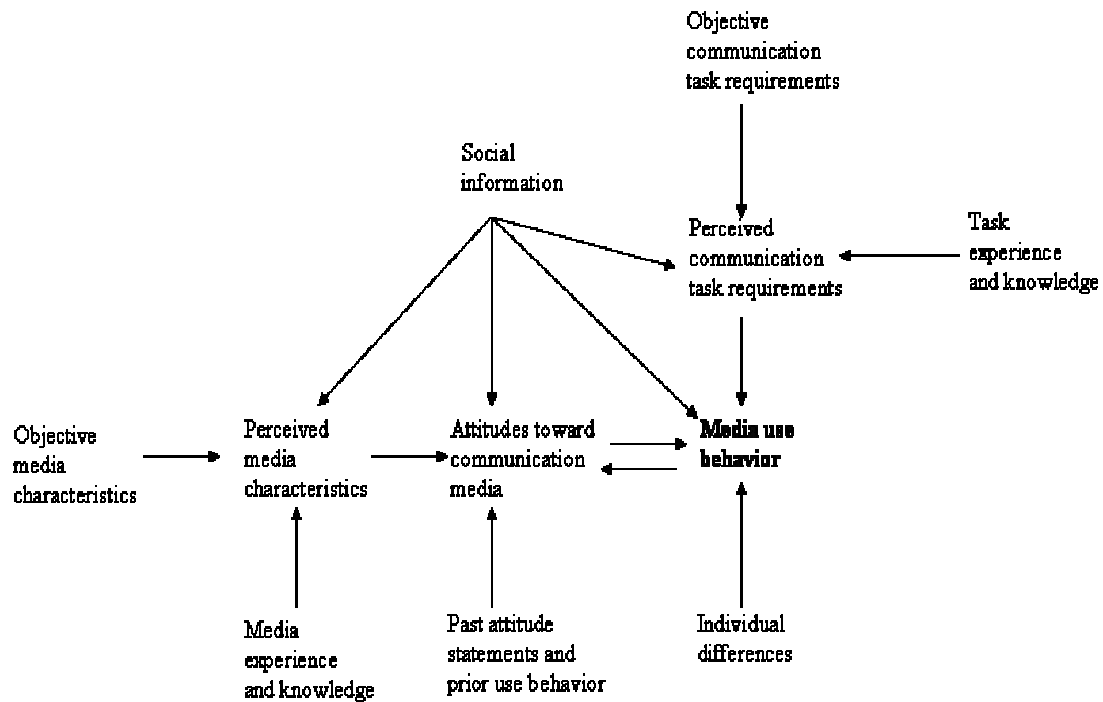


Figure 2.1: A social information processing model of media choice (Fulk, Steinfield, Schmitz and Power (1987))

The figure illustrates how *perception of the media*, *perception of the task*, *social elements*, and *individual differences* are the most important drivers of media choice in an organizational context. Other studies supporting the social-influence theory are for example Fulk (1993), Rice, Grant, Schmitz and Torbin (1990), and Schmitz and Fulk (1991). Also, Fulk, Schmitz and Ryu (1995) found that perceived attitudes and behaviour of communication partners had positive effects on the use of e-mail.

Flanagin (2000) studied the effects of organizational features, perceived benefits, and social pressure on organizations' web site adoption. The study is based on theories of innovation adoption rather than media adoption, focusing on website adoption as an innovation adoption. Even though the study did not focus individuals' media adoption,

the results of this study are interesting because social pressure was found so important. In the study, *organizational features* included organizational size (assumed positive effect on website adoption), organizational age (assumed negative effect on website adoption), and reliance on advanced technology (assumed positive effect on website adoption). *Perceived benefits* consisted of the dimensions profit and reputation (assumed positive effect on website adoption), communication and information flow (assumed positive effect on website adoption), and technical complexity (assumed negative effect on website adoption). *Social pressure* consisted of the dimensions institutional pressure (assumed positive effect on website adoption), organizational visibility (assumed positive effect on website adoption), and leadership in field (assumed positive effect on website adoption). The results showed that social pressure has an important impact on organizations adoption of websites. In particular, this effect seems to be important in the early phase of the diffusion process. Organizational features and perceived benefits were also revealed to affect adoption. These effects, however, were found significant mainly for predicting adoption of websites among companies that had not adopted websites yet.

Symbolic motives

Webster and Trevino (1995) define symbolic motives as a part of social motives. However, several contributions look at symbolic motives as a separate antecedent category. Anything can be considered a symbol or a carrier of meaning (Trevino, Lengel and Daft, 1987). Therefore, it also seems reasonable to argue that media and communication channels can carry symbolic cues in addition to the content of the message that is communicated.

The study by Trevino, Lengel and Daft (1987) pointed to several potential symbolic purposes for media choice. These symbolic cues are presented below with an overview of media associated with the various symbolic cues: 1) Desire for teamwork, participation, involvement, cooperation: To signal such symbolic cues, face-to-face is clearly the most used medium. 2) Build trust, credibility, confidence, acceptance, and goodwill: Here, face-to face is the dominating medium. However, telephone may also be used to promote such symbolic cues. 3) Show informality, be causal: Face to face is the dominating medium. 4) Convey urgency, immediacy: Face-to-face and telephone seem to be the preferred media. 5) Show personal concern or

interest: For such symbolic cues, face-to-face, telephone, and written media are used. 6) Signal recognition of or defence to receiver (i.e. status): Here, face-to-face and telephone are the dominating media. However, e-mail and written media may also be used for such symbolic purposes. 7) Convey, importance, seriousness: Primarily, face-to-face and written media are used. 8) Have impact, get attention: Written media and face-to-face are clearly the preferred media. 9) Get quick response, action: To get quick response and action, written media and e-mail are the two media used. 10) Show authority, position and status: Also here, face-to-face are the most important medium in addition to written media. 11) Show communication is formal, official, legitimate: Written media are mostly used. Also, face-to-face and e-mail may be used for such symbolic reasons. 12) Make a strong impression, justify work and expense: Again, written media are mostly used, but face-to-face and e-mail may also be used for such symbolic purposes. 13) No importance, low importance: E-mail is the dominating medium, but telephone may also be used to signal such symbolic cues.

In addition Trevino, Daft and Lengel (1987) refer to a study by Feldman and March (1981) showing that communication behaviour, and thus media choice, often represent *ritualistic responses to the need to appear competent, intelligent, legitimate, and rational*. Donabedian, McKinnon and Bruns Jr. (1998) found that managers' demand for rich media increased with rank in the management hierarchy, even after controlling for task characteristics. This is in line with research reported in other studies. Managers may use media selection, especially rich media, to *assert dominance, justify power hierarchies, and negotiate conflict* (Deetz, 1994; Frost, 1987; Lazega, 1992; Mumby, 1988)⁴.

Situational motives

The behaviour of individuals is often constrained or facilitated by contextual factors - also called situational factors (Trevino, Lengel and Daft, 1987). Webster and Trevino (1995) include situational factors as rational antecedents of media choice, due to the fact that media users are assumed to make rational media choices to adapt to situational factors. However, in this report we have separated situational factors from rational factors.

⁴ As reported by Donabedian, McKinnon, and Bruns Jr. (1998).

Distance is mentioned by Trevino, Daft, and Lengel (1987) as a potential antecedent of media choice. They found that long distance communication led to the use of media as telephone, written media, and e-mail. This is supported by Trevino, Webster, and Stein (2000). They found that individuals were less inclined to choose face-to-face meetings than more lean media for long distance communication. However, for short distances, face-to-face was revealed to be the most preferred media by Trevino, Lengel and Daft (1987). Also, Webster and Trevino (1995) found support for positive associations between the four media telephone, memos, letters and email and distance between sender and receiver. The effect was found to be negative between face-to-face meeting and distance.

Time pressure (Trevino, Daft and Lengel, 1987) and *urgency* (Straub and Karahanna, 1998) incline communicators toward real time media with possibilities for immediate response. Limited time available seem to call for media that make it possible to send messages quickly, and efficiently. Results from their study show that telephone and e-mail often are used when time is limited (Trevino, Daft and Lengel, 1987). Straub and Karahanna (1998) found that face-to face meetings, telephone, and courier and hand delivery of messages will be preferred in urgent situations. Another study focusing the effects of urgency on media choice, found that urgency increased the odds of selecting courier mail, telephone, fax and e-mail (Fisher, Maggi and Rammer, 1990).

Geographical dispersion also affects media choice (Steinfeld and Fulk, 1986; Straub and Karahanna, 1998; Trevino, Lengel and Daft, 1987). E-mail and fax offer production costs advantages over other media when it comes to long distance communication. On the other hand, the possibility of using face-to face meetings has its main cost advantages when the individuals taking part in the meeting are located in the same geographical area or in the same building.

Presence of a critical mass (Straub and Karahanna, 1998) is important because communication using a medium that few others have access to is of little value. This is supported by network effect or externality theories, suggesting that the value of a medium increases with the number of individuals who are using the medium. A similar factor found to affect media choice is the *number of message recipients*.

Trevino, Webster and Stein (2000) showed that for messages that will go to a large number of recipients, individuals are less likely to choose face-to-face meetings and fax and more likely to choose e-mail or written media. Also, Webster and Trevino (1995) found support for a negative effect of the number of message recipients for face-to-face communication and telephone and a positive effect for memos, letters, and e-mail. Trevino, Lengel and Daft (1987) found that e-mail and written media were the most used media when the purpose was to reach many receivers at one time.

Perceived *recipient attitudes toward a medium* have also been revealed to have an effect on individuals' media choice. Trevino, Webster and Stein (2000) revealed that individuals choose media that they believe the recipient has positive attitudes toward. *Flow*, defined as the users' subjective perception of the interaction with the communication medium as playful and exploratory, is found to have a positive effect on attitude toward the medium and media choice (Trevino and Webster, 1992)⁵. However, Trevino, Webster and Stein (2000) found support for a positive effect of flow on attitudes toward using the medium but found no positive effect of flow on the actual use of the medium. Also, Hoffman and Novak (1996) argue that flow will increase users' learning when using a medium, increase users' behavioural control over the medium, increase exploratory behaviour during use, and increase the positive subjective experience of using the medium.

Confidentiality may call for a medium that enables to keep the message confidential during the communication process. Fisher, Maggi and Rammer (1990) found that the likelihood of selecting fax as a communication medium decreased if the message to be communicated was confidential. *Document existence* is also suggested as a potential antecedent of media choice. Webster and Trevino (1995) proposed that "if a message already exists as a computer file, employees would be more likely to communicate it through e-mail or a memo. If the message already exists in printed form, use of traditional media is more likely because it can be attached to a memo or handed to its recipients". However, the support for this proposition was found very weak in the study, and for e-mail only. Trevino, Daft and Lengel (1987) also report from other studies that face-to-face communication have been found suitable for non-

⁵ As referred in Trevino, Webster and Stein (2000).

routine *tasks* such as bargaining and conflict resolving, whereas teleconferencing and e-mail have been found suitable for routine information exchange and routine decision making⁶.

Rice and Shook (1990) studied the effect of *job categories* on media choice. In their meta-analysis, they found positive relations between organizational level and the use of face-to-face, telephone, total oral, writing, and total text. No effect was found of organizational level and time spent reading. However, Rice, Chang and Torobin (1992) found that those who occupied higher positions in an organization were more likely to adopt the CMC-system they studied. A study by Jones, Saunder and McLeod (1988-89) also found effects of individuals' hierarchical position in an organization and their media choice. The results showed that lower level managers used richer media than mid-level managers and senior executives. Thus, the results from this study conflicts the results presented by Rice and Shook (1990).

The *potential for reaching someone who is busy or frequently absent* may also affect media choice. Trevino, Lengel and Daft (1987) report that e-mail and written media are often chosen to reach such recipients. Other perceptions of media characteristics that may influence media choice are the *cost of use, accessibility, reliability of time delivery, and reliability of success delivery, and trendiness* of the media (Fisher, Maggi and Rammer, 1990). However, the potential effects on media choice of these variables were not studied empirically in the reported study.

Individual characteristics

Several studies have focused on how individual differences affect media choice. A study by Trevino, Lengel, Bodensteiner and Gerloff (1990)⁷ found that individuals whose *cognitive style* was characterized by a preference for the formulation rather than the resolution state of decision making (i.e. perceiving rather than judging) were more media sensitive. Media sensitivity is defined as the individuals' ability to choose appropriately among media available (Alexander, Penley and Jernigan, 1991). However, this was the case only for low-equivocality messages. The explanation is that for high-equivocality messages, the matching demand is so strong that it forces

⁶ See Rice and Case, 1983; Steinfield, 1985; 1986; Williams, 1977).

⁷ As referred by Alexander, Penley, and Jernigan (1991).

individuals to use rich media. However, for low-equivocality messages, individuals are able to make choices that reflect their media biases. Alexander, Penley and Jernigan (1991) studied the effect of managers' *communication apprehension* on media choice. They found that oral apprehension was associated with decreased media sensitivity in general. The results also indicated a negative relation between writing apprehension and media sensitivity, but only for low equivocality messages.

It seems reasonable to expect an effect of users experience or *skills* with a medium and their use of that medium. However, in a study by Trevino, Webster and Stein (2000), only marginal effects of users' skills were found, and for the use of e-mail only. *Familiarity* with a medium is related to skills and experience with a medium. Fischer, Maggi and Rammer (1990) found positive effects of media familiarity on media choice. However, this effect was only found for non-complex communication. The authors argue that for complex communication, few alternative media are exist, and therefore, familiarity with a medium can not be used to differentiate choice, and consequently, to explain preferences. *Media experience*, defined as experience with a particular media, was found to affect individuals' perception of media appropriateness positively. In addition, changes in perception of media appropriateness over time were directly related to the respondents' learning experience. The positive effect of changes in learning experience was particularly salient for new media (King and Xia, 1997).

Gender has also been found to affect media choice. Results from a study by Gefen and Straub (1997) indicate that gender moderates the effects proposed in TAM. They found that women perceived the social presence of e-mail as higher than men, and therefore that women perceived the usefulness of e-mail as higher than men. On the contrary, men were found to perceive e-mail as more user friendly than women. No effect of gender was found on actual use of e-mail. However, given the impact of perceived user friendliness and perceived usefulness on actual use proposed in TAM, the results indicate that gender should be considered when developing computer mediated communication environments in organizations.

Communicator style was studied by Rice, Chang and Torobin (1992) as a potential antecedent for adoption of computer mediated communication. The communication styles investigated were; 1) degree of dramatic style, 2) degree of animated style, 3)

degree of relaxed style, 4) degree of attentive style, 5) degree of friendly style, 6) degree of dominant style, 7) degree of argumentative style, and 8) degree of precise style. In total, the results showed that communicator style played only a minor role in explaining adoption, usage, and evaluation of the CMC system.

Financial products are among the products most distributed on-line. Ramaswami, Strader and Brett (2000-2001) found that three antecedents were particularly important to explain the adoption of on-line media use for purchasing financial products. First, consumers who did not have a good relationship with their financial agents in the branches were more likely to use on-line media. Also, consumers' willingness to use on-line media explained actual use of on-line media for purchasing financial products, indicating a positive effect of individual behavioural intention and actual behaviour. Third, customers who use on-line media for information search were also more likely to use on-line media for transaction based services. The two last findings indicate that adoption of on-line media is a gradual process.

Individual characteristics of the communication initiator such as *profession and status, age, sex, keyboard and typing skills, and attitude toward computer technology* was mentioned by Fisher, Maggi and Rammer (1990) as potential antecedents of media choice. However, these variables were not studied empirically in their study. They also suggested that characteristics of the organizational unit of the communicator were potential determinants of media choice. The variables mentioned were *cost control norms, secretary availability, and media access and usage rules*. Furthermore, they argued that *characteristics of the relationship between the sender and the receiver* may affect media choice. Here, *status effects, location of the recipient, familiarity with the recipient* and the *awareness of the recipients' media preferences* were mentioned as relevant. Interestingly, a study by Carlson and Davis (1998) found that company executives were more "*self oriented*" in their media choice, more often choosing media based on easy access and ease of use criteria, whereas the managers were more "*other*" oriented, more often making choices based on social presence or media richness criteria.

2.1.2 Uses and gratification studies

IS-research studies suggest relatively generic variables as antecedents for media use. Uses and gratification studies are based on users' motives and the users perception of various medias' capabilities to fulfil those motives. Thus, a mediums' capability to fulfil specific motives can be seen as antecedents for media choice. A study by Dobos (1992) included three gratification dimensions in organizations. The three dimensions included several gratification items. The *production* gratification (to coordinate activities of projects we are working on, to disseminate information about projects we are working on, to monitor progress of projects we are working on, to give or receive feedback on reports or ideas), the *maintenance* gratification (to maintain relationships with other people, to work with other people in a team approach, to show people how their job fits into the total operation, to cooperate with other people to reach organizational goals), and *innovation or adaptation* gratification (to brainstorm or generate new ideas, to be creative in our methods of operation, to respond quickly to changes in business environment, to keep ahead of our competitors). The study included measures of how persistently employees in organizations sought the various gratifications, and the degree they obtained the gratifications from three media; face-to-face communication, written memos, and new technology. The results showed that gratifications sought had no effect on satisfaction with the media, whereas gratifications obtained had an effect on media satisfaction. The discrepancy between gratifications sought and gratifications obtained was found to predict satisfaction with new technology (but not written memos and face-to-face). Also for media choice, gratifications obtained had an effect on media choice, whereas gratifications sought had no such effect. Gratifications obtained were found to increase the likelihood of media choice for face-to-face and new technology but not for written memos. Furthermore, positive discrepancies between the gratifications obtained from each channel and gratifications sought were related to choice of each channel. Finally, positive discrepancies in gratifications obtained between one media and the other two media were found to increase the likelihood of the media with the best rate of gratifications obtained.

2.2 Antecedents of media use - everyday life context

So far our focus has been on motives or antecedents of media choice or media use in organizational contexts. However, media are also used to mediate communication

between individuals in non-organizational, everyday life contexts. In this part of the report we look further into antecedents of media choice for social and interpersonal purposes in everyday life settings. The studies reported have primarily been conducted within uses and gratification research.

Studies of antecedents of use within an organizational context (IS-studies) typically focus on the antecedents of use, and the antecedents are tested on various forms of media. Within the uses and gratification studies, the medium is often in focus rather than antecedent as such. This is also reflected in our literature review. While chapter 2.1 was organized by antecedents of use, chapter 2.2 is organized by individual media. Consequently, gratifications of using the media (antecedents) are discussed for each individual medium.

Telephone

The telephone has been around for more than 100 years and has increasingly been used as a mediating media for socialization. Dimmick, Sikand and Patterson (1994) found that there were mainly three reasons for using the household telephone. These were sociability, instrumentality and reassurance. *Sociability* reflects elements such as socializing with friends and family, feeling closer to family and friends, feeling people care, relieving boredom, etc. *Instrumentality* includes functional elements such as access to time and weather information, consumer information, find out store hours, order things, schedule activities, etc. *Reassurance* includes security-related elements such as access to medical emergency services, feeling of safety, police/fire, etc. The study also showed that sociability and instrumentality were stronger antecedents for use of telephone among women than among men. No significant differences were revealed between men and women for the reassurance factor.

Television

A number of studies have revealed that motivations for watching TV are access to information and entertainment. In addition, studies have found that television also functions to provide persons with a means of isolation reduction, companionship, communication substitution, social and parasocial interaction, time consumption, day-part bracketing, and connection to the surrounding environment (Rubin and Rubin, 1982).

Several studies have proposed that perceived loneliness affects media consumption. Research indicates that some lonely persons use media for informational and entertainment needs that they do not satisfy from personal relations. In a study by Schultz and Moore (1984), 37 percent reported that they watched TV or listened to music in response to loneliness. For watching TV, similar findings were made by Rubinstein and Shaver (1982) in a sample of 18 to 25 years old persons. However, there were indications that the relationship between loneliness and media use was not linear. Actually, Finn and Gorr (1988) revealed that this relationship was negative among the most lonely individuals. This was also supported by Canary and Spitzberg (1993) who found that chronically lonely people perceived less gratification from the media than situationally lonely and non-lonely people did. Thus, the relationship between loneliness and media gratification seems to be curvilinear rather than linear⁸.

In a study of the adoption of interactive cable TV services in Taiwan, Li (2000) found that *technology ownership* had a positive effect of service adoption. This means that easy access to cable TV had a positive effect on adoption of cable TV services. Also, the *relative advantage* of using the media was revealed to be a significant predictor of interactive cable TV adoption.

Internet

In a study of Internet use, McKenna and Bargh (2000) argue that Internet seems to be double edged when it comes to loneliness. Internet may reduce loneliness because individuals using Internet can meet other individuals in chat groups, and communicate via e-mail, thus reducing the feeling of loneliness. However, using time on the Internet reduces the time available for serving existing relationships in the real world. A potential effect of this is an increased loneliness in the real, non-Internet, world.

Lin (2002) studied the gratifications of online media services among potential users. Her study was based on the gratifications (Katz, Blumler and Gurevitch, 1974) of seeking companionship, relieving boredom, solving problem, forgetting problems, escaping problems, relaxation, chatting online, and making friends online as

⁸ The review of relations between loneliness and media use is based on Canary and Spitzberg (1993).

dimensions of the escape/interactions factor. Furthermore, the information learning variable was a function of the items "get local news", "get national news", "get world news" and "enhance intellectual growth". Entertainment was a function of the items "have fun", "find excitement", and "be entertained". The empirical data was collected among 494 respondents who had not subscribed to an online service at the time of the survey. The results showed that the information learning variable and the escape/interaction variable had a significant positive effect on the likely media service access. The entertainment variable did not have a significant effect on likely media service access.

Busselle, Reagan, Pinkleton and Jackson (1999) argue that the impact of potential determinants of media use changes during the media life cycle. Contrary to the study by Lin (2002) their study was undertaken in a saturated-access population. Their study was based on four motivations for the use of personal computers. The four motivations have previously been used in a study by Lin (1998) to predict adoption of personal computers. However, in the study by Busselle, Reagan, Pinkleton and Jackson (1999) four factors were used to predict Internet use. The four factors were "complexity" (it is intimidating to learn Internet use, it is frustrating to learn Internet use, it is difficult to learn Internet use), "advantages" (Internet literacy makes work easier, Internet literacy offers new opportunities, Internet literacy is needed at work, Internet literacy makes life easier), "resources" (the cost of Internet software is too high, the cost of a personal computer is too high, the cost of Internet access is too high), and "need for innovativeness" (I am willing to learn new ideas, I am willing to take a risk, I like to keep up with new technologies, I am willing to explore new technologies). The study revealed that two of the motivational factors, advantage and need for innovativeness, had a positive significant effect on Internet use. Complexity and resources did not have any significant effect on Internet use. In addition to the motivational factors, the study showed that gender and age had an effect on Internet use (young men are the most intensive users). No effects were found of the use of traditional media on the use of Internet. However, respondents owning more technologies were found to be the heaviest users of Internet.

Parker and Plank (2000) applied a uses and gratifications perspective in their study of the Internet as an information source. Among 204 university students, they found

three gratifications for media use, "companionship and social relationships" (because it's something to do when friends come over; so I won't have to be alone; so I can get away from the rest of the family or others; when there's no one else to talk with or be with; because it makes me feel less lonely), "surveillance and excitement" (It helps me learn things about myself and others; because it's thrilling; so I can talk with other people about what's going on; so I can learn how to do things which I haven't done before; because it's exciting), and "relaxation and escape" (so I can forget about school, work, and other things; because it relaxes me; because it passes the time away, particularly when I'm bored; because it allows me to unwind; because it amuses me). However, only the "relaxation and escape" factor was found to have a positive effect on on-line use, indicating that the respondents were primarily using on-line sources for relaxation and escape.

Social anxiety has been proposed to be a potential antecedent of how Internet is used by McKenna and Bargh (1999). Their study showed that social anxiety is an important antecedent of the likelihood of establishing social relations on the Internet. Individuals with social anxiety were found to be more likely to form social relationships with other persons on the Internet. Also, social anxious individuals were found to form very close romantic and friendship relationships on the Internet to a greater extent than less social anxious persons. The study by LaFerle, Edwards and Lee (2000) also investigated more closely the kind of activities being undertaken on the Internet. The results are presented below.

Table 2.1: Use of Internet by gender and location of Internet connection.

	Male	Female	t	School	Home	t
Fun	3,3	2,9	2,3*	2,6	3,4	4,2**
Making friends	1,8	1,9	0,6	1,6	2,2	3,7**
Fashion	1,4	1,8	2,5*	1,5	1,7	1,2
Games	2,8	2,3	2,5*	2,3	2,7	2,6*
Homework	2,6	2,7	0,8	2,6	2,7	0,2
Music	2,5	2,1	2,2*	2,1	2,4	1,6
Health info.	1,6	1,8	1,7	1,6	1,8	1,6
Universities	2,6	3,0	2,3*	2,6	3,0	2,1*
Travel	2,0	1,8	1,1	1,7	2,0	2,1*
Shopping	1,6	1,4	2,1*	1,4	1,6	1,3

The results show that men use the Internet more for fun than women, and that Internet is used more for fun at home than at school. Making friends through the Internet, playing games, access to information about universities and access to travel information are mainly done from home. Women are using the Internet for fashion purposes, and to collect information about universities more than men, whereas men are using the Internet for playing games, accessing music, and shopping to a greater extent than women.

2.3 Summary

The review presented in chapter 2 shows that, within an organizational context, rational, social, symbolic, situational and individual motives are significant antecedents of media adoption. Within each of these categories of antecedents, several factors have been found to influence adoption of media within an organizational context.

Studies of everyday life contexts show that many different gratifications are being sought by using different media. Gratifications such as surveillance and excitement, sociability, instrumentality, reassurance, entertainment, building knowledge, and escape, are among the most important gratifications sought. In addition, individual factors have been found to affect adoption of media in addition to rational factors, such as media advantage and users' need for innovation.

3 Effects of media

In this chapter, studies focusing on media effects are reviewed. As in the earlier chapters, we have organized the chapter in two main sub-chapters, with focus on the organizational contexts and everyday life contexts. However, socially motivated communication also takes place in organizations, for example related to group work. Thus, studies of media effects on social communication within work groups are presented in the sub-chapter on media effects in organizational contexts.

3.1 Effects of media use - organizational context

Studies focusing on media effects within an organizational context have revealed several types of effects. We have divided the effects into four main effect categories. These categories are effects on performance, effects on behaviour, effects on hierarchy and structure, and effects on attitudes.

3.1.1 Effects on performance

Chidambaram and Jones (1993) studied the effects of an electronic meeting system⁹ (EMS) on *group perceptions* and *group performance* in groups meeting face-to-face and dispersed. They found that social presence was perceived as greater in face-to-face groups. In the dispersed groups, EMS led to perceptions of higher communication effectiveness than in the face-to-face groups. Furthermore, the quality of the decision process was perceived as better in groups supported by EMS than in groups not supported by EMS. The number of alternative solutions considered was also revealed to be higher in the EMS supported groups.

According to Mühlfelder, Klein, Simon and Luczak (1999) the main results of their study of computer mediated communication in cooperative tasks was that there was no differences between mediated communication and face-to-face communication in dependent variables such as the number of ideas produced, and the originality and quality of the ideas produced.

⁹ The EMS used was Ventana Corporation's groupssystem.

An investigation of the *performance* effects of new office information systems with networking capabilities was undertaken by Rice and Contractor (1990). The results showed that the respondents felt little change in how effectively they performed eight office activities before implementation of the system (t1) and nine months after the implementation of the system (t2). However, measures of the difference in how effective they performed these activities nine months earlier and how effective they performed these activities after nine months showed large differences in perceived effectiveness. The results showed that the respondents reassessed their performance at nine months ago downward. Thus, the results point to the importance of using methods for measuring actual impacts of computer based systems in organizations.

Joyner and Onken (2002) argue that "time zone irrelevance" is an important effect of information technology. Systems for computer supported collaborative work and e-mail are described as effective tools making it possible to keep international companies operating 24 hour a day. Information systems integrate files and enable data sharing among users within the organization. Thus, CMC enables more effective *work in groups*, in particular in international organizations.

3.1.2 Effects on behaviour

The effects of computer mediated communication (CMC), electronic mail and computer conferencing have been studied in several theoretical traditions. Findings in early studies indicate that users become more *task oriented* when using CMC. Also, CMC is often found to be positively related to *impersonality, hostility, and participation equality* (Hiemstra, 1982; Rice, 1984)¹⁰. The main explanation for these results is found in social presence theory and social context cues theory. Social presence theory proposes that the social salience of a person in an interaction (social presence) depends on the number of channels available within a medium: The fewer channels, the less social presence. As CMC filters out nonverbal channels, *social presence* and the *personal style* of the message should be lower. Social context cues theory also argues that without non-verbal cues, communication (CMC) will result in an increase in *swearing, insults, and hostile and intense language*. However, a meta analysis by Walther, Anderson and Park (1994) revealed that time restrictions

¹⁰ As referred in Walther, Anderson and Park (1994).

moderated the media effect on socially oriented communication. They found that there was a greater proportion of socially oriented communication in unrestricted (time-unlimited) than in restricted (time-limited) CMC. Also, they found support for the hypothesis that the difference between CMC and face-to-face interaction on socially oriented communication was greater in restricted (time-limited) than in unrestricted (time-unlimited) interaction. Thus, the suggestion that CMC is less personal than face-to-face communication seems less general than originally proposed.

Walther (1996) reviewed several studies demonstrating that the use of e-mail and computer-conferencing (CMC) leads to less interpersonal affect and less group solidarity. However, he argued that these findings are not necessarily negative to our conception the usefulness of CMC. In many situations, task oriented communication with little need for interpersonal communication is required. In such situations, the low degree of interpersonal communication revealed by Walther when communicating computer-mediated is positive. His next step in the article was to question the "taken for granted effect" that CMC facilitates interpersonal communication less than face-to-face because face-to-face communication includes more communication cues. Walther presented results from several "cues-filtered-out" studies illustrating the lack of support for the influence of media richness on quality of everyday life communication. The main difference between CMC and face-to-face communication is not the amount of social information exchanged, but the rate of social exchange, he argues. There is less social information per message in computer mediated communication because of the lack of nonverbal cues. However, this can be compensated by a higher rate of messages. Thus, time seems to be an important factor (increase in the number of messages requires more time for communication). A study undertaken by Walther (1993) indicated that CMC communicators' interpersonal impression was less developed than those communicating face-to-face initially, developed more gradually, and finally equalled those communicating face-to-face in their level of development. In particular, this result was valid in situations where group members using CMC anticipated future interaction with their communication partner (motivation for seeking out more information about each others and to act friendly is high in such a situation). Thus, the point was that CMC is not impersonal in itself. The degree of communication being impersonal/personal depends on other

factors interacting with the use of CMC. Finally, Walther (1996) speculated that CMC was actually more social desirable than face-to-face communication.

This was also supported in a study by Walther (1995) who revealed that CMC group members were rated significantly more positive on several dimensions of intimacy and social orientation when compared to face-to-face group members. Four reasons were mentioned as possible explanations for this; idealized perception by the receivers, selective self-presentation by the sender, asynchronous medium, and intensifying feedback loop. Idealized perception by the receiver is based on the argument that "group members taking part in a group relationship tend to hold salient a "social self-categorization rather than an "individual self-categorization"" (Walther, 1996, p. 18). This leads to the perception of greater similarity and liking of other group members. Self selective presentation by the sender points to the fact that persons often want other persons to like them. Thus, positive attributes about oneself are communicated to the other group members, while more negative attributes often are hidden. Generally, people are busy. In face-to-face groups, members have to devote time and attention to interact with other group members. In addition, face-to-face meetings require members' co-presence. Asynchronous media enable the group participants to communicate when it suits them - when they are less busy. Thus, both task oriented communication and personal and socially oriented communication can take place without one constraining the time available for the other. The final reason mentioned by Walther (1996) was the intensification feedback loop. Studies have revealed that men who believed that they were talking to an attractive woman on the telephone become more friendly and nice than when they believed they were talking to an unattractive female. Furthermore, this also affected the female partners' engagement in the telephone conversation in a positive way, leading the male person to perceive her as even more attractive. Given that a positive self selective presentation takes place in CMC, this will lead to a gradually stronger perception of the other group members' social and personal qualities.

3.1.3 Effects on attitudes

A study by Short, Williams and Christie (1976) reported that people assessed their counterpart with less *subjective certainty* when communicating through video-mediated environments than when communicating face-to-face. In accordance with

these results, the study undertaken by Mühlfelder et. al. (1999), comparing face-to-face communication and video-mediated communication, did not reveal any differences in the *amount of trust* the subjects developed in their partner during the communication session.

Trevino, Webster and Stein (2000) found that job equivocality was associated with more negative *attitudes towards meetings*. Their explanation for this result was that individuals in highly equivocal jobs are likely to take part in more meetings than other individuals. This may cause frustration (McKenna, 1995) and dissatisfaction with meetings (Dennis and Valacich, 1993). Thus, their results actually demonstrate an effect of media use on managers' attitude toward a medium (face to face meeting is defined here as a medium).

Postmer, Spears and Lea (2000) proposed that consistencies exist in groups interacting via a CMC system so that variations of content and form of interaction styles will be larger between groups than within groups. They also proposed that group norms will emerge over time so that interactions within the group will conform more and more to those typical of the groups' style and content of interaction. Their third, and final, hypothesis was that the norms of a group will influence communication within the group, but not communication with people outside the group. Their results supported all three hypotheses on most of the dependent variables used to test the hypotheses.

The effects of a professional office system enabling messaging and conferencing, preparing of documents, file transferring, and scheduling were studied by Compton, White and DeWine (1991). Results indicated that users of the office system associated use of the system with changes in their social relationship, changes in information processing systems, roles and status, productivity and efficiency, and alteration in the nature of their work. However, how the users of the systems perceived the effects of the system interacted with several other variables, such as the level of interpersonal sensitivity among the system users and organizational culture and climate.

3.2 Effects of media use - everyday life context

Below, important effects of media use from studies of everyday life contexts are reported. As in 3.1, the chapter is organized by media effects.

3.2.1 Civic participation

Mastin (2000) studied media use and *civic participation* in the African-American population. She found that there were several differences between professionals' and non-professionals' media use in this population. Non-professionals watch local TV and read grocery store tabloids more than professionals. On the contrary, professionals read general interest magazines, news or political magazines and access Internet more than non-professionals. She also found that the time used on national media (Cable TV, general interest magazines, and news or political magazines) had a positive effect on civic participation. The results show that media use varies across segments and that the use of media has an effect on individuals' behaviour (see also Poindexter and McCombs, 2001).

Robinson and Levy (1996) found that an increase in media use (no matter what kind of medium) had a positive effect on *political knowledge*. Some differences in political knowledge were revealed as a result of media use. However, media was defined as various TV programs (in addition to the split between newsmagazines, TV news, and newspapers). Differences in political knowledge were not found to be a function of differences in the use of three media newspapers, TV news and Newsmagazines.

Use of local media is often assumed to connect local citizens to events and issues in the local community. McLeod, et. al. (1996), therefore, argued for a positive effect of frequency of use and attention to local media (local daily newspapers and local TV) on the degree of *community integration*. Results from their study strongly support the positive relationship between the use of local media and the degree of community integration.

Several studies of media effect have related time used on various media as a driver of media use effects. However, the pattern of media use should be considered as an important input for media effects as well (Shah, McLeod and Yoon, 2001). In a study of more than 6000 respondents, Shah, McLeod and Yoon (2001) studied media effects

(civic engagement) from two media gratifications - information/surveillance and entertainment/diversion. The study showed that reading print media for hard news and soft news has a positive effect on civic participation. Also, reading newsmagazines had a positive effect on civic participation. Using TV to access hard news did not affect civic participation at all. However, seeing drama on TV had a positive effect on civic participation. Using TV for situation comedy and reality programs had a negative effect on civic participation. Internet was also studied. The results showed that using Internet for information exchange had a strong positive effect on civic participation. However, using the Internet for financial transactions or chat room participation did not affect civic participation.

3.2.2 Social relationships

McKenna and Bargh (2000) proposed that the Internet, or TV, radio, or telephone, in itself do not have any main effects on social relationships. However, they argue that the Internet has characteristics that may, in some situations, have implications for individuals' self and identity, social interaction and social relationships. Four characteristics that makes the Internet differ from real life are mentioned. These are greater anonymity, reduced importance of physical appearance, reduced importance of physical distance, and greater control over time and pace in interaction. The Internet allows for *anonymity*. Particularly, in chat rooms on the Internet, contributors often use nicknames to hide their true identity. Anonymity has been found to encourage deindividuation. Furthermore, deindividuation is a potential source for deficient regulation of his or her behaviour, reduced ability to engage in rational, long term planning, reduced likelihood of caring about what others think of his or her behaviour, and reduced awareness of what others have said or done. Also, deindividuation has the potential to make individuals react to immediate cues or based mainly on his or her current emotional state. Other studies that support these propositions have found larger a degree of misunderstanding, greater hostility and aggressive responses, and more nonconforming behaviour when interacting in a computer-mediated environment than when communicating face-to-face. Also, under some conditions, computer-mediated communication can make it more difficult to become task focused and to form group consensus (Siegal, Dubrovsky, Kiesler and McGuire, 1996; Kiesler, Siegal and McGuire, 1984). Other negative effects of anonymity can be that racists and members of hate groups use the anonymity enabled

by the Internet to harass minority group members indirectly by posting their views on bulletin boards or in chat groups, or by sending members of the minority groups hateful e-mails. However, Internet enabled anonymity can also have positive effects on everyday life communication. Anonymity makes it easier to be honest when communicating. Implications of this may be that people don't disclose intimate details of their lives, and that they get to know each other attitudes better than when communicating face-to-face. The anonymity may also make it easier to communicate the existence of torture in national regimes and sexual harassment. Individuals are defined by the social roles they perform. Usually, it is difficult to change role identity due to the fact that most individuals' social environments and surroundings are relatively static. However, by taking part in a chat group, people become part of a new group that does not know them or their role identity. This makes it possible for people to implement desired changes in their self-concept. Actually, this has been found to increase individuals' feelings of acceptance and self-worth (McKenna and Bargh, 2000). In particular, such potential effects may be positive for individuals who feel that their role identity is constrained in the real world. Also, for people with marginalized social identities, the anonymity may be a blessing. Members of socially sanctioned groups get new opportunities to meet other people sharing the marginalized identity.

The second point mentioned by McKenna and Bargh (2000) was the reduced importance of *physical appearance*. Research has shown that physical attraction has a significant effect on the potential for both intimate relations and friendships. If physical attraction is low, the potential for the personal relationships is low. On the Internet, physical attractiveness can often not be assessed. Thus the development of a relation has to be based on other elements than physical attraction, such as values and interests. These are also important determinants of relationships. Thus, the Internet may foster relationships that would not have developed in the real world. Actually, McKenna and Bargh (2000) argue that relationships based on values and interests may be more durable and important for individuals than relationships mainly based on physical attraction. Results from a study by McKenna and Bargh undertaken in 1999, actually showed that meeting a person on the Internet increased the liking and attraction of the other person when compared to face-to-face meetings.

The two final characteristics of Internet mentioned by McKenna and Bargh (2000) were the reduced importance of *physical distance* and the more *control over time and pace*. Usually, relationships develop between persons located close to each other or who meet regularly. Internet reduces this barrier of physical distance and enables relationships that would not have existed if meeting places such as chats, bulletin boards and e-mail had not existed. Furthermore, the increased control over time and pace may contribute to stronger relationships. Whereas face-to-face communication calls for immediate feed-back, asynchronous communication on the Internet makes it possible for the interacting persons to elaborate about issues discussed, and to explain deeply the reasons for one's attitudes, etc.

Effects of media on political and social trust were studied by Moy and Scheufele (2000). The results showed that media had an effect on individuals' perception of social trust (trust in others). Reading newspapers and watching TV entertainment content was revealed to enhance social trust, while watching television news undermined social trust.

Socio-emotional communication is defined as communication that focuses on the relationships among group members (Kahai and Cooper, 1999). Social presence theory proposes that computer-mediated communication will lead to a reduced feeling of social involvement than face-to-face communication due to the fewer nonverbal cues in computer-mediated communication. This may affect the way the groups are working and the outcome of group work. Results by Kahai and Cooper (1999) revealed that computer-mediated communication was associated with less positive and less negative socio-emotional communication when compared to face-to-face communication. However, their hypothesis that computer-mediated communication would lead to less task-related discussion than face-to-face communication was not supported.

3.2.3 Attitude and behaviour

Gentile and Walsh (2002) studied the effects of various media, and in particular TV, on children's behaviour. Some of the results are presented in table 3.1.

Table 3.1: Effects of media use (in percent).

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
My children are affected by the violence they see in movies or on TV	17	40	15	24	4
My children are affected by the violence they see in video games	13	38	16	27	6
My children have sometimes become scared from watching TV or movie	16	46	13	22	3
I have seen media have a positive effect on my children	7	51	24	16	2
I have seen media have a negative effect on my children	7	54	23	14	2

First of all, the results show that media use is perceived to have effects on children's behaviour. The alternatives "strongly agree" and "agree" constitute more than 50 percent of all the effects presented in the table.

In addition, Gentile and Walsh (2002) developed a Media Use index. High score on the Media Use index indicate a healthy use of media (e.g. watching educational TV and not watching TV while doing homework). They found a positive correlation between the Media Use index and school performance, significant also if controlling for race, household income, and number of adults in the household. However, the results showed a negative relationship between amount of watching TV and school performance. Similar results have also been found by Huston, Wright, Rice, Kerkman and St. Peters (1992), Roberts, Foehr, Rideout and Brodie (1999), and Williams, Haertel, Haertel and Walberg (1982)¹¹.

A study reported in Technology (2000) found that 25 percent of the US population say that the Internet has decreased the time they spend on reading newspapers, and more than 46 percent report that Internet has reduced the amount of time they are watching television. Internet also seems to affect work, and more than 26 percent of the respondents say that the Internet has increased the time they spend working at home. Furthermore, 22 percent report that the Internet has decreased the time they

¹¹ As reported in Gentile and Walsh (2002).

spend shopping in stores. Finally, more than 10 percent say that the Internet has decreased the time they spend with their family or friends.

Results presented by Hallowell (1999) showed that using the Internet is associated with depression and loneliness. Face-to-face communication on the other hand was found to be associated with positive responses such as reduction of hormones involved in stress, fear and worry. Furthermore, face-to-face communication was found to be associated with trust, bonding, attention, and pleasure. In a meta-analysis by Emmers-Sommer and Allen (1999) support was found for the proposition that TV consumption has a negative effect on individuals' ability to complete tasks. Also, they found that the use of media was positively related to learning, and that the use of mass media increased individuals' knowledge of political issues. The meta-analysis also found media effects on cultivation, that is, individuals' perception of the real world is affected by media exposure. For example, watching horror films may lead to the perception of real world images of meanness and fear. However, researchers disagree on the cultivation effects of media (Kim and Rubin, 1997). While some researchers argue that cultivation stems from heavy, habitual and unselective TV exposure, others have identified links between instrumental media use and cultivation. The final effect found by Emmers-Sommer and Allen (1999) was that media, and in particular TV, serve as a basis for action.

3.2.4 Recall and recognition

A study by Sundar (2000) compared the effects of stimulating various channels within the Internet medium on the perception of online news and advertisement. The results showed that including multimedia elements such as audio and video reduced the recall and recognition of the news story. No differences were revealed for channels on ad recall. However, ad recognition was highest among the respondents exposed to websites using video. Also, perception of site design was found to vary across websites using different channel combinations. Websites using picture and audio together scored lowest on this variable. Channel multiplexity was not found to affect intention to revisit the website.

Media has been proposed to influence receivers' memory of communicated messages. A meta-analysis by Taylor and Thompson (1982), found weak support for the

proposition that media influences recall of promotional messages. The propositions were based on vividness theory, proposing that "TV > radio > print" when it comes to both recall and persuasion. Actually, four studies have reported superior recall for messages distributed in print media over TV. Molen and Voort (2000) compared the recall of messages distributed in different media. Their propositions were based on the dual-coding hypothesis proposing that "TV > radio and print" due to the fact that TV stimulate two channels (seeing and listening) whereas radio (listening) and print (seeing) only stimulate one channel. In their study, news stories originally presented in TV were compared with a print only version, an audio only version, and a print version supplemented with pictures. The results showed support for the dual-coding hypothesis, indicating that TV leads to higher recall of the message distributed than print and audio individually.

3.2.5 Persuasion

From advertising literature, some studies have focused on the persuading effect of the presentation medium. While some authors predict that media allowing for customer involvement in the advertisement will lead to a critical evaluation of the product advertised (Wright, 1974), other argue that advertisements are persuading in character, and that media allowing involvement in such persuading advertisements will lead to increased persuasion (Kisielius and Sternthal, 1984; 1986). Typically, in media such as print and Internet, the receiver of the advertisement can control the presentation of the ads. Therefore, these media allow for involvement and deep elaboration of message cues. For TV and radio, the presentation is externally controlled and involvement in message cues can be difficult. However, empirical studies have shown only limited support of these two theories regarding media and persuasion. Wright (1974) found that advertisements distributed in print media contributed to higher purchase intention than advertisements presented in radio. No media effects were found on attitude towards advertised product. Liu and Stout (1987) found that advertisements presented in TV generated more counterarguments against the advertised product than advertisements distributed in radio. No effects were found on attitude towards the product or intention to purchase the product. Buchholtz and Smith (1991) found that respondents had a more positive attitude to advertisements presented in TV than to advertisements presented in radio. No media effects were found for attitudes towards advertised product or intentions to buy the advertised

product. Stafford and Day (1995) found that advertisements presented in radio led to a more positive purchase intention than advertisements presented in print medium. However, no media effects were revealed on attitude towards the advertisement or attitude towards the advertised product. Internet has also been compared with other media for persuading effects. Two studies reported by Nysveen (1999) found that respondents developed a more positive attitude towards the advertisement when the advertisement was presented on interactive multimedia (CD-rom) than when it was presented in print and TV. No media effects were found for beliefs about the advertised product, marginal support was found for attitude towards the advertised product in one of the studies (CD-rom performed better than print), and no media effect was found for intention to purchase the advertised product. In a similar study, comparing websites with print and radio, Nysveen (2000) found that attitude towards the advertisement was perceived as more positive among users exposed to Internet advertisements than among users exposed to radio advertisements. No media effects were found on beliefs about the advertised products, attitude towards the advertised products, or intention to buy the advertised products. In addition to the studies mentioned here, Taylor and Thompson (1982) reviewing several studies focusing on media effects on persuasion, conclude that media seems to have marginal persuading effect.

3.3 Summary

This review shows that using various forms of media in an organization have several effects on organizational and group performance, effects on the behaviour of employees in an organization, effects on the hierarchical status of individuals in an organization, and effects on the attitudes of employees.

Studies focusing on the effects of using various media in everyday life contexts have revealed effects on civic participation, effects on users' behaviour and attitudes, effects on users' media choice when new media are introduced in a market, effects on personal relations, effects on loneliness, effects on persuasion, and effects on the ability to remember communicated message.

4 Mobile devices

In this chapter we will look closer at the use of mobile devices for various forms of communication. Some of the results revealed on traditional telephony will probably also be relevant to mobile telephony. However, several other services are now available through mobile devices, e.g. short message services (SMS), multimedia messaging services (MMS), and access to the Internet. These services have only been available the last few years. Thus, existing research on the antecedents of use and the effects of use is limited. However, this chapter is organized by antecedents and effects of use to keep to the same structure as in the other parts of the report¹².

4.1 Antecedent of use

Four main elements are mentioned by Ling (2002) as drivers of adoption of mobile telephony. The issue of safety and security are among the most important argument justifying the purchase of a mobile phone. The safety gratification originates from parents' possibility to be in touch with their kids 24/7, and also the possibility to send messages to police, ambulance, etc. in urgent situations. The second argument for adopting mobile telephony is the possibility to coordinate various aspects of everyday life. Users of mobile phones carry the phone with them all the time. This makes them available any time and anywhere, making it easier to coordinate activities between owners of mobile phones. Accessibility is the third motivation described by Ling (2002) for adopting mobile telephony. Although this argument may overlap with the coordination argument, coordination is more related to instrumental activities, whereas accessibility is more expressive in its form. Thus, accessibility does not necessarily mean to coordinate interactions, but to seek out and to further develop social relations. The final, but negative, element of mobile phone adoption mentioned by Ling (2002), is the potential of disturbing the public sphere by the use of mobile phones. However, it seems this argument for not adopting mobile telephony is much stronger among people that do not own a mobile phone than among owners.

¹² Much of this chapter is based on the review presented by Pedersen in SNF report 7/01, SNF report 51/01, and SNF report 31/02. For a more complete review of antecedents and effects of using mobile devices, we refer to these reports as well.

Earlier in this report, uses and gratification studies have been reported for other media. A gratification perspective has also been used by Barwise and Strong (2002) describing the functions of SMS sent by mobile phones. Some of their results have been illustrated in figure 4.1.

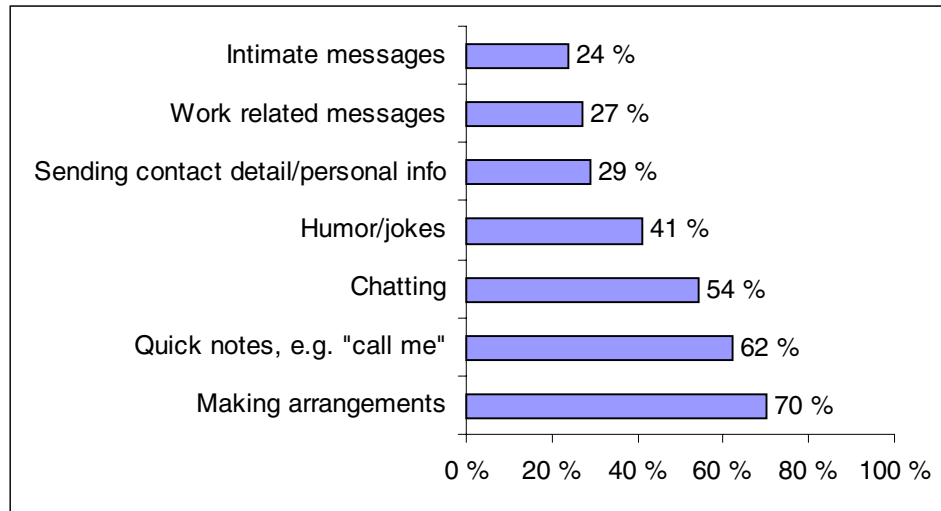


Figure 4.1: Types of text messages sent.

As can be seen from figure 4.1, the main types of SMS are related to relatively instrumental purposes such as making arrangements and quick notes. However, SMS is also used for more emotional types of messaging such as humour and sending intimate messages.

A study by Pedersen (2002) focuses on more generic drivers of intention to use mobile commerce services and actual use of mobile commerce. Several models are tested. The TAM model shows that perceived usefulness and attitude towards use are the two significant drivers of intention to use mobile commerce services. Perceived user friendliness do not have a direct significant effect on intention to use mobile commerce. Also, when controlling for the effect of subjective norm, the effects of both attitude towards use and perceived usefulness remain significant predictors of intention to use mobile commerce services, in addition to a significant effect of subjective norm. In addition to these three variables, behavioural control was also revealed to have a positive significant effect on intention to use mobile commerce services. Thus, attitude toward use (based on the perceived usefulness drivers included in TAM), subjective norm (based on external influence, interpersonal influence, and self control), and behavioural control (based on self efficacy and

facilitating conditions) seem to be the most important drivers of adoption of mobile commerce.

An article by Clark (2001) focuses on value propositions for m-commerce. In this article four values that must be fulfilled to move customers to m-commerce are discussed. The value propositions relate to ubiquity (what value offerings will be provided everywhere at the same time?), personalization (what individual based target marketing can be employed?), location (what location based marketing strategies can be offered?), and convenience (what factors create time and place utility?). Because of the real time and everywhere presence of mobile devices, m-commerce will be particularly relevant for businesses that are time and location sensitive. Applications such as news, sports scores, stock prices, travel information and weather will be very relevant. People will not be constrained by time and place when accessing m-commerce. For example, consumers waiting in line or stuck in the traffic will be able to pursue useful activities. Thus, applications such as banking, communication, entertaining, games, mobile payment systems, retailing and conferences systems will be applications that move customers to m-commerce. Through the global positioning system (GPS) or using operator network information vendors will know the location of their customers and may deliver promotions based on the likely consumer demands for that location. Thus, the offerings will be perceived as more relevant than traditional push based advertising. However, such advertising may also be perceived as offensive. Therefore, such advertising should be permission based. Given this limitation, applications such as coupons, customer service, dispatch/scheduling, discounting, and emergency services may add value to customers and, thus, make them embrace m-commerce. By the use of personalization, information can be tailored to individual preferences, increasing the relevance of the information. Potential applications based on this value proposition may be advertising, development of customer database and knowledge management systems.

Leung and Wei (2000) studied several motives for using mobile phones (cellular phones). A factor analysis revealed 7 factors or gratifications. They were: 1) *Fashion/status* (look stylish, look fashionable, status symbol, avoid looking old-fashioned, fun). 2) *Affection/sociability* (feel closer to family members, improve relationship with family, allow parents to carry out family responsibilities while at

work, let others know you care for them, always being available to the children). 3) *Relaxation* (enjoy the pleasure of talking to people, to gossip or to chat, relieve boredom, relaxation, pass the time). 4) *Mobility* (eliminate the need to queue up for public phone, eliminate the need for change/coins, avoid the need for looking for a fixed public telephone, tell others you will be late during a traffic jam). 5) *Immediate access* (always accessible to anyone no matter where you are, provide immediate access to others anywhere/anytime, available to the ill or aged family member). 6) *Instrumentality* (do business transactions, talk business). 7) *Reassurance* (feel safe and secure in case of emergency, have a sense of security, change appointments in short notice). Among these gratifications, mobility, immediacy, and instrumentality were found the strongest instrumental antecedents for use followed by a more emotional factor - affection/sociability.

Adoption studies of mobile end-user services focus on describing and explaining adoption processes at the individual adopter level. Some descriptive studies focus on the decision to adopt mobile services only (see Green et al., 2001), while other studies also investigate the attitudes towards using mobile services as use is habituated (see Palen et al., 2001). Explanatory studies apply individual level adoption models. While a large number of explanatory studies may be found on traditional ICT-adoption, we have only been able to identify a few explanatory mobile end-user services adoption studies. One example is an adoption study of mobile telephony applying Davis' (1989) TAM-model (Kwon and Chidambaram, 2000) and some studies applying the TAM-model to study the adoption of telemedicine (e.g. Hu, et al., 1999). Even though these studies suggest extensions of the TAM-model are necessary to explain the adoption of mobile ICT, the simple TAM-model also proved promising. For example, the Hu et al. (1999) study showed that the TAM-model explained 44 percent of the variance in intention to use a telemedicine application among physicians. In a situation of 3G services with increasing complexity and similarity to other ICT-applications adopted for functional reasons, these studies indicate a potential for adoption research when studying mobile end-user services.

Several studies focus on gender differences in mobile end-user service adoption. An early study of in this tradition was conducted by Rakow and Navarro (1993). Their work described interesting communication patterns, such as e.g. "remote mothering"

among women. Rakow and Navarow asserted that, at an early point in the diffusion of the device, the mobile telephone was a device that replicated preexisting gender patterns, i.e. the role of the woman as an accessible nurturer and a person in need of male protection. Later, several studies have elaborated on gender differences in the adoption of both voice and other mobile end-user services (e.g. Ling, 2001a; Ling forthcoming). The focus in these studies is on the way in which the mobile telephone was earlier seen as a technical gizmo and thus a part of the male domain. As the adoption process has continued, and indeed teen girls adopt mobile telephones in significantly higher numbers than their same-aged male counterparts, the device has been redefined as a social network device and thus within the domain of women. Also, age has been a widely applied demographic variable characterizing differences in adoption of mobile end-user services. Of these studies, the differences in adoption patterns between *young people* (teens, adolescents) and other users have been the most common focus.

The most important findings of the descriptive studies are that from age 20, adoption is a linearly decreasing function of age consistently all over Europe (Mante-Meijer and Haddon, 2001). However, when compared to Internet adoption, the older people have a much higher adoption rate of mobile phones than of Internet. Still, their use of services is very simple focusing almost exclusively on voice. The teenage segment has been described in several studies, both qualitative and quantitative. Among the most penetrating studies are a set of qualitative studies done by Rautiainen and Oksman on Finnish adolescents (e.g. Oksman and Rautiainen, 2001), by Weilenmann on Swedish teenagers (e.g. Weilenmann and Larsson, 2000) and by Ling and others on Norwegian teenagers (e.g. Ling and Yttri, 2001, Johnsen, 2000). A main conclusion that can be drawn from these studies is that service adoption and usage varies in segments of teenagers in a way that treating the teenager group as a homogeneous segment is not advisable. A summary of qualitative observations is found in Plant (2001). In quantitative studies, mobile phones are shown to have an adoption rate of close to 100 % in teenage segments. Service usage is concentrated on text and voice usage, with a slightly higher text service usage among female than male users (Ling, 2001c). Thus, the use of mobile services is very well integrated in the daily lives of teenagers. However, the impression that services are adopted for non-functional and social status reasons only (e.g. Skog, 2000), is contradicted by many of

the descriptive studies. For example, Karlsen et al. (2001) found a remarkable orientation towards usability and costs in their study of the potential adoption of new end-user services among Norwegian teenagers.

Among the explanatory studies of the adoption and use of mobile services among teenagers, a variety of explanations is found. Among these explanations are the suggestion that the adoption behavior can be illuminated by a "theory of fashion" (e.g. Ling, 2001b) wherein the popular characterization of the device seems to have changed with time, by the use of services as "ritual gift giving" (e.g. Taylor and Harper, 2001a, Johnsen, 2000), by treating the mobile phone as "symbolic capital" (e.g. Skog, 2000) or as an instrument in "family differentiation and symbol of individuality" (e.g. Taylor and Harper, 2001b), and the use of services as a "group marker or social identifier" (e.g. Weilenmann and Larsson, 2000, Larsson, 2000) or as a "self identifier" (e.g. Alexander, 2000, Hume and Peters, 2001). Currently, these explanations should all be treated as tentative because none of them has undergone formal hypothesis development and confirmatory testing. Instead, they are typically supported using ethnographic studies and documented using "citation techniques" from observation logs, diaries and qualitative interviews. Still, they suggest important explanations that eventually will have to be integrated as parts of a more formal theory of adoption. For example, the importance of interpersonal and media influence inspired by a "theory of fashion" should be a part of such a theory. Similarly, the relationship between social reasons for use and social reasons for adoption should somehow be integrated. For example, late adopters may be affected in their adoption process by the observations they make of use among adopters who has objectified the device (Taylor and Harper, 2001a) or of those who have reached the stage of conversion making the device and their service usage parts of their own identity (Ling, 2001c). These mechanisms will have to be integrated into a theory of adoption applied to 3G service adoption, but it is necessary that this theory integrates mechanisms in which services are adopted for functional reasons as well.

4.2 Effects of use

Townsend (2000) analyzes the consequences of mobile telephony on the planning of cities, while Fortunati (1998) analyzes the consequences for the family as an institution and for individuals using the mobile telephone as a way of expressing their

individuality. These are examples of findings that are likely to be important for understanding the consequences of new mobile end-user services, such as network mediating services contributing further to the mobile terminal as an instrument in increasing accessibility, flexibility and individuality. Studying consequences is also relevant because they can be reinterpreted as reasons for adopting mobile services. For example, increasing individuality is both a determinant and a consequence of using mobile end-user services for social network management (Palen et al., 2001).

An example of this kind of research is the study by Palen et al. (2001) on the change in communication behavior of 19 new users after their acquisition of a mobile phone. Many of these users adopted the mobile phone for work-related reasons, but soon brought the work-related functionality of the mobile phone into their leisure space. Another observation is that Palen et al. (2001) found that the domestication process goes quickly. That is, the new users seem to adopt the ideology of being a user rather quickly. They change their attitude toward the disturbing influence of the device and they are quick to find ways that the device fits into their daily lives. This finding also indicates that while ease of use may be an important issue at the early stage of an adoption process, the importance of this determinant in explaining usage behavior may be less at later stages.

The second kind of studies are more focused on the consequences of the separation between working and leisure spaces from bringing work-related services into the leisure space. This research typically observes a blurring of boundaries between work and leisure life caused by adoption of mobile end-user services. Two examples of such studies are the studies of homework (e.g. Yttri, 1999) and studies of quality of life issues (e.g. Akselsen, 2001). Both the cited studies look at the integration of work-related technology into the family. Among other things, the studies have examined how some members of the family enjoy increased quality of life while others experience the opposite. Thus, work-related services adopted for functional reasons are likely to be integrated into the leisure space changing the way family-related and social network related activities are managed. It is likely that many 3G services will be targeted at improving these management tasks. Domestication research has shown us how such services are adopted quickly, but also how they create new patterns of behavior with corresponding social consequences.

Fortunati (1998, 2001) has investigated how the use of the mobile phone increases individualism, reduces the importance of the family institution, and has "*stolen communicative space from the public sphere and attributed it to the private*" (Fortunati, 1997, p.2). As mentioned above, Townsend (2000) has studied how mobile phones emphasize real time planning and "microcoordination" (see Ling and Yttri, 2001, Ling and Haddon 2001). These, in turn may change city planning and the everyday life in cities. All these studies focus the blurring of the boundaries between private and public spaces. Even though these studies are important to understand the consequences of widespread adoption of mobile services, their contribution to an understanding of the adoption decisions made by individual users is somewhat limited.

The observed blurring of the private and the public, and of work and leisure contexts, indicates that mobile telephone use together with other recent advances in information and communication technologies (ICT) changes society from a "door-to-door", via a "person-to-person", to a "role-to-role" society (see Wellman, 1999, 2001). The most recent trend in research on mobile end-user service adoption treats *contexts as dynamic* and end-users as "*negotiating and managing their numerous identities and relationships*" using such services (Green et al., 2001). This means that end-users manage different roles in different contexts and social networks, and that network members, and their identities and roles, may differ across contexts. Managing these identities, roles and network memberships may require mediating communication services, such as mobile end-user services. Consequently, to understand the adoption behavior of end-users, a multitude of end-user contexts should be studied applying context-dependent models. Next, the results of these studies should be integrated in some form of triangulation framework (e.g. Pedersen et al., 2001).

Permission-based personal marketing to mobile devices is a very interesting marketing strategy for most companies. Barwise and Strong (2002) report that in total, 24 percent of UK mobile phone owners are willing to receive text based advertising to their mobile phones. Among respondent between 14 - 17 years, more than 50 percent accept this kind of advertising. Their study also included a longitudinal (6 weeks) study of 1000 respondents between 16 - 30 years. During this period the respondents

received about 3 text based advertisements on their mobile devices. The sender of the advertisements was The Mobile Channel (TNC). Results from the study revealed that 51 percent of the respondents were very satisfied with the advertising service while 42 percent were fairly satisfied. Only 3 percent were dissatisfied whereas 4 percent reported "neither". Also, 84 percent reported that they would recommend the advertising service to a friend, and only 7 percent said that they anticipated leaving the service within the next three months. Another issue studied was how the mobile advertisements were read. 81 percent of the respondents did not delete any of the advertisements, thus reading them all. Also, it was reported that 74 percent of the advertisements were read in full. As much as 77 percent of the advertisements were read as soon as received, 21 percent were read when the respondents had a spare moment, while 2 percent of the advertisements were read when the respondents had accumulated a few messages.

4.3 Summary

In total, antecedents of use in the form of gratifications such as safety and security, coordination, accessibility, subjective norms, attitude toward use, behavioural control, fashion/status, affection/sociability, relaxation, mobility and immediate access seem to be most important for using mobile devices. The effects reported show that customers seem to have a fairly positive attitude towards permission-based mobile advertising. Results also indicate that mobile advertising leads to higher brand recall and brand attitude. In addition, use of mobile telephone seems to blur the line between private and public and between work and leisure.

5 Integrated perspectives on media

For companies, an important challenge is to integrate traditional media and new interactive media in their marketing communication and distribution of products and services. The purpose of this chapter is to review literature and research focusing on the effects of *combinations* of media on customers' perception and behaviour, and antecedent of customers' adoption of media combinations. However, we first discuss concepts related to cross media consumption, such as media integration, media convergence and media substitutability.

5.1 Media integration

Media convergence is driven by technological and regulatory forces implying that services traditionally distributed using particular media can now be distributed by many media channels. Thus, convergent media implies most media can theoretically fulfil most media gratifications. For example, ten years ago, mobile phones were used for voice communication with other individuals. Today, mobile phones are used for Internet access, e-mail, SMS, MMS, in addition to traditional voice telephony. Despite this *service convergence*, some argue that although several single media have the potential of fulfilling most gratifications, specific media are used to obtain specific gratifications. Individual media are used for specific purposes indicating perceptions of media specialization or divergence among users rather than convergence. Whereas converging media include the possibility of one medium substituting or replacing another medium, few indications of such a substitution behaviour have been found. For example, access to email using mobile phones makes it possible to replace traditional email clients with mobile clients (terminal convergence). However, few observations have been reported of such a substitution behavior. Instead, new media seem to be used in combinations of what may be characterized as "a cluster of technologies" (Rogers, 1995). Media are being used in particular combinations because different media represent complementary technologies or services. However, user segments may vary in the degree of integration of their cross media consumption. Some user segments may use a combination of media that represents a well integrated cluster of technologies, whereas other segments use of media combinations is more fragmented and arbitrary.

Dimmick, Kline and Stafford (2000) divide media into specialist media and generalist media where specialist is a medium from which the audience obtains a narrow range of gratifications, whereas a generalist media fulfil a broader range of gratifications. They also use the constructs *gratifications opportunities* to describe the opportunities for deriving gratifications from a medium and *gratification niche* to describe the gratifications mainly obtained from a medium. While the gratification possibilities of mobile phones were described above, the gratification niches of mobile phones seem to stem from the unique gratifications SMS and mobile voice services. Niche overlap points to the overlap in gratifications obtained from two or more media. With a high niche overlap between two media, the competition between them is fierce. Thus, similar gratifications may be obtained from both media. Competitive exclusion occurs when a medium appropriates all of the niche space of its competitor (Li, 2000). According to Dimmick and Rothenbuhler (1984), media will try to differentiate themselves to coexist with competing media when niche overlaps get too high. This means that we expect to see a trend toward specialists rather than generalists media. Thus, media divergences may be a more plausible development than media convergence in the years to come if Dimmick and Rothenbuhler (1984) are right. A business strategic implication of this is that companies have to take advantage of cross media strategies (integrated media context) to fulfil customers' needs and demands.

Few studies have been found focusing particularly on individuals' cross media consumption, their perceptions of media substitutability and complementarity, or on the effects of media convergence at the individual level. However, two research traditions have been identified of relevance - uses and gratifications research and integrated marketing communications. In addition, individual studies of relevance have been identified in communication research, IS-research and marketing. Concentrating on uses and gratifications studies and integrated marketing communication, studies in the first category are presented in section 5.2 and studies in the latter category are presented in section 5.3. Individual studies from other traditions are reviewed in one of these sections when found appropriate.

5.2 Media gratification comparisons - antecedents of cross media consumption

Li (2000) studied the competitive relations among Internet shopping, cable TV shopping, catalogue shopping, and traditional store shopping. Four gratifications were revealed for shopping. These were: 1) Service gratifications (transaction being safe, transaction data being safely kept, complete service after sales, products with good quality, products being congruent with ads, good service for returning products, finding salesperson easily when having questions), 2) Gratification opportunities (providing special products, spend less time for shopping, doing shopping at home, no pressure from salespeople, shopping whenever I want to, interesting/attracting advertising, not being embarrassed when buying special or private products), 3) Product gratifications (characteristics of the products as the reason for using one type of media for shopping - spending less money, diverse products, providing products of good brands, more information about products), and 4) Affective gratifications (killing time, knowing how to dress oneself, being treated like a VIP). The results showed that, in total, store shopping had the widest niche breadth of the four media whereas Internet shopping had the second widest niche breadth. The results are illustrated in table 5.1.

Table 5.1: Niche breadth of various media.

	Internet	Cable TV	Store	Catalogue
Service	.50	.46	<u>.74</u>	.45
Possibilities	<u>.78</u>	.67	.56	.67
Product	.60	.46	<u>.69</u>	.53
Affective	.56	.46	<u>.69</u>	.46

* 0=minimum possible niche breadth / 1=maximum possible niche breadth

Further analysis by Li (2000) revealed that all three types of electronic shopping were competing with each other and that store shopping was complementary rather than competing with the three types of electronic shopping.

Wan and Nan (2000) reported a study of the perceived gratification niches of the Internet and the traditional consumption channel among young consumers. Although the sample made the external validity of the results somewhat limited, the study showed interesting results. Internet and traditional channels were compared for two

products, music and clothes. For music, the results showed a superiority of music websites in fulfilling gratifications of providing quality music information, lifting the pressure of school life and work, and fun and joy. For clothes (the authors argue that clothes were more high involving products than music), the gratification niche was less superior and fulfilled a more limited spectrum of gratifications than the traditional consumption channel.

A study by Lichtenstein and Rosenfeld (1984) included ten potential antecedents, originally developed by Elliot and Quattlebaum (1979), for using a medium. The items were: 1) To keep up with the way the government is doing its job, 2) To kill time, 3) To learn about myself, 4) To obtain information about daily life, 5) To overcome loneliness, 6) To get to know the quality of leaders, 7) To be entertained, 8) To feel I'm involved in important events, 9) To release tension, and 10) To get away from the usual cares and problems. These antecedents may also be considered operations of more traditional concepts, such as information seeking, relaxation, entertainment, arousal, social interaction, companionship, escape, and time consumption (Conway and Rubin, 1991). The results showed that *newspaper* was chosen a) to keep up with the way the government is doing its job, b) to obtain information about daily life, c) to get to know the quality of our leaders, and d) to feel I'm involved in important events. *Magazines* were reported as suitable a) to keep up with the way the government is doing its job, b) to kill time, c) to obtain information about daily life, and d) to get to know the quality of our leaders. The most important motivations for using *commercial television* was reported to be a) to keep up with the way the government is doing its job, and b) to kill time. The use of *public television* was primarily motivated by a) to keep up with the way the government is doing its job, b) to get to know the quality of our leaders, and c) to feel I'm involved in important events. The main purposes for reading *books* were reported as a) to learn about myself, b) to obtain information about daily life, c) to feel I'm involved in important events, and d) to get away from usual cares and problems. *Radio* was reported to be chosen because the users wanted a) to kill time, b) to overcome loneliness, c) to be entertained, d) to release tension, and e) to get away from usual cares and problems. *Recorded music* were chosen to a) kill time, b) to overcome loneliness, c) to release tension, and d) to get away from usual cares and problems. At

last *films* were watched a) to be entertained, b) to release tension, and c) to get away from usual cares and problems.

Although the Internet has been around for some years, our knowledge of selection and use of the Internet as a medium is limited (Flanagin and Metzger, 2001). Morris and Ogan (1996) argue that the uses and gratification research is useful when studying motives for using the Internet and actual use of the Internet. As revealed from the literature review in sections 3 and 4, most uses and gratification studies focus on the reasons that individuals use a specific medium. Only a few studies compare gratifications across a variety of media. However, Flanagin and Metzger (2001) focused on motives for media selection in an integrated media environment. In total, 21 gratifications were included in their study based on earlier uses and gratification studies. The gratifications were related to nine media. The media were; 1) books and magazines, 2) e-mail, 3) face-to-face, 4) newspapers, 5) telephone, and 6) television. The Internet as a medium was divided into three sub media based on the purpose of use; 7) Internet for retrieval of information, 8) Internet for information giving, and 9) Internet for conversation. In their article, Flanagin and Metzger (2001) presented results showing the perceived utility of the 21 gratifications for the nine media in a 21*9 matrix. Furthermore, Flanagin and Metzger (2001) focused on the overlapping purpose of using the different media (gratification overlap). By the use of a cluster analysis, they revealed three main media groups. These media groups were; 1) unmediated interpersonal communication media: face-to-face communication, 2) mediated interpersonal communication media: Internet conversation, telephone, and e-mail, and 3) mass communication media: TV, Internet information retrieval, Internet information giving, books and magazines, and newspapers. Table 5.2 shows the perceived gratifications obtained from using media in the three media clusters for the 21 gratifications included in the study.

Table 5.2: Mean ratings of perceived utility by media cluster.

	Unmediated interpersonal	Mediated interpersonal	Mass
get information	4.5	4.19	4.38
generate ideas	4.41	3.60	3.69
negotiate or bargain	4.35	3.39	2.42
learn about myself and others	4.34	3.67	3.41
be entertained	4.21	3.89	4.15
get to know others	4.55	3.96	2.93
learn how to do things	4.26	3.27	3.53
impress people	3.28	2.31	2.23
have something to do with others	4.24	3.72	2.66
provide others with information	4.34	4.10	3.15
get someone to do something for me	4.15	3.61	2.10
solve problems	4.28	3.61	3.04
play	4.06	3.44	3.11
stay in touch	4.34	4.37	3.00
relax	3.92	3.55	3.80
make decisions	4.19	3.46	3.01
contribute to a pool of information	4.06	3.39	2.83
gain insight into myself	3.85	2.79	2.78
pass the time away when I'm bored	3.84	3.68	3.85
feel less lonely	3.98	3.40	2.59
feel important	3.31	2.59	2.16

The results showed that unmediated interpersonal communication (face-to-face) is perceived as useful for several needs such as getting information, generate ideas, negotiate or bargain, learning, entertainment, stay in touch, solve problems, have something to do with others, and provide others with information. Mediated interpersonal communication (e-mail, telephone, and Internet conversation) is primarily perceived as useful for getting information, provide others with information, and stay in touch. Mass communication media is perceived as useful for getting information and to be entertained. Flanagin and Metzger (2001) also undertook a cluster analysis of the 21 needs used in the article, revealing 10 clusters - or gratifications. These were, 1) information (to get information), 2) learn (generate ideas, learn about myself and others, learn how to do things), 3) play (play), 4) leisure (be entertained, relax, pass time away), 5) persuasion (negotiate or bargain, get someone to do something for me), 6) social bonding (have something to do with others, feel less lonely), 7) relationship maintenance (get to know others, provide others with information, stay in touch), 8) problem solving (solve problems, make decisions, contribute to a pool of information), 9) status (impress people, feel

important), 10) insight (gain insight into myself). Table 5.3 shows how useful the various media were perceived for fulfilling the 10 need clusters.

Table 5.3: Mean perceived media utility by gratification clusters.

	Information	Learn	Play	Leisure	Persuasion	Social bond	Relations mainten.	Problem solving	Status	Insight
Books & Magz	4.5	3.9	3.2	4.2	2.3	2.6	3.0	3.2	2.3	3.4
E-mail	4.3	3.5	3.5	3.7	3.4	3.4	4.2	3.4	2.4	2.7
Face-to-face	4.5	4.3	4.1	4.0	4.3	4.1	4.4	4.2	3.3	3.9
Internet - IR	4.6	3.6	3.5	3.5	2.3	2.4	2.9	3.2	2.2	2.5
Internet - C	3.8	3.5	3.9	4.0	2.7	3.4	3.7	3.1	2.5	2.9
Internet - IG	3.8	3.5	3.3	3.3	2.9	2.6	3.5	3.4	2.6	2.8
Newspapers	4.5	3.4	2.4	3.6	2.3	2.3	3.2	2.9	2.3	2.6
Telephone	4.3	3.5	3.4	3.7	3.8	3.8	4.3	3.6	2.5	2.9
TV	4.1	3.4	3.4	4.5	2.1	3.1	2.9	2.5	1.9	2.6

1=low utility / 7=high utility

The results show that books and magazines were mainly used for the gratification clusters information and leisure. E-mail was mainly used for access to information and relationship maintenance. Face-to-face was an important medium covering most of the gratifications. Internet - information retrieval, was a main medium for accessing information. Internet - conversation, was important for social bonding and relationship maintenance, and Internet - information giving, was a medium used for many purposes such as maintaining relationships, information access, and learning. Newspapers were primarily a medium for information access. The telephone was mainly a medium for getting access to information, and relationship maintenance. Finally, TV seemed to be a medium mainly used to access to information and for leisure gratifications.

LaFerle, Edwards and Lee (2000) also studied the purposes for using different media. Some of their main results are summarized in table 5.4.

Table 5.4: Adolescent media use by activity (in percent).

	Magazine	Newspapers	Internet	TV	Radio	X²
Entertainment	4	2	7	67	20	275
Research	10	7	82	0	0	204
Homework	8	20	66	4	2	261
Health Education	42	10	33	14	1	108
Shopping	48	22	3	24	3	124
Leisure	17	11	7	36	29	57
News/Events	4	57	43	32	3	211

* LaFerle, Edwards and Lee (2000)

* All X² are significant at p<.001.

The results showed that magazines were considered the health education and shopping medium. Newspapers were a medium mainly for getting information regarding news and events. Internet was widely used for several activities such as research, homework, health education and news/events. TV was found to be the entertainment medium, although also widely used for other activities such as shopping, leisure, and news/events. Radio was used for entertainment and leisure activities. Thus, the results point to the diversity of gratifications covered by the different media included in the study.

A study by Yoon and Kim (2001) investigated customer' use of various media for product purchase (information collection before purchase). The study was conducted using a sample of 105 respondents. The use of different media when purchasing various types of products is shown in table 5.5.

Table 5.5: The proportion of media use for various product categories (in percent).

	Internet	TV	Radio	Newspapers	Magazines
Automobiles	17,6	41,1	7,5	21,1	12,9
Luxury Watches	17,7	35,1	8,3	19,2	19,7
Fast Food	11,3	48,2	10,6	15,4	14,5
Shampoos	8,9	50,6	8,8	14,5	17,2

Table 5.5 shows that TV was the medium most used for information search before purchase. Internet was used more extensively when purchasing automobile and luxury watches (high-involving products) than when purchasing fast food and shampoo (low-involving products). That said, the low involving products of this study also prove to be easily available products consumed on a high frequency basis.

O'Sullivan (2000) focused on the impact of impression management in media choice. He suggested that individuals are working rationally to regulate the information about themselves that they present to others. The motivation for this regulation is to have control over the impression of oneself that is being communicated to others. As suggested in media richness theory (Daft and Lengel, 1984; Daft and Lengel, 1986), the capacity of different media to transmit a high variety of cues and languages varies. Consequently, specific media can be chosen to hide or to boost personal characteristics easily communicated using the appropriate medium. What is proposed to be missing in mediated environments (lean media) may be seen as an opportunity to regulate information exchange between partners - as a means of managing self presentation, rather than as a problem. Lean media may be used by the media selector to create ambiguity or to hide embarrassing and unattractive characteristics of himself. On the other hand, rich media may be chosen to clarify characteristics of the media selector that he himself finds attractive. With this theoretical basis, O'Sullivan (2001) found that preferences for mediated communication (lean media) was higher when preferred impression were expected to be threatened than when preferred impression were expected to be supported. Second, he also found that preferences for mediated communication (lean media) were higher when the media selectors' impression was expected to be salient than when the partner's preferred impression was expected to be salient. Third, the results also revealed that when the media selector's own preferred impression was expected to be threatened, preferences for mediated communication (lean media) were higher than when the communicating partner's preferred impression was expected to be threatened. The results support the proposition that people actively select specific communicating media to manage their self-presentation.

Dimmick, Kline and Stafford (2000) referred to a study undertaken by The American Internet User Survey in 1997. Here, it was revealed that among the respondents who reported using the Internet, 35 percent reported reduced use of TV, 16 percent

reported less use of newspapers, 10 percent reported reduction in radio listening, and 22 percent reported using the telephone less. Dimmick, Kline and Stafford (2000) also referred to a study by the Survey Research Unit at Ohio State University. Results from this study found that 32 percent of the respondents used e-mail from home. Based on these two studies, indicating an increase in the use of Internet/e-mail and a reduction in the use of telephone, they focused on the reasons for this change in media use. Both sociability gratifications and gratification opportunities (users' beliefs that a medium allows them to obtain greater opportunities for satisfaction) were measured. The results showed that e-mail had the highest score on sociability gratifications such as: 1) Keep in contact with people you don't have time to see in person, and 2) Keep in contact with people who live far away. Telephone was found to have a higher score on four sociability gratifications: 1) Send or receive personal messages with those closest to you, 2) Feel or express caring, 3) Feeling of companionship with people you know, and 4) Give or receive advice on personal matters or issues. Thus, the telephone seems to serve the affective gratifications better than e-mail. For gratification opportunities, e-mail was the best medium for: 1) Fitting people's work schedule, and 2) Communication with people in different time zones. 48 percent of the respondents reported that they used the telephone less for long distance calls after they had started using e-mail. The explanation of this finding seems to be differences in the gratification opportunities of the two media.

Flaherty, Pearce and Rubin (1998) studied the functional similarity between Internet and face-to-face communication. If two media serve the same gratifications equally, they are defined as functional alternatives. Including several gratifications, they found the similarities and differences in motives for using Internet and face-to-face communication illustrated in table 5.6.

Table 5.6: Mean motives for Internet and face-to-face communication

	Internet	Face-to-face	t	p
Pleasure	7,63	7,95	1,7	ns
Inclusion	3,94	6,62	11,8	.00
Control	3,54	4,68	7,6	.00
Affection	5,33	7,53	10,7	.00
Relaxation	5,58	6,52	4,3	.00
Escape	3,81	4,94	6,3	.00
Information	5,54	7,65	10,5	.00
Time-shifting	5,20	5,57	1,6	ns
Social interaction	3,54	5,24	8,0	.00
Pass time	4,80	6,06	5,6	.00
Habit	4,65	5,14	2,5	.05
Entertainment	7,92	8,53	3,5	.00
Meet people	5,76	7,27	7,5	.00

Table 5.6 shows that entertainment and pleasure were the most salient motives for using both Internet and face-to-face communication. In general, the motives seem to be stronger for using face-to-face communication than Internet. Thus, Internet and face-to-face does not seem to be functional alternatives for media users.

Based on Katz, Blumler and Gurevitch (1974)¹³, Finn (1997) focused on the effects of personality traits on the use of TV, radio, print and movie attendance (cinema). Three personality factors were tested. They were extroversion, neuroticism, and openness to experience. The study revealed that people with a low level of extroversion were using mass media more than people with a high level of extroversion. Individuals with a high level of openness were found to use more time on movie attendance and pleasure reading, and less time viewing television than individuals with a low level of openness. No effects on media use were found for neuroticism level.

Lin (2002) studied the effects of respondents' demographics on intention to use online media services. She found no effects of gender, number of children, and income level,

¹³ As referred in Finn (1997).

whereas significant negative effects were revealed for education level and respondents' age. Furthermore, she proposed that the level of media use has a positive effect on the intention of accessing online media services. This means that she expected a positive relationship between respondents' use of traditional media such as radio and TV, and the intention to use online services. Only marginal support was found for this proposition. The results showed a weak but significant negative effect of newspaper reading on the intention to use online service access ($p=0.08$). For the other media there were no significant relationships. At last, the technology cluster theory was tested. In Lin's version of the theory she proposed that newly emerged technologies may be adopted if they share similar functionalities with existing or older technologies. The arguments used are that these similarities help ensure a smooth transition of technological continuity and to ease the technological barriers of using the new technology. The results showed no support for this hypothesis.

Flanagin and Metzger (2000) studied the effects of media on the perception of information credibility. Internet, magazines, newspapers, radio, and television were compared for different information types such as news, reference, entertainment, and commercials. Except for newspapers, which were rated highest in perceived credibility, credibility did not vary as a function of medium. The result was valid across all four types of information. Results from the study also showed that experienced users of the Internet were more likely to view the Internet as a credible medium. However, even among the experienced Internet users, media was found to have no effect on information credibility.

In a meta-analysis of media research published in the journal *Human Communication Research*, Emmers-Sommer and Allen (1999) found age effects on media understanding. The result showed that children understand content presented in various media better when they get older. Thus, the older a child is, the more likely she is to process, understand, and attend to media. They also found some gender differences. The results indicated that men like violent films better than women, and that women like sad films better than men. Also, IQ was revealed to have a negative effect on the time used watching TV.

Stempel et. al. (2000) compared media use of Internet users and non-users. They found that users of the Internet read more daily newspapers and listened more to radio news. However, Internet users read less grocery store tabloid than non-users of Internet. They also found that age affected media use. Age was found to have a positive effect on the use of local TV news, network TV news, and the use of daily newspapers. Age had a negative effect on the use of radio talk show, Internet and on-line services. Radio news was most often listened to by people between 35 and 54 years. For the other media there were fewer effects of age. Income had a positive effect on the use of daily newspapers, radio news, Internet and on-line services. Level of education was reported to have a positive effect on the use of daily newspapers, radio news, news magazines, political magazines, Internet and online services. Finally, women were found to watch local TV news and grocery store tabloid more than men, whereas men were found to use the Internet and read political magazines more than women.

5.3 Integrated Marketing Communication (IMC)

In marketing, issues of cross media strategies and cross media consumption have mainly been treated within the tradition of integrated marketing communication (IMC) (Thorson and Moore, 1996; Schultz and Kitchen, 1997; Kitchen and Schultz, 1999). This seems to be one of the areas where at least some research on media integration may be found. However, much of the published articles and books discuss the issue of "what is IMC?", the definition of IMC, and the value of IMC. Due to the current conceptual state of the field, empirical studies of IMC including the Internet and other interactive media used to access the Internet are few. A literature review undertaken by Geysken, Gielens and Dekimpe (2002) in *International Journal of Research in Marketing*, *Journal of Marketing*, *Journal of Marketing Research* and *Marketing Science* only found one empirical study on the performance implications of including the entire channel system of a firm¹⁴. Despite considerable recent attention to IMC, the review clearly shows an unfortunate lack of empirical research on the phenomenon (Carlson, Grove, Laczniak and Kangun, 1996).

¹⁴ In IMC, media and media channels are often used interchangeably. Our definition of media as the carrier of channel signals is not used in IMC. Instead, channel is used of communication or distribution media such as the Internet, physical stores, mail order or TV-shopping.

5.3.1 What is IMC?

IMC as a theoretical area of research was started at the Medill School of Journalism at Northwestern University. The research was led by Caywood, Schultz and Wang (Kitchen and Schultz, 1999). By now, there are still few agreements on the definition of IMC. Nevertheless, below we present a few descriptions and definitions of IMC that have been presented in the literature.

Integrated marketing communication means that all communication elements (advertising, personal selling, sales promotion, packaging, point of purchase materials, etc.) must be tightly interwoven to communicate a brand effectively (Shimp, 2000). IMC is not tied to any single communication method but uses whatever media and channel that effectively delivers the brand concept to the audience (Shimp, 2000). Another definition used by Schultz (1993) and Kitchen and Schultz (1999) is *"IMC is a concept of marketing communications planning that recognizes the added value of a plan that evaluates the strategic roles of a variety of communications disciplines (for example, general advertising, direct response, sales promotion, and public relations)..... and combines these disciplines to provide clarity, consistency, and maximum communications impact"* (Kitchen and Schultz, 1999, p. 23). A definition presented by the American Association of Advertising Agencies' Integrated Communication Committee is *"a concept of marketing communications planning that recognizes the added value in a program that integrates a variety of strategic disciplines"* (Stewart, 1996 - as referred in Gould, Lerman and Grein, 1999). IMC aims to strategically coordinate the various promotion-mix disciplines (e.g. advertising, sales promotion, public relations) in order to attain synergies and to assure that a message reaches and registers with its target audience (Nowak and Phelps, 1994; Schultz, 1991 - as referred in Gould, Lerman and Grein, 1999, p. 8).

A further breakdown in how IMC is defined has been proposed, including: 1) The creation of one voice (i.e. a single theme and image), 2) The integration of both product image and relevant aspects of consumer behaviour in promotion management as opposed to a focus on only one or the other of these two, and 3) The coordinated management of promotion-mix disciplines, which corresponds to the American Association of Advertising Agencies definition (Nowak and Phelps, 1994; Phelps, Plumley and Johnson, 1994 - as referred in Gould, Lerman and Grein, 1999, p. 8).

Finally, according to a definition of IMC used by Duncan and Everett (1993), IMC is *"the strategic coordination of all messages and media used by an organization to influence its perceived brand value"* (p. 32). Although IMC seem to be a broad construct, the definitions - in particular the definition presented by Duncan and Everett (1993) - show that cross media integration is a central part of the construct.

5.3.2 Company use of IMC

Several studies report on the degree of IMC implementation in companies and how much IMC is focused in advertising agencies. In a survey of 121 advertising bureaus, integrated marketing communication was found to be the marketing activity the bureaus devoted most time to (McArthur and Griffin, 1997).

Kitchen and Schultz (1999) studied the perceptions of IMC among advertising agencies in US, UK, New Zealand, Australia, and India¹⁵. Several interesting results were revealed. First of all, it should be concluded that agencies in US were most focused on IMC. Related to the product life cycle model, US agencies were in the early maturity phase, UK and New Zealand were in the growth stage, while agencies in Australia and India were in the introduction phase. However, the impression was that the agencies put much faith in the future of IMC. In US and UK, respectively, 50 percent and 43 percent of the advertising agencies devoted more than 50 percent of their time to IMC programs for client firms. Accordingly, clients budgets devoted to IMC activities were revealed to be 52 percent in US, 42 percent in UK, 40 percent in New Zealand while only 22 percent in Australia and 15 percent in India.

An extension of the IMC concept was suggested by Gould, Lerman and Grein (1999) in their explicit focus on global IMC (GIMC). GIMC extends IMC by adding the international and cultural dimension to that of promotional disciplines. GIMC is based on IMC. However, GIMC includes both a vertical and a horizontal dimension. The vertical dimension concerns coordinating the promotion-mix disciplines of advertising, public relations, and sales promotion along with other related marketing activities. The horizontal dimension refers to coordination across country markets. Thus, GIMC is defined as *"a system of active promotional management which*

¹⁵ An article is also published on the data for US only (Schultz and Kitchen, 1997).

strategically coordinates global communications in all of its component parts both horizontally in terms of countries and organizations and vertically in terms of promotion disciplines" (Gould, Lerman and Grein, 1999, p. 9). A study of 65 of the largest US advertising agencies showed that the agencies were highly coordinated horizontally (mean=5.54). However, the agencies were either highly coordinated or barely coordinated horizontally (none of the agencies reported 3, 4 or 5 in the survey). Furthermore, the agencies reported that they believed that their clients had a strong desire to coordinate across countries. For the vertical dimension, the agencies reported that the creative function received most effort in terms of coordination (mean=4.92), followed by efforts to coordinate the various promotion disciplines (e.g. advertising, publicity, and couponing - mean=4.58), and media planning (mean=3.69) and media buying (3.00). An exploratory t-test showed that the creative function was significantly more coordinated than the media buying function ($p < 0.1$).

A study by Sheehan and Doherty (2001) reported that many advertisers integrate messages across print and Internet to some degree. However, the integration is mainly on the tactical level. This means that there is some overlap between the two media when it comes to product language and visual cues that reminds the online/print users of the print/online advertisement. However, the overall strategic context of the communication is often not integrated across the two media. This implies that strategic elements such as promises and objectives are weakly integrated across media.

The focus on IMC is expected to increase in the future (Kitchen and Schultz, 1999). The main reasons supporting this expectation is that IMC will have increased impact, that creative ideas are more effective when IMC is used, IMC contributes to greater communication consistency, IMC increases the importance of one brand personality (one voice), and IMC helps eliminate misconceptions that can occur when several agencies are used. Other driving forces underpinning the move toward IMC are call for synergy among promotional tools, rapid growth and development of database marketing, recognition that agencies' future success depends on helping clients develop IMC programs, rapid growth of IMC importance, fragmentation of media markets, and changes in media buying practices. However, the study by Kitchen and Schultz (1999) also reveals some barriers to IMC programs. The main barriers

reported are that IMC requires employees to become generalists, that the integrated agencies do not have sufficient talent across all market communication areas, and that employees have to develop new skills.

So far, our literature review has focused on managerial issues related to strategy and planning in IMC. However, the motivation for IMC has to be grounded in more effective marketing communication - or higher attention among potential customers, higher persuading effect on potential customers, or higher sale. This direction of IMC research focuses on the coordination of traditional and non-traditional communication channels to obtain more effective marketing communication.

5.3.3 Effects of IMC

One of the implications of increased focus on IMC is reduced faith in mass media advertising. Although mass media advertising is still believed to be an important part of the marketing communication, other communication methods are considered. In particular, the reliance on highly targeted communication has increased in IMC. Direct mail, Internet, cable TV and special interest magazines are just a few channels that enable targeted marketing communication (Shimp, 2000). A more detailed description of the advantages and disadvantages of various media have been described by Belch and Belch (2001), and are shown in figure 5.1.

Media	Advantages	Disadvantages
TV	Mass/local coverage; high reach, impact of sight, sound and motion; high prestige, low cost per exposure; attention getting; favourable image	Low selectivity, short message life; high cost; clutter
Radio	Mass/local coverage; low cost; high frequency, flexible; low production costs; well segmented audience	Audio only; clutter, low attention getting
Magazines	Segmentation potential; quality reproduction; high information content; longevity, multiple readers	Long lead time for ad placement; visual only; lack of flexibility
Newspapers	High coverage; low cost; short lead time for placing ads., ads can be placed in interest sections; timely; reader controls exposure; can be used for coupons	Short life; clutter; low attention getting capabilities; poor reproduction quality; selective reader exposure
Outdoor	Location specific; high repetition; easily noticed	Short exposure time requires short ad; poor image; local restrictions
DM	High selectivity, reader controls exposure; high information content; opportunities for repeat exposure	high cost per contact; poor image (junk mail); clutter
Internet	User selects information; user attention and involvement; interactive relationship; direct selling potential; flexible message platform	Limited creative capabilities; crowded access (download time); technology limitations; few valid measurement techniques; limited reach

Figure 5.1: Media characteristics.

Although some of the arguments may be discussed, and advantages and disadvantages are not static, figure 5.1 clearly illustrates many of the advantages and disadvantages characterizing different media used for advertising purposes. It should also be mentioned that media develop over time. In particular, Internet increasingly enables the use of new creative formats and interactivity. However, figure 5.1 illustrates the proposed effects of media in advertising, underlining the uniqueness of the each medium.

An issue that has been discussed in the media literature is methods for estimating the optimal match of media to markets. Various simulation methods have been discussed. This line of research focuses on the estimation methods for matching single media and markets rather than the integration of media¹⁶. In a relevant marketing perspective - the hierarchy of effects perspective, one has been focusing on matching and coordination of various media. The hierarchy of effects model divides the marketing communication process into stages, but the number of stages and their suggested relevance differ across researchers. Fill (1995) splits the marketing communication process into four stages. He argues that the stages in the marketing communication process will depend on the customer decision process, as shown in the figure 5.2 (also; see Connell (2001-2002) who split the process into five stages). As illustrated in figure 5.2, message appeal is included as a part of the integration process in addition to media. Both message appeal and media are related to the customers' level of involvement in the decision process.

¹⁶ If this is an interesting issue, Cannon (1985), Papazian (1980) and Canon (1988) are relevant sources for further literature review.

High-involvement decision		Low-involvement decision	
Awareness		Awareness	
<i>Media</i>	<i>Message</i>	<i>Media</i>	<i>Message</i>
*Initially broadcast - then print	*High info. content *Factual, rational *Benefit claims	*Broadcast	*Low inf. content *Emotional and imagery
Attitude		Trial/behaviour	
<i>Media</i>	<i>Message</i>	<i>Media</i>	<i>Message</i>
*Salesmen *Trial or visit	*Messages for high elaboration	*Demonstration *Packaging *POS	*"Messages" for low elaboration
Behaviour		Attitude	
<i>Media</i>	<i>Message</i>	<i>Media</i>	<i>Message</i>
*Product quality *Delivery		*Degree of satisfaction	
Long-run behaviour		Long-run behaviour	
<i>Media</i>	<i>Message</i>	<i>Media</i>	<i>Message</i>
*Product quality *Public relations *Guarantees *Service/support		*Broadcast advertising *Sales promotion *Product quality and development	*Emotional

Figure 5.2: The hierarchy of effects - media integration

From advertising research it has been shown that emotional cues are more effective for low-involvement decisions and rational cues are the most effective for high-involvement decisions (Petty, Cacioppo and Schuman, 1983). Thus, rational cues should be used when marketing products or services are characterized by high-involving customer decisions. This suggests a use of media that allows customers to elaborate upon the rational and informative cues presented in the advertisements. A presupposition for elaboration is the possibility for elaboration - that the customer have control of the advertisements presented. Print and Internet are characterized by customers' control of the presentation whereas commercials distributed through broadcast media as radio and TV are externally controlled (Wright, 1974). For high-involving decisions, customers first have to be aware of the product. Thus, broadcast media should be used in the introduction stage of the product to create such

awareness. Next, media that allow elaboration of rational and informative messages should be used to make it possible for the receivers to elaborate the messages distributed - and through this - establish their attitudes towards the product. If customers decide to buy the product, different media may be relevant. Physical shops and Internet (PC and mobile devices) are both relevant media for the sale and distribution of products. However, the Internet is best suited for distributing digital products. Long-run behaviour may end up in a loyal customer with strong relationships between the brand and the customer. Internet is a well suited medium for one-to-one services through customer communities and personalization. Thus, Internet (PC and mobile devices) may be an effective medium for building long run relations with customers. The discussion shows that different media should be used for specific purposes in the marketing communication. Thus, different media should be integrated in a totality where each individual medium serves specific purposes in the total marketing communication. To illustrate, Schultz (1996) describes the buying process of a camera. First the customer decides on a set of potential camera brands she would consider. Next she visits several camera retailers for demonstrations of different camera brands and models. Based on this information, she makes a decision of brand and model. She buys the camera by telephone, using her credit card. The point is that it is an integration of the advertising, sales promotion, the sales force, the retailer, the telephone technology, the credit card system, transportation and distribution facilities, and information technology that makes this transaction possible. Thus media integration is a prerequisite of what Schultz (1996) call the 21st century market place.

Schultz (1996) argues that the issue is not whether the marketing department in a firm should integrate marketing communication or not. The consumers will constantly integrate the marketing department's communication through their perceptual and cognitive information processing. Therefore, the best marketers and advertisers can do is to try to understand customers integration process and modify their marketing communication to customers integration process. Schultz (1996) also argues that traditional models of one-way communication from the marketer to the consumers are useless. With the introduction of the Internet, marketers have the possibility for one-to-one communication with customers. Customers can promote their needs to the marketers and the marketers can respond to these needs. Thus, the buyer has become

the marketer and the marketer has become the responder or the customer. Therefore, in this sense, IMC will not fit into the "hierarchy of effects" framework but requires new criteria (Kitchen and Schultz, 1999).

Duncan and Everett (1993) studied client perceptions of IMC. Among 216 respondents from client businesses (communications or marketing managers), 59 percent were aware of the IMC term. However, after being introduced to the definition of IMC used by Duncan and Everett (1993) ("the strategic coordination of all messages and media used by an organization to influence its perceived brand value"), they were asked to indicate how valuable they thought this concept is/could be to their organization. On a 5 point scale (1=strongly disagree/5=strongly agree), the following claims scored as follows: 1) IMC reduces media waste (mean=1.98), 2) Using IMC gives a company a competitive edge (mean=2.08), 3) IMC will be used more in my organization within the next five years (mean=2.33), 4) We are more inclined to hire communications agencies/firms who understand IMC (mean=2.99), 5) The "new advertising" is a good name for IMC (mean=3.64), and 6) The IMC concept has influenced our hiring criteria (mean=3.83). Another interesting result from this study was that IMC did not seem to have a linear positive effect on the firms' annual sales level. Instead, the results seem to indicate a negative relationship between degree of administrative integration for various managerial marketing/advertising positions and firms' annual sales level. Although this result could be explained in many ways, they indicate that IMC does not have a positive linear effect on firms' effectiveness when measured as annual sales level.

A few studies have focused on the persuasive effect of using mixed media campaigns rather than single media campaigns. Speetzen (1990) studied the effect of combining print and television. Three measures of persuasion were used; aided recall, unaided recall and purchase intention. Effects were studied for print, for TV and for the combination of the two media. In total, 43 brands were included in the study. Two preconditions had to be fulfilled to be included as a brand in the study: 1) The total advertising budget had to exceed DM 1 million in the survey span from January 1986 to May 1987. 2) One of the two media (print and TV) had to obtain at least 20 percent of the budget. The mixed media contacts via print and TV were found to be more effective than single medium contacts. The relative effectiveness of mixed campaigns

when compared to on-medium campaign was increasing with the number of contacts (exposure repetitions). Another important result reported in the study was that mixed media campaigns reached a large proportion of the target groups via only one medium. Thus, due to the effectiveness of mixed campaigns, it seems to be necessary to optimise mixed media schedules to reach most of the target persons through both media.

A corresponding study was reported by Edell and Keller (1989). Based on information processing theory, they examined consumers' response to coordinated TV and radio ads. In an experiment, six coordinated media plans were used - TV, Radio, TV - TV, Radio - Radio, TV - Radio, and Radio - TV. Advertisements for two brands were used. The respondents had never been exposed to any of the ads before. The results showed that TV advertisements in general elicited more total thoughts and evaluative thoughts (both ad evaluative thoughts and brand evaluative thoughts) than radio. Furthermore, three of the four groups with two exposures (TV - TV, TV - Radio, and Radio - TV) had a higher percentage correctly recalling brand name. However, this seems to be due to two exposures rather than variations in media because the Radio - TV or TV - Radio groups did not report higher brand name recall than the TV - TV and Radio - Radio group. Persuading effects were measured as attitude towards the brand, attitude towards the ad and purchase intention. The general impression was that the TV group reported the most positive attitudes towards the brand, attitudes towards the ad and purchase intention. The Radio - Radio and the Radio groups were least persuaded. Thus, these results point to a media effect rather than to a coordinated media campaign effect.

A study undertaken by DoubleClick (2002) revealed several interesting differences between cross media consumers and single-medium consumers. The study examined customers' shopping behaviour and media preferences during the 2001 holiday season. In total, 1.358 respondents took part in the study, ranging in age from 18 to 65 years with an average age of 40 years. 59 percent of the respondents were women. Results related to cross media shopping trends showed that 58 percent of the respondents browsed and bought in more than one medium during the holiday. On average, cross media shoppers did 64 percent of their holiday spending in retail, 26 percent on the Internet, and 10 percent in catalogues. Interestingly, the results showed

that cross media shoppers spent over 50 percent more than single medium shoppers (\$894 compared to \$591). Cross media shoppers who shopped using all three media spent on average \$995, nearly 70 percent more than single-medium shoppers. Furthermore, 66 percent of the cross media shoppers were media switchers (browse in one medium and buy in another). Typically, they browse the Internet and in catalogues, and switch to retail stores to buy. According to Pappajohn (2000) customers who have a choice of channels tend to spend more than those who don't, and according to Forrester (2000), 83 percent of retailers claim that multi-channel integration has increased their overall sales¹⁷.

In a study by Geysken, Gielens and Dekimpe (2002) the effect of introducing the Internet as channel/medium addition on *market valuation* was studied. The results indicated that powerful firms with few broad direct channels were expected to achieve greater gains in financial performance than less powerful firms with a broad direct channel offering. The results also revealed that early followers had a competitive advantage over both innovators and late followers, even when time of entry was controlled for. The researchers also found that Internet channel additions supported by more publicity were perceived as having a higher performance potential.

Research also reports that multi-channel companies outperform on-line channel only companies (Vishwanath and Mulvin, 2001). This conclusion is based on measures of market value of the two types of companies. In particular, it is reported that multi-channel companies are successful when they define distinct roles for each channel, use the web creatively as a customer acquisition tool, and work hard at converting browsers to buyers. In total, multi-channels operators' share of the US online market in 2000 reached about 60 percent. In product categories such as event tickets, financial brokerages, consumer electronics, apparel and sporting, flowers, cars and gifts, and home and garden, the multi-channel share of the on line market were more than 80 percent.

¹⁷ As reported by Connell (2001-2002).

5.4 Summary

The results presented in this review show that studies within the uses and gratification theory shed some light on the gratification niches of various media. Based on this, it is also possible to reveal knowledge on the gratification niches of the various media in an integrated media environment. Thus, the theory seems promising when studying the antecedents of media use in an integrated media environment.

When it comes to effects of media integration, IMC research in marketing communication seems to be the research direction with the longest tradition in studying unique advertising effects of various media in integrated media environment. In particular, the studies seem to have focused on attitudinal measures and recall/recognition regarding advertised brands.

6 Conclusions and implications

The main purpose of this report has been to give an overview of the literature on antecedents of media use and the effects of using different media. In particular, studies of these issues in integrated media environments have been of particular interest. The review has revealed many potential antecedents and effects of media adoption. However, there are only a few studies focusing on antecedents of cross media use and effects of cross media use in an integrated media environment. Thus, in general, there seems to be a need for research on antecedents and effects of cross media use in integrated media environments.

This review has revealed that so far, our understanding of the criteria for Internet adoption in a cross media context is limited. Also, knowledge about the antecedents of using mobile services in a cross media context, whether Internet based, SMS based or MMS based, is limited. However, most commercial companies are using a mix of media for communicating and distributing their products and services. As shown in this review, almost no studies have focused on understanding the antecedents of cross media adoption in an integrated media environment. Thus, our understanding of why and how combinations of interactive media are used in an integrated media environment is very limited. To overcome some of these weaknesses, research should study antecedents for use of electronic interactive media used in cross media contexts. A study of individuals using the Internet via computers, mobile phones and interactive TV in combination would add new knowledge to our understanding of antecedents and effects of the use of interactive media in integrated media environments.

Mainly, two perspectives have been applied to study the antecedents and effects of media combinations in integrated environment. In this report, uses and gratification studies are reported that focus on the antecedents of using various media. The gratifications studied have been presented as motives for using individual media. By utilizing studies in uses and gratification research, it should be possible to learn more about what gratifications users prefer to obtain with individual interactive media and in media combinations. For studying the antecedents of interactive media in a

integrated media environment, uses and gratification research seems to be the tradition that is most recognized and suitable.

The other research tradition that report empirical studies of integrated media environments is marketing communication research. In this tradition, the effects of integrated marketing communication are focused. Effects have been identified on attitudes toward advertised brand, and on other responses to advertising stimuli. Thus, for studies focusing the effects of integrated media campaigns, IMC seems to be productive. This implies focusing attitudinal effects such as attitude toward advertised brand, attitude toward advertisement, intention to buy advertised brand, and satisfaction with the advertisement. Other relevant effects may be the effects on variables such as satisfaction with various media mix environments and customers' perceived relationships and loyalty to companies offering integrated media environments.

The limited number of studies in each of these traditions and their differences in research tradition, problems focused and methods applied also illustrated how investigating cross media consumption is still in its infancy and should be considered an explorative effort. This is even more the case when going from a study of cross media consumption to a study of cross media integration as seen from the end-user. Thus, theory must be developed, exploratory studies undertaken and propositions must be developed before large scale surveys or experimental studies can be conducted. Still, it is our opinion that uses and gratifications research and integrated marketing communication may provide a valuable point of departure for this exploratory effort.

Te'eni (2001) argues for the importance of an interrelationship between medium and message form for attaining effective communication. This is also stressed by Fill (1995) and Wright (1974). Thus, the effectiveness of communication media depends on the message. This emphasizes the importance of not only studying the effects of media combinations in an integrated media environment, but also of studying the moderating effects of type of message on the effects of communicating with media combinations in an integrated media environment. Another potential moderating variable may be the type of services distributed in an integrated media environment.

In chapter 2 of this report, several motives for adopting different media were presented. Many of these motives, in particular situational and individual motives, should also be included as moderating variables when studying the antecedents and effects of communicating in an integrated media environment.

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