Interactive Media face Artificial Consumers and marketing theory must re-think

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Abstract

The introduction of *onLine media* and *agent technology* offers new opportunities for research in market communication and consumer behavior. Simultaneously existing theories are challenged. This paper deals with three important presuppositions related to that statement. a) Marketers have separated production from consumption. b) Producers should control market communication. c) Consumers are human.
Contemporary research in marketing seems to be focused on the consumers and their experiences, not so much on communication technology. We have also found arguments that consumption no longer can be seen as something separate from buying, post-purchase etc.
We present existing media that carries technology elements of *interactivity*, *conversation* and *extended information search*. In a number of cases we demonstrate how interactive media replace producer to consumer communication with conversation. In addition we make it clear that such media is used for consumer-to-consumer conversations, sometimes without producer participation.
Another important finding is that agent technology has created *artificial consumers*. We describe these new marketing actors and ask how they differ from human consumers.
Our conclusion is that while some existing theory guide us, yet other will hinder us. Finally we propose a search for new theories, rather than ways to fit new problems into old solutions.

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Introduction

Marketers and Marketing Theory have evolved in the real and physical world. In that world humans produce, communicate and behave bounded by physical constraints. One such constraint is media access. We cannot distribute a specific printed magazine to all the people in the global market. But things are changing, as when producers of content go digital. Magazines, and an increasing number of other content-based products, are now handled in a digital, non-physical form. The original concept of the market as a physical meeting point is further challenged by business in cyberspace. Here the real world is extended into virtual worlds. One example of such a space is the World Wide Web, where media access is almost global and the cost for content reproduction is close to zero. Consequently Rayport and Svikola (1994) uses the label Marketspace to distinguish the new information world from the physical world:

"Marketspace - a virtual realm where products and services exist as digital information and can be delivered through information-based channels"

Another constraint in the physical world is human capacity. Restrictions in our cognitive abilities made consumer behavior researchers interested in scientific studies of the brain. As John A. Howard (1994) wrote in his textbook:

"Several years ago, H. A. Simon proposed that human beings have a limited capacity to process information. As a consequence consumers can have difficulty in making the buying decision."

We have studied electronic marketspaces where artificial actors, so called agents, have started to supplement human actors. One example where agents acted as consumers was Ringo, which was presented at a computer technology conference (Shardanand and Maes, 1995):

"a technique for making personalized recommendations from any type of database to a user based on similarities between the interest profile of that user and those of other users. In particular, we discuss the implementation of a networked system called Ringo, which makes personalized recommendations for music albums and artists."

Simultaneously a number of economic, artistic and philosophical ideas are realized. Marketing consultants Peppers and Rogers (1993) discuss new possibilities enabled by electronic technology. With the concept ”One-to-One marketing” they question the need for mass communication. Brenda Laurels (1993) artistic idea of ”Computers as Theatres” seems to be the underlying concept in Microsoft Network (MSN). Former theater director Bob Bejan has turned MSN into one of the fastest growing onLine services. Maybe because Bejan and his staff created an action-filled stage show rather than an electronic market. And the psychologist Sherry Turkle (1995) brings forward philosophical ideas about human identity. She makes it evident that new electronic technology has created people with multiple selves.

All this must be a challenge to marketers who at physical places used to find real consumers with a single and fairly stable identity. Marketing theory can no longer suppose that setting. The virtual world offers new possibilities, such as agents with an information processing capacity that differs from that of the human brain. For instance, what is known to a human being, e.g. what pleasure stands for, might not be obvious to an agent.

Motivation and Domain

Our aim is to make evident that many fundaments of contemporary marketing theory do not hold for the new possibilities offered by two elements in digital technology.

The paper provides an overview of *interactive media* and *artificial consumers* in the form of agents. We attempt to clarify these two concepts and outline their meeting with existing theories about marketing communication and consumer behavior.

Important notions from the evolution of marketing theory

One important point is that marketing theories have been developed in response to environmental changes. As when radio and later television brought forward new problems in the first half of the 20th century. GRP and day-after-recall became two of the new tools that are essential to users of broadcast media. Another important point is to note an interest in the consumers' role that many contemporary marketing scholars bring forward.

The transition of marketing management can be described as shifting focus from the market as an object to the consumers as individuals. Philip Kotlers well-known product "Marketing Management" is in itself a good example on this development. Earlier editions, e.g. Kotler (1984) focus heavily on the process of bringing tangibles to the market. Later editions, e.g. Kotler (1994) include chapters about intangibles and services. The main focus has though always been on finding ways for companies to hand over their outcomes of the production process, to their less informed consumers.

Kotlers view on marketing has been criticized. Other researchers focus on services, relationships, co-production and consumer experience. Evert Gummesson (1995), one of the pioneers in service management studies, suggest grounds for a new marketing paradigm. He argues that *Relationship Marketing* (networks and interactions) are the core of marketing practices.

Michael Porter (1985) integrated production in marketing. He brought forward a theory about production value chains. Normann and Ramirez (1994) remarked that Porter more or less ignored the consumers. They add that value is constantly created in interaction with many different players, including the consumers, suppliers, employees and managers. Thus consumers are *co-producers* . Another important aspect in marketing is *Consumer experience*, i.e. emotion (Wikström 1994). She and fellow researchers argue that consumption produces a series of human experiences, generated all the way from purchase through product use ending with post purchase. Normann and Ramirez (1994) explicitly support this view by stating that producers must enable consumers to produce their own experiences.

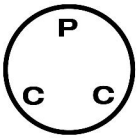
Many scholars present results from research that indicates consumers preference for products that are individually tailored. Pine (1993) outlines a number of important management strategies under the label *Mass Customization*. Peppers and Rogers (1997) present similar ideas as *One-To-One marketing*. Gilmore and Pine (1997) propose four basic approaches to how customization can be accomplished. In an insert they recognize that every customer is more than his or her own market:

"a widespread recognition that multiple markets reside within individual consumers, will turn the entire notion on markets and customers completely inside out".

In summary we see a focused research interest in the consumers and the processes where their consumption experience are created. Researchers point out that the value of those experiences increases when marketing relations become customized. According to our view consumption can no longer be seen as something separate from buying, post-purchase etc.

Problem description

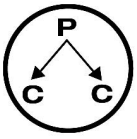
We foresee a number of problems that arise when marketing theory faces the possibilities offered by electronic media. And their solutions seem to require more than simple extensions of existing theory, such as how to advertise in electronic marketspaces. No single situation can illustrate all the emergent patterns we must bring forward here. Therefore this section describes a number of situations where existing marketing theory is challenged.



This model will illustrate how information is exchanged in the different cases we present. P stands for Producers and C for Consumers. Later we add A for Agents, or artificial consumers to the model.

We start our description with a well-known situation that helps us isolate five marketing presuppositions.

When producers communicates with consumers

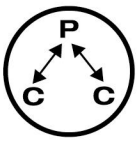


Marketing communication normally implies that the producer determines what information is to be shared with the consumer. Consider the case when publishers offer a new book to the market. As marketers know, names are important. So one step is to create a title for the book. This is carefully accomplished in a dialogue with the author(s). One example is when Donald A. Norman's "Psychology of Everyday Things" was re-titled to "The Design of Everyday Things". The old title suggested to consumers that the book dealt with psychology. A misunderstanding, since the author really wrote about design. The book must also be made known to and physically available on the market. Traditional advertising, PR activities, and other strategies are used to inform consumers about the book. Publishers utilize different means in order to push the books to the market. One of those is cover design. As one publisher says "There are so many books in the stores, that the book has to shout to its buyer". Be it a reseller or an end consumer. Impulse buying behaviors allow the book only a few seconds of consumer attention. Such fast processes favor well-known authors, since the consumer has limited resources to evaluate the author.

The activities illustrated above have to be managed in an efficient manner. So marketers have developed concepts such as brand and product name, reach/frequency/impact, package design, position, attitude and distribution (which has been separated from communication, although those activities are coordinated). Underlying all these concepts are presuppositions that:

1. producers produce and communicate, consumers receive and consume
2. consumers are human
3. production, communication and consumption are separate processes
4. producers have to reach, and stay in the mind of consumers
5. market places are geographically separated entities

When consumers converse with producers



Let us continue with a ”new” element in the marketing environment: *onLine media*. In order of appearance to the world a few of those are: CompuServe Interactive (CSi), Prodigy, America Online (AOL), and the World Wide Web (WWW). onLine media offers *interactivity, conversation* and *extended information search*, three concepts that need explanation.

Interactivity

Gene Youngblood, referred to in Erikäininen (1992) identifies three levels of interaction: 1-interrupt, 2-selection and 3-responsiveness (conversation). Thus interactivity is more than a simple choice, like click or no-click. Sheizaf Rafaeli (1988, pp. 111.) defines interactivity as:

"an expression of the extent that in a given series of communication exchanges, any third (or later) transmission (or message) is related to the degree to which previous exchanges referred to even earlier transmissions."

Banners illustrate how interactivity could be implemented. People who browse onLine media are exposed to advertisements in the form of so-called banners. Products advertised in banners are sometimes only minutes away. Consumers may click the banner, enter their credit card number and have the product shipped the next minute. Banners were initially implemented in the same way as traditional newspaper ads, billboards etc. That is, everyone was exposed to the same advertising message all the time. Lately we have seen many different banner styles. For example banners that are:

- *Dynamic*, replaced at every new visit
- *Animated*, contain animated elements and/or loops through a number of messages
- *Interactive*, automatically customized for individual users

Consider the case when a consumer is exposed to a banner advertising a book. If that banner is interactive, it will not only allow the consumer to purchase the book. The banner will also remember that it created interest or even made a sale. So, the next time it should try to advertise something else. A new offering that might go well with the book. Banners like this are becoming frequent in onLine media.

Now we start to see what happens when communication, in the meaning of sharing information, meets interactivity. A rendezvous that results in something beyond communication. This extended process includes the creation of new messages. This is what Gene Youngblood calls *conversation*. Our next step is to investigate what happens when conversation meets production.

Conversation

Our first example describes how a producer of physical goods invites consumers to a conversation. MySki Inc. uses Internet to enable consumers to interactively design their own products. Customers visiting www.myski.com enter information about their height, skill level, and skiing style, and are immediately recommended a ski model and length. Using more customization tools, they can then choose the colors, logos, and personalized text that they want to appear on the top surface of their skis and then view them in three-dimensional VRML. Once ordered, the Evolution Ski Company, Inc handcrafts the skis. Since MySki converse in a global medium, they provide in-country customer support in the native language of 25 countries. The conversation does also build an ever-growing consumer database. What this might result in is still unknown to us, since MySki started in December 1996.

In our next example Chris Macrae, a brand manager consultant and author of several books, is in control of a conversation process. Macrae is running the worldwide e-mail summit ”Chartering marketing's future in (brand) learning organizations”. The summit engages more than hundred practitioners, consultants and researchers all over the world. All members are encouraged to e-mail postings to Macrae, who categorize the input and distribute it to the other members. When asked about how he find members, Macrae replies - ”I occasionally do an Alta Vista search on my own name to see if anyone apart from myself (I mean the web I edit www.brad.ac.uk/branding/) is referring to me”. One of his strategies with the summit is to communicate (share) his ideas and books. But a far more interesting point is his conscious attempt to converse with the market as one part in the production of his next book. That conversation might very well include the titling process.

Now we see that Macraes consumers are co-producers. And that MySki use onLine media to enable their customers to design their own products. This is far away from the old producer-communicates-with-the-consumer scene. Furthermore, everything that enters onLine media holds a potential to be stored, searched and retrieved. We have chosen to name this process *extended information search*.

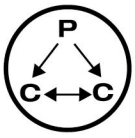
Extended information search

The search for and processing of information, are important ingredients in consumer behavior models (Engel 1986, Howard 1994, Evans et al. 1996). We have made an attempt to supplement those models with sources based on onLine media. The classification scheme below is based on our research, in this case from the WWW. The concepts are presented in order of chronology, i.e. when they arrived on the arena:

1. **Human conversation** Conversation over electronic media, e.g. e-mail, newsgroups etc.
2. **Information brokers** Professional outsourcing, sometimes referred to as information brokers. In this case humans manage the search on your behalf. In Scandinavia Observer Pressurklipp (www.observer.se) offers such services.
3. **Hotlist** Hotlists are indexes put up by humans with different interests and purposes. Like the one offered by the library at the University d¥ Aix-Marseilles (www.univ-aix.fr/bibli/bibadres.htm).
4. **Indexes and directories** This class of sources includes tools for search and index management. Users are often invited to register and maintain their own information in the database. Examples of such indexes are Sunet (www.sunet.se) and Yahoo! (www.yahoo.com).
5. **Search engines** Autonomous sources like these are based on computer software programs that continuously scan the Internet. Every search engine has its own set of rules on how to index. An extensive selection of search engines can be found at Netscape (www.netscape.com) or C-net (http://www.cnet.com/Content/Reviews/Compare/Search/)
6. **Meta Search engines** Users are able to pose a question simultaneously to a number of search engines. Users gain in range, but loose in depth. One example is Metacrawler (www.metacrawler.com).
7. **Custom-made search engines/agents** This class is used both for scanning the whole Internet and for scanning and indexing the user's local site only. Excite (www.excite.com) is one supplier of tools and applications.
8. **Push Technology** Push providers monitor a number of content sources and match that with specifications from the subscribing users. Examples are Pointcast (www.pointcast.com) and Newshound (http://www.newshound.com/). The Angle (www.theangle.com) allows the user to design her own interface.

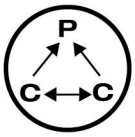
So far we have discussed the information exchange between consumers and producers. But there are also important relations between different consumers. The next three cases describe consumers-to-consumers conversations and how these can be related to producers.

When consumers converse with consumers



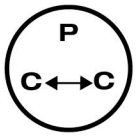
We start with a case when consumers converse under the producers management. In the automobile industry the marketing of Saturn from General Motors has brought worldwide attention. Saturn brand managers enable the customers to play an important part in the market communication. They encourage their customers to really keep in touch with other customers by supporting local Car-clubs. Many customer clubs keeps information about its members as a company secret, but this is not the case with Saturn Car-clubs. Anyone may join and access information about other members. To increase accessibility, Saturn has recently taken advantage of onLine media, and is building a searchable Extended Family Database on the Internet.

Other areas where customers strengthen their relation with another are found in the computer and software industries. Computer user groups have been flourishing in over thirty years. Benefits from these groups are found in both product development and customer support. Thus customer-generated knowledge has relieved many functions at the producer side. In other words, the consumers have been supporting themselves, with guidance from the producer. User groups did not depend on electronic media, but electronic Bulletin Board Systems (BBS) quickly emerged as an efficient solution. Consumers sharing the same interest are since long able to create their own electronic forum, making it accessible from all over the world at any time. Existing onLine media host a vast number of forums. Many are constituted out of a shared interest, as in computers, cars and games or in personal health as cancer and diabetes. All these forums pose new challenges to the practice of market communication.



The next case shows how consumers manage the conversation and actually tell the producer what to do. Among the over thousand forums at CompuServe, there is one where computer modems from Megahertz are discussed. In November 1995 a person offered his Megahertz modem for sale in that forum. The next day a representative from the Megahertz asked why he wanted to sell. The answer was elaborate, but could be summarized as that some malfunctions made the customer dissatisfied. During the next week thirteen other persons from different countries joined the discussion, sharing similar problems. Yet other ones wrote that they had intentions to buy a Megahertz modem, but what they read had convinced them not to buy. The discussion heated up, but no representative from the producer participated. On the eighth day one of the participants posed a direct question to the representative. He asked what could be done about the problem and added ”if you ignore it, it will go away - will not work here”. Two days later the representative replied that he had been observing the discussion, but he had nothing to contribute. This turned the conversation into comments about placing trust in the producer. Participants also made recommendations to Megahertz on what to expect from them when it comes to market conversation and behavior in electronic media.

Saturn is a case where the producer guided consumer’s conversation. Megahertz is a case where consumers tell the producer how conversation should be done.



Our next step is to introduce consumer communities with little producer insight. The Diabetes Forum at CompuServe started in 1989 by a diabetic who wanted to discuss his disease with other people sharing his disease. Note, not with doctors or any other medical staff. During the first year 2,000 members joined the forum. Today it is one of the largest forums in the world with more than 55,000 members. Among them are consumers of different pharmaceutical products as well as consumers of public or private health care services. The basic idea of the Diabetes Forum is to share information and solutions provided by consumers. The method is simple, forum members are encouraged to share experiences. Members participate in several hundreds of discussions, ask questions and share solutions, in such different areas as mixing drugs, advanced research and training. Discussions are saved in different libraries. Members are also able to search extensive archives of medical articles on diabetes. External researchers and speakers are occasionally invited to electronic conferences, which add interest and depth to the forum. The Diabetes Forum differs from the Saturn Car-club and the Megahertz Forum in an important way. Though all these activities should be of large interest to pharmaceutical companies, only in rare occasions are producers invited to share the discussions.

The case of Saturn showed the example of consumers conversing with consumers as a setting of the producer. This setting is built to enhance the relation to the consumers. From the consumers view the conversation constitutes a shared community where the producer undoubtedly plays an important role. In the case of Diabetes Forum the roles have changed, consumers converse with consumers to find alternatives to a relation with the producer.

When artificial actors, or agents, supplement current marketing actors

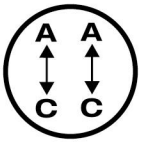
The situations we have illustrated shows that a lot of data is generated and stored in the onLine systems. The sheer size of that data volume might actually create new problems. Herbert Simon (1971) and Daniel Bell (1976) were amongst the pioneers to explore this situation. Richard Saul Wurman (1989) uses the concept of Information Architecture as one way to help us turn data into knowledge. Information architects take complex information and convey it to a target audience as simply as possible. While their designs use physical objects; ranging from product packaging to printed books, electronic means as Internet sites or virtual worlds plays an increasingly larger role. Furthermore Database Mining, an advanced form of computer aided marketing research, is increasingly used to manage vast data volumes (Berild 1996).

Another approach is the *agent* technology. This solution, built on artificial intelligence science, offers a more automated information management. Nicholas Negroponte (1994), founder of the MIT Media Lab, envisions a future where agents can read every newspaper and catch every broadcast on the planet, and from it construct a personalized summary. The following quote from the conference proceedings of Autonomous Agents 1997 offers an introduction to our new assistants:

Agents are computational systems that inhabit dynamic, unpredictable environments. They interpret sensor data that reflect events in the environment and execute motor commands that produce effects in the environment. An agent is "autonomous" to the degree that it decides for itself how to relate sensor data to motor commands in its efforts to achieve goals, satisfy motivations, etc.

Scientists have already considered how agents might help human consumers to find goods and services in the marketplace. The professor, in both Cognitive Science and Psychology, Donald Norman (1994) exemplified: "Thus, agents might set up schedules, reserve hotels and meeting rooms, arrange transportation and even outline meeting topics, all without human intervention." And Mitchel et al (1994) envisaged agents performing tasks such as: "providing services for work and home, such as paying bills, making travel arrangements, submitting purchase orders and locating information in electronic libraries". An example of the latter is Video-On-Demand systems. Ramanathan and Rangan (1994), engaged in their design, wrote "Personal service agents, as their name implies, play a central role in tailoring the fabric of multimedia services to fit the needs and preferences of clients". In this case the media is dependent on agent technology!

Artificial consumers



Agent researchers, such as Maes and Sycara (1997), states that agents have been built for a wide range of applications, including agents for buying/shopping, agents as reminders, agents as eager assistants, agents as filters/critics, agents as matchmakers, and agents as guides. We would like to regard these consumer representations as *artificial consumers*. As we noted above, consumption is an emotion-filled experience that goes beond buying. Barbara Hayes-Roth (1997) describes Synthetic Agents that "operate in simulated environments, such as virtual worlds, MUDS, or video games. They emphasize qualities such as believability and personality, rather than deep intelligence or expertise, and may play roles in interactive systems for entertainment, art, and education". We have not found any research where synthetic agents are used as market actors. Instead we bring forward two shopping agents, whose main difference is their intellectual capacity, that exemplify how artificial consumers might behave.

Bargain Finder

Here consumers use artificial representations as their conversing shopping parnters. BargainFinder does comparison shopping for rock or pop CDs on the Internet. The agent is not very smart. It knows nothing about its user and it knows only the ten stores defined by its programmer. It was presented in June 1995 by Andersen Consulting as part of the SMART STORE(R) Virtual initiative investigating electronic commerce. Any user can enter an artist and albums name, click the shop button and BargainFinder will immediately browse ten Internet sites that sell music CDs. Within seconds the user is presented with

information about the shopping results. This includes whether the album was found or not, price and shipping information and links to the actual sites.

Andersen Consulting's goal in presenting BargainFinder was not only to raise questions, but to present ideas about ways technology can make the Internet a better environment for commerce. We have no access to the results from the survey that users are invited to participate in. Instead we have seen that some of the stores blocks accesses from agents and the only information communicated is availability, price, shipping and costs.

ShopBot

In more advenced cases many consumers converse with a shared artificial consumer. ShopBot was developed at the Department of Computer Science and Engineering, University of Washington. The agent originally shopped for computer software titles in a similar way as BargainFinder looked for music CDs. ShopBot is no longer available on the Internet, because ShopBots creator has left the University for commercial tasks. During its short life it was able to demonstrate a capability to find new vendors and automatically learn how to shop at those vendors (Doorenbos et al. 1997). In other words, ShopBot was intelligent enough to extend its knowledge about shopping sites.

It learned how to shop by assuming three regularities on shopping sites. These were navigation schemes (e.g. a searchable index), uniformity (e.g. stocked items are described in a consistent format) and vertical separation (e.g. product descriptions start on a new fresh line). By doing dummy queries with know products, ShopBot was able to compare the data received with expected data. This comparison thus told ShopBot how the site structured its shopping forms.

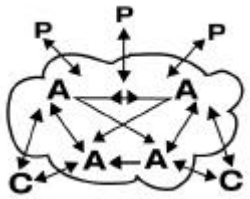
Some of the limitations of ShopBot was that it could not distinguish between upgrades to a product and a product itself. It also assumed that product descriptions reside on a single line. The research team also pointed at some architecture problems. ShopBot is dependent on searchable indexes, while many smaller sites does not have such indexes. Its linear performance would have given it a difficult task when a magnitude or more merchants populate the web. And ShopBot relies heavily on HTML (an Internet coding format), while Java (another format) is increasingly used when shopping sites are built.

When agents converse with agents

As we can see, agents learn. Accordingly Genesereth and Ketchpel (1994) remarks that the knowledge one agent gathers, could be of value to other agents, organizations or humans. The Knowledge Query and Manipulation Language (KQML) is one of the languages used for agent-to-agent communication. KQML is implemented in numerous agent systems, as the Media on Demand service presented by Nygren et al. (1996). Another way to enable agent communication, or rather conversation, is through a proprietary system. This is what the design team behind the Firefly tools decided for.

Firefly Inc. launched Firefly Online, a conversation space devoted to music and film, in January 1996. This product is now split into Bignote and Filmfinder. Recently Firefly have developed their technology into a tool-kit, offered to anyone who organize production in

onLine environments. Firefly's Automated Collaborative Filtering and an enhancement, Feature-Guided Automated Collaborative Filtering ô (FGACF) ô, help end-users navigate electronic information in a highly personalized way. According to themselve the technology in effect automates the word-of-mouth process by which people often navigate information, using people who share their experiences to guide them.



Users enter their profiles, i.e. name, age, sex, interests and other voluntary information in Firefly Passports. These passports could be regarded as an interface to the consumers artificial representation. Then the site sorts the users to recommend new selections based on the likes and dislikes of one's nearest psychographic neighbors. Any site can exchange Passport profiles with other sites through the Firefly Central. According to Firefly Inc., over one million Passports are already issued by Firefly-enabled sites on the Web.

We have found that many users, including ourselves, issue multiple passports. This is what Ingela did. She used Firefly Online to help her select a CD for friend's birthday. Ingela constructed a passport that represented her friend. Then she let the system recommend something other users with similar interest as her friend seemed to like. Who knows, maybe these other users were constructed representations as well?

The bookseller Barnes & Noble, Inc. has announced that they will use the Firefly tools. Steve Riggio, chief operating officer at Barnes & Noble, Inc. said in a press release

"Firefly's leading technology complements Barnes & Noble's commitment to customer service, selection, technology and accessibility. This innovative functionality will offer our online customers a different but equally rich experience as can be found in any of our retail stores."

Other proprietary systems use agent technology to construct marketspaces with artificial consumers that, in addition to conversing, actually negotiate, buy and sell valuables. Guttman et al. (1997) report from such an experimental system involving about 200 (real) persons trading goods, services and currency. Amongst the results was that available technology in agent intelligence is sufficient. What lacks is human trust in their agent.

Discussion

A separation of production, communication and consumption may well function in a world producing tangibles. But we show many examples where production and consumption becomes an integrated process. MySki, Macraes e-mail summit and the Diabetes Forum exemplifies this. Thus we must ask if the existing dichotomy of producers and consumers is relevant in onLine marketspaces.

In the communication process we find similar patterns. A single actor no longer directs communication. There is an increased complexity, which go beyond sending and receiving when onLine media is introduced. Marketing actors in onLine systems creates, store and reuse

information in a way that challenges existing theories about marketing communication. We have brought forward the concept of conversation that might offer marketing researchers new insights. Media that supports conversation depends on a built-in memory. Hotlists, search engines and interactive banners have such memories. But what do marketers know about them?

We described agents, marketing actors that are non-human. We have chosen to call them artificial consumers, with yet unknown capacities. We know that ShopBot was dependent on certain characteristics in shopping sites. But we do not know how many sites ShopBot can learn and remember. Marketers have emphasized experience and emotions as important factors in consumers' decision making. What importance do they have in onLine marketspaces. How does Firefly's Automated Collaborative Filtering technology handle consumer emotions?

It is also important to note that one human may be represented by one or more artificial consumers. At the same time many humans may choose to let one single artificial consumer do their shopping. Marketers have to consider not only human consumers but also artificial consumers acting in new electronic marketspaces. Maybe it is time for marketers to study agent behavior?

Even supposedly up-to-date marketing textbooks about Marketing Communication and Consumer Behavior do not discuss electronic agents or investigate how interactivity is changing our view on marketing (Howard 1994, McQuail 1992, Mowen 1993, and Windahl et al. 1992). McQuail (1994) developed his older theories without taking into consideration what interactive media already had accomplished at that time. Evans, Moutinho and van Raaij (1996) do not even mention electronic agents.

Scientific journals do not offer more insights than the textbooks. In the last two years issues of Journal of Business Research we found only one article (Good and Stone 1995) that indicated a subject that cover the problems we discuss. Out of 66 listed ongoing marketing research projects all over the world, only two projects focus on the use of agents (Hoffman 1997).

In addition our interpretation is that contemporary marketing conferences have few contributions that reflect agents and electronic conversation. But some papers offer hope. As when Bruce et al. (1996) discusses such implications. They combine concepts of custom oriented management with part-time marketers and IT, and write:

> *"Hence, the nature and substance of marketing is undergoing change and clearly IT has an active part to play in the reshaping of marketing, both currently and in the longer term".*

Conclusions

All the problems we have brought forward need solutions. Thus new marketing tasks must be managed. At this moment we do not know the models that will help managers and researchers. Contemporary marketing theory evidently fails to deal with the problems we describe.

Our conclusion is that while some existing theory guide us, yet other will hinder us. Finally we propose a search for new theories, rather than ways to fit new problems into old solutions.

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