How to evaluate multichannel communication packages: a case study on mortgage information

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Abstract

Purpose – Complex decision-making is often supported not by single messages but by multichannel communication packages that need to be evaluated in their own right. The purpose of this paper is to present a new analytic approach to this package evaluation task combining textual analysis, functional analysis (FA) and media synchronicity theory.

Design/methodology/approach – The authors combine textual analysis, FA and media synchronicity and demonstrate this in a single case analysis of a multichannel communication package offering mortgage information.

Findings – When applied to a mortgage communication package for consumers, the evaluation reveals significant problems concerning the contents and timing of mortgage information and the channels chosen to convey it.

Research limitations/implications – This paper outlines a new direction for evaluating multichannel consumer information, in that it does not focus on user channel preferences but on channel requirements stemming from the communicative task to be performed.

Practical implications – This paper enables designers to optimize the design of multichannel communication packages and its individual components to support customer's decision-making processes with regards to complex products.

Social implications – Improving information to guide complex decision-making processes leads to better informed consumers.

Originality/value – Research into effective multichannel communication within marketing is in its infancy. This paper offers a new perspective by focusing on channel requirements stemming from the communicative task rather than consumers' channel preferences.

Keywords Functional analysis, Media synchronicity theory, Multichannel communication, Task-channel fit

Paper type Case study

Introduction

Some products and services need to be carefully considered by prospective clients or buyers. Hence the organizations and companies offering them need to provide a good deal of information and advice on them. We will use the term multichannel communication package (MCP) to refer to the collection of communication means and activities needed to guide clients and customers through their decision-making process. These packages may contain brochures, web sites, consultations and tools. They need to be carefully designed in order to help customers make a motivated purchase decision, with which they will feel comfortable for the years to come.

One example of such a decision is the choice of a medical treatment, for which procedures of "informed consent" and "shared decision-making" are already legally required in many countries (LeClercq *et al.*, 2010); at the same time, there are concerns about the actual effectiveness of informed consent practices in terms of patient

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understanding (Falagas *et al.*, 2009; Scheer *et al.*, 2012). Another example is acquiring a mortgage on a house. Many people currently face financial problems as a consequence of infelicitous mortgage purchase decisions (RealtyTrac, 2012; Zillow, 2012; Home Ownership Guarantee Fund, 2013; Netherlands Housing Research, 2012). Payment problems do not only affect the well-being of mortgage customers. The trust in mortgage providers has been severely damaged by the mortgage crisis, which many see as the result of unethical practices of mortgage providers selling unsuitable mortgages to their customers (Edelman, 2014; Stix, 2013). In reaction to these problems, Dutch financial service providers are now legally required to take responsibility for the well-being of their (future) customers. Providers need to comply with newly developed loan-to-value ratio restrictions and need to provide correct, clear and non-misleading information ("Wet op het financieel toezicht", articles 4:19 and 4:20).

The "informed consent issue" in both medical and financial decision-making underscores the importance of effective communication packages, that realistically manage client and customer expectations and enables them to make well-considered decisions. This paper provides a method for evaluating such packages, illustrated by a case study of a mortgage MCP. We use data kindly shared by one of the largest mortgage lenders in the Netherlands, henceforth "the Bank".

Our analysis proceeds in several steps. We start by describing our data: the collection of the Bank's mortgage documents and mortgage information activities that altogether constitute the MCP. Next, we introduce our conceptual tools, namely functional analysis and media synchronicity theory (MST). We then present the contents and the communicative goals to be served by the MCP and its individual components. These communicative goals are partly identified "bottom-up" through text analysis of mortgage information documents and partly "top-down" through interviews with the Bank's employees. Subsequently we focus on the communicative tasks to be performed by MCP users, and on the communicative capabilities of the channels present in the Bank's MCP; both are characterized in terms of MST. Finally, we examine to what extent the MCP design may be expected to work well, given the tasks that need to be supported on the one hand and the channels chosen on the other hand.

By doing so, we provide communication and marketing practitioners with a useful tool to evaluate their MCP's, whether they deal with financial services or with other complex products or services. Furthermore, we hope to contribute to research on mortgage decision-making by providing a communicative process view that may complement the micro-economical perspective taken so far.

Mortgage decision-making issues

Mortgages are complex products. They are infrequently purchased, hard to comprehend and have many attributes that need to be tailored to the customer's situation (Vroomen *et al.*, 2005); and the choice for a mortgage has long-term financial consequences. Hence the mortgage purchase decision requires an extensive search for information and a thorough evaluation of alternatives (Guttman *et al.*, 1998; Vroomen *et al.*, 2005). However, according to Kamleitner *et al.* (2012) people purchasing consumer credits frequently fail to search for information, and if they do search this is no guarantee for good decision-making. Furthermore, only financially literate consumers are able to adequately evaluate various credit options, i.e. consumers who are "able to use knowledge and skills to manage financial resources effectively for a lifetime of financial well-being" (Remund, 2010). However, according to Kamleitner *et al.* (2012)

consumers tend to focus on immediate instead of long-term implications when acquiring a credit, so that monthly payments receive more attention than total costs.

Mortgage decision-making has traditionally been studied from a micro-economical perspective in which patterns of consumer choices have been explained in terms of household and consumer characteristics (e.g. Amromin *et al.*, 2011; Chambers *et al.*, 2009; Coulibaly and Li, 2009; Ehrmann and Ziegelmeyer, 2014; Fornero *et al.*, 2011; Hullgren and Söderberg, 2013), by analyzing the optimality of mortgage choices given the consumer's situation (Campbell, 2006) or by offering a model of mortgage choice defaults (Campbell and Cocco, 2011). Only a few studies have addressed mortgage choice in the Netherlands. Cox *et al.* (2015) examined how financial literacy and risk attitude affect household's mortgage choices and Van Ooijen and Van Rooij (2014) studied the effects of financial literacy and mortgage advice on mortgage choices. They find that debt literacy is a better indicator of mortgage choice than financial literacy and also that home-owners associate risky mortgages with high loan-to-value ratios, high loan-to-income ratios and complex attributes such as a life-insurance policy needed to secure mortgage repayments.

Both of these Dutch studies have examined mortgage take-ups before 2013. As of 2013, the mortgage system in the Netherlands has changed substantially. Many of the high risk options discussed by Van Ooijen and Van Rooij (2014) are legally eliminated; nowadays, consumers can only choose mortgage options in which the loan principal is gradually paid of.

Our study differs from earlier work on mortgage decision-making in that our analysis does not focus on the determinants of mortgage choices, but on the arrangements to be made in order for the consumer decision-making process to work well. Adopting a communication process perspective, we discuss the processes and communicative purposes that should be taken into account to effectively support mortgage costumers in making informed decisions.

Multichannel communication

Many studies regarding multichannel communication concentrate on the ultimate customer experience that needs to be created in order to eventually increase customer satisfaction. The first studies on multichannel strategies focused on customer relationship management (CRM) (see Payne and Frow (2005) for an overview). Subsequently, the interest in multichannel environments moved from organization processes to consumer preferences. A number of marketing studies report on consumers' channel preferences with information concerning less complex products (e.g. leisure travel: Van Dijk *et al.*, 2007; household furniture: Lihra and Graf, 2007) or financial services (requesting account balances: Laukkanen, 2007). Other papers discuss models of consumers' channel choice in which determinants of channel choice are related to the various stages of the purchase process (i.e. Balasubramanian *et al.*, 2005; Gensler *et al.*, 2012; Verhoef *et al.*, 2007).

Only a few studies focus on financial services or on mortgages in particular. Frambach *et al.* (2007) studied consumers' channel preferences in the purchase of a home mortgage during various purchase stages. They conducted personal interviews to examine past customer experiences and discuss a channel's functional benefits (i.e. accessibility; ease of use; usefulness; social presence) and psychosocial benefits (positive or negative social benefits). They found that mortgage consumers prefer face-to-face (FTF) communication with a financial advisor over using the internet. These findings are supported by research on consumers' financial information seeking behavior in the Netherlands (Antonides *et al.*, 2008). However, this reported preference for FTF

information may be related to the fact that in the Dutch situation up to 2012, mortgage consultations used to be provision-based services, apparently free to (future) customers. This situation changed in 2013. Given that FTF communication is not for free anymore and that Frambach *et al.* (2007) identified accessibility as a channel choice determinant, they would probably report different results when repeating their interviews right now.

Although following consumers' channel preferences probably does improve satisfaction with the communication process, it does not automatically lead to a better decision-making performance. After all, preferred channels may not be optimal fur the purpose at hand, as intuitions about the effectiveness of channels may be faulty. So far, little attention has been paid to what we know about the actual effectiveness of the multichannel communication packages offered to mortgage customers. We will try to use such knowledge in our analysis and evaluation of MCP design for mortgage consumers, and MCP design for complex products and services more generally. We hope to show what requirements to MCP design follow from the need to educate consumers and clients.

The data in our case study

We gathered all documents and services regarding mortgage information that the Bank offers to mortgage customers. This led to a collection of 23 different components (Table I), that was checked and approved of (April 1, 2013) by bank employees who (co-) created the MCP. MCP components may be produced in various Bank departments (especially the communication, legal and compliance departments), sometimes in interdepartmental collaboration. We collected printed, digital as well as oral components. An example of a printed component is the lengthy document with mortgage terms and agreements; a digital component is the tool on internet that enables prospective customers to fill in their monthly loan spending wish in order to roughly estimate the maximum mortgage loan amount. Printed and digital components were available in the Bank's branches, on the web or in both delivery formats at the same time. Other (not publicly accessible) components, such as e-mail or consultation services were accessible through one of the Bank's call centers and a branch location.

To study oral MCP components, we recorded mortgage consultations (from July until December 2013). The consultation corpus exists of orientation, advice and mortgage quote signing consultations offered FTF, through a webcam or via telephone. Orientation consultations are offered for free and are used to explore mortgage options in a preliminary fashion; advice consultations need to be paid. Both usually occur only once in the mortgage decision-making process.

Table I classifies the components according to their delivery formats as assigned to by the Bank (printed, digital, oral). It also shows that four different departments at the Bank are responsible for their production: marketing, service, advice and sales, legal, and internet. Some printed documents (marked by an asterisk) are offered as PDF files online too. Within oral delivery formats we distinguish between FTF and webcam consultations, as these delivery formats have different capabilities and need to be separately evaluated.

Some of the printed components (those in italics) offer information on the processes of buying a mortgage, buying a house and receiving mortgage advice. For instance, they tell you what a notary does, what papers should be brought to a mortgage consultation and how long it takes to draw up a mortgage quote. These components are part of the multichannel communication package but do not substantially contribute to the FTB's mortgage decision making process. Hence they were excluded from further analysis. The same goes for the mandatory risk announcement, which is a legally required document with standardized text which falls outside the Bank's communicative responsibilities.

		Department
Printed delivery format		
1	Brochure: Your first house at sale*	Marketing
2	Brochure: Choose the best loan for your house	Marketing
3	Mortgage orientation report*	Services, advice and sales (SAS)
4	Mortgage advice report*	SAS
5	Mortgage quote*	Legal
6	Mortgage terms and agreements*	Legal
	*Brochure: From acquaintance to mortgage agreement**	
	*Brochure: From mortgage offer to property purchase**	
	Mortage advice service document	
	*Mandatory risk announcement ("Financiële Bijsluiter"-obliged by The Netherlands Authority for the Financial Markets- (AFM)**	
Digital delivery format		
7	E-mail (mainly used as helpdesk service)	Internet
8	Social Media (Facebook, Twitter)	Internet
9	House viewer – App	Internet
10	Online web pages on mortgages	Internet
11	Mortgage calculator	Internet
12	Starters to Starters-Tool (an online platform where First time buyers can meet)	Internet
Oral delivery format (channel choice restricted and limited amount on offer)		
13	Webcam orientation consultation (content similar to 18)	SAS
14	FTF orientation consultation (content similar to 17)	SAS
15	Webcam advice consultation (content similar to 20)	SAS
16	FTF advice consultation (content similar to 19)	SAS
17	Webcam mortgage quote consultation (content similar to 22)	SAS
18	FTF mortgage quote consultation (content similar to 21)	SAS
19	Telephone consultations (mainly used as helpdesk service)	SAS

Note: *Also delivered as PDF online

Table I. Components of the MCP

This leaves us with nineteen single components contributing to the overarching purpose of supporting the first-time home buyer in the mortgage decision-making process. We are well aware that in reality, customers gather information from everywhere, not only from the Bank and furthermore that they strongly rely on ideas of their family and acquaintances when it comes to mortgage information gathering (Antonides *et al.*, 2008). However, our analysis focuses on how the Bank assumes its responsibility to provide sufficient adequate information.

Analytical approach

Functional analysis (FA): assigning goals to communicative means

FA was originally conceived as a conceptual support tool for document designers. It has also been used in analyzing and evaluating the design of existing documents (e.g. patient information: Pander Maat and Lentz, 1994; public information about laws and regulations: Schellens *et al.*, 1997; public brochures: De Jong and Schellens, 2001; press releases: Pander Maat, 2008; newspaper articles: De Wolff, 2012). The mortgage multichannel communication package can be approached likewise, because just like single documents, it has as an overarching purpose: enabling first-time home buyers to make a well-balanced mortgage purchase decision.

FA (Lentz and Pander Maat, 2004) assumes that the quality of documents requires an optimal match between design choices and their intended functionality, given a particular communicative context. Hence communication design needs to be guided, first, by an analysis of the communicative goals to be served by documents and second, by an analysis of contextual constraints (e.g. financial, legal, cultural and organizational) on the available design choices.

In a FA, the communicative goals are described in terms of the intended effects on particular kinds of cognitions on particular topics for particular audiences. Cognitions may involve knowing something (informative goals), having a particular attitude about something (persuasive goals), should know how to do something (instructive goals), or should be willing to do something (motivational goals). Motivational goals may require persuasive and informational goals to be achieved, and instructional goals may also be conditional upon informational goals (Lentz and Pander Maat, 2004). Someone cannot comply with traffic rules if he or she is unfamiliar with them, for instance. That is, communicative goals are often embedded in hierarchical networks.

Goal assignment decisions for communicative means can be based on two kinds of data. First, they can be derived from the questions actually addressed in documents or (recorded) conversations. In documents, this kind of analysis is helped by headings signaling topics, in conversations new topics may be recognized by topic change signals (e.g. Let's talk about X now). Our recordings revealed that advisors discuss a fixed set of topics in their consultations. Second, communicative goals may be derived from secondary information provided by stakeholders actually involved in producing communicative means. By using this information, we adopted a text-in context perspective (Askehave and Swales, 2001). For one of our MCP component (telephone consultations), invoking stakeholders was the only option we had, because we were unable to record any of these for further analysis.

However, assigning communicative functions presents dilemmas. Askehave (1999, p. 19) has noted "the absence of a clear consensus as to what communicative purpose is." For instance, sometimes we need to distinguish between official and nonofficial purposes. A news broadcast has the official purpose to inform people on a certain topic, but it is likely there are hidden purposes such as attracting a large audience. In our case, we faced the question how to deal with occasional promotional sentences such as "our Bank has a (mortgage) solution for every situation". Although such sentences clearly reveal a generic promotional goal of attracting customers to The Bank, they are unrelated to the actual mortgage decision to be made, and hence were ignored.

Another potential communicative goal that has been excluded from the present analysis is increasing the customers' willingness to actually process complex and lengthy papers and digital information, as processing motivations do not affect the mortgage options to be considered. This is not to deny that motivating customers to process may be important in actual practice.

Finally, we need to point out that FA may involve a normative element. To a large extent, FA consists of deriving goals or even purposes from actions, or more generally, ends from means. Once the end has been articulated, the means may be considered in terms of its suitability or completeness to achieve this end. Generalizing the goal may extend the set of conceivable means even further. For instance, when bringing an umbrella is seen as an attempt to be protected if it rains, it may be considered adequate. When however it is seen as an attempt to be protected to changing weather in general, an umbrella may not be enough, as it does not protect against rain when there is also a storm. Given this broader goal, other means might be considered, such as taking a coat.

MST: analyzing channel capabilities

Marketing studies generally distinguish between offline (in-branch) and online (internet) channels (Balasubramanian *et al.*, 2005; Chen *et al.*, 2005; Van Dijk *et al.*, 2007; Coughlan *et al.*, 2011; Frambach *et al.*, 2007; Vroomen *et al.*, 2005). In Table I, we used another classification: printed, digital and oral channels. Neither of these distinctions is fine-grained enough for analyzing the MCP in terms of channel effectiveness. A more elaborated framework for channel analysis is offered by MST.

Although MST was only developed quite recently, and is not as well-known as Daft and Lengel's (1986) earlier media richness theory (MRT), MST better fits our purposes than MRT. First, MST expressly addresses new media capabilities, more than MRT does. Second, MRT only considers media capabilities related to transmitting information, whereas MST also takes media capabilities related to information processing into account. Third, while MRT focuses mainly on media choice, MST concentrates on media effects. And finally, MRT predications have often not been supported in empirical studies (Dennis and Kinney, 1998). According to Dennis *et al.* (2008), that is because MRT only focuses on broad communicative tasks and does not address the underlying communicative processes that need to be performed in order to accomplish these communicative tasks.

A number of MST-inspired studies have appeared in the last years, in various research domains such as communication (Muhren *et al.*, 2009; Fox *et al.*, 2010; George *et al.*, 2013), information systems (Thomas and Bostrom, 2010; Niinimäki *et al.*, 2012), innovation and learning (North-Samardzic *et al.*, 2014) and decision-making (Sarker *et al.*, 2010; Hassel and Limayem, 2011). Most relevant to our present concerns is the small-scale study by Hassell and Limayem (2011) finding that a mixed portfolio of both high- and low-synchronous media provides better task performance than a single medium approach.

MST was developed by Dennis and Valacich in 1999 (Dennis *et al.*, 2008) and assumes that a channel's success depends on whether it offers a degree of synchronicity that fits the task to be performed by the communication participants. Synchronicity is "a shared pattern of coordinated behavior among individuals"; synchronicity involves individuals working together at the same time with a common focus. According to MST, when individuals want to accomplish a communicative task, they encounter processes of conveyance (in which new knowledge is distributed) and processes of convergence (in which they create shared understanding). MST claims that low-synchronous channels (i.e. channels enabling low degrees of synchronicity) are more beneficial to conveyance processes, whereas high-synchronous channels are more beneficial to convergence processes.

According to Dennis *et al.* (2008) the degree of synchronicity a medium or channel allows is determined by five capabilities. The first three are derived from Shannon and Weaver (1949), the last two from Rice (1987):

(1) Transmission velocity – a medium high in transmission velocity enables messages to reach the recipient as soon as it is sent, and to be responded to as soon as it is sent. Traditional written communication is much slower than FTF communication, for instance. Hence the reader of a mortgage brochure is unable to immediately respond to what he reads, whereas in consultations the customer may respond directly to the advisor. Synchronicity benefits from transmission velocity, therefore this capability is supportive to processes of convergence.

(2) Symbol sets – channels allow different ways of expressing information. In a mortgage tool customers are only allowed to enter digits, whereas in a webcam consultation an advisor can verbally explain issues while in the meantime

pointing them out in a document shared on their screens. The more symbol sets a channel allows, the more synchronicity it generates. The capability of symbol sets therefore especially facilitates processes of convergence.

(3) Parallelism – when both participants can work simultaneously we speak of high parallelism. E-mail for instance allows a high amount of parallelism, because advisor and FTB can compose an e-mail at exactly the same time without disturbing each other. But parallelism can cause problems when it comes to maintaining a shared focus of attention. If the focus of attention is obstructed, synchronicity gets disturbed and then parallelism is not beneficial to synchronicity. Otherwise, it is, and benefits processes of convergence.

(4) Rehearsability (amount of fine-tuning allowed) – if individuals talk to each other they are more "pushed forward" by the act of interaction than when they are writing a social media post. Pauses in social media are far more common than in interaction. Rehearsability is the opportunity offered by the channel to work at fine-tuning the message. As rehearsing takes time, it lowers synchronicity and shared focus. But rehearsing is beneficial in communication between individuals who do not share experiences or mental models, and facilitates processes of conveyance.

(5) Reprocessability (amount of re-examination or reprocessing) – the capability of reprocessability allows individuals to re-read information as often as necessary. We add here that media high in reprocessability generally also offers the option of selective processing, i.e. to focus only on part of the information. In contrast, sometimes this is not possible, for instance in telephone calls where it is impossible to listen to the same utterance twice or speed up the talk only to get to the point you were aiming for. Reprocessability does not facilitate synchronicity, but supports careful message processing; hence facilitates processes of conveyance.

To recapitulate, a FA provides us with a network of communicative goals, embraced by a single overarching purpose. This purpose needs to be achieved in a communicative task to be performed by (one or more components of) the Bank and the first-time buyer. Every such task offers a combination of conveyance and/or convergence processes. This combination poses certain requirements regarding the synchronicity of the communication channel(s) to be used. This synchronicity is determined by the five capabilities of transmission velocity, symbol sets, parallelism, rehearsability and reprocessability.

In the next paragraph we will first present our FA for the Bank's MCP. Then we specify this analysis in terms of the kind of communicative tasks processes involved in achieving the pertinent communicative goals. Next we use MST to assess the capabilities of the MCP components to support these processes. Finally, we combine the results to evaluate to what extent the MCP design matches its purpose.

Results

Contents of the multichannel communication package

The identified user questions discussed in the MCP components have been abstracted into overarching topics. For instance, a large number of questions were assigned to a category called "housing preferences". These topics are then coupled with intended cognitive effects so as to produce communicative goals. The results of all this are presented in Table II, in which the component numbers refer to those in Table I.

Table II shows what the different MCP components are currently used for. For instance, it shows that the Bank mainly uses paper brochures (1 and 2) to inform FTBs on considerations regarding housing preferences. These brochures are also used to explain different types of mortgages and interest constructions. Digital components play a less prominent role. They are only used to inform on housing preferences and to calculate the maximum mortgage loan amount. Finally, a lot of information is conveyed in the orientation consultation (17, 18) and the advice consultation (19, 20). These components' information distribution overlaps with a lot of other components.

The communicative goals to be achieved: the decision wheel

The goals in the right-hand column of Table II were arrived upon by combining between the information offered in various MCP components on the one hand and more general assumptions concerning the information needs of first-time home buyers on the other. They are a reconstruction of the communicative intentions behind a multichannel mortgage communication package. Figure 1 presents these goals and sub goals in the form of a hierarchical model, the so-called decision wheel.

The pink center of the decision wheel represents the single-overarching communicative purpose: the FTB is able to choose the mortgage construction most suitable for personal situation. In order to arrive at this third stage, the FTB first needs to traverse the outer circle, which represents the mortgage orientation (stage 1). The blue side (numbers 1A-1E) presents goals regarding the articulation of the FTB's requirements concerning the house and the mortgage, and the yellow side (numbers 1F-1J) presents information on the Bank's mortgage options (the number of which has been reduced somewhat in The Netherlands as of 2013, as noted earlier). When all communicative goals in yellow and blue are effectively addressed, the FTB is brought to the personal mortgage evaluation (stage 2), which is represented in the wheel by the green circle. In this stage, wishes (blue) and possibilities (yellow) need to be matched. This matching procedure yields a small number of options to be evaluated in detail. Ultimately, the FTB enters the pink center in which he/she chooses the best mortgage or decides to leave the Bank[1].

These three stages should ideally be MCP-supported and hence imply communicative goals to be fulfilled by MCP components, down to the level of specific user questions such as those in Table II. It is important to note however that the Wheel itself does not say anything on how these goals and user questions need to be distributed over MCP components. The MCP design requires extra analytical considerations, especially concerning task analysis and channel capabilities, to be discussed shortly.

We consulted Bank stakeholders on the Wheel model, and it was generally accepted as a set of sensible goals for mortgage communication. However, two issues were raised. First, in various MCP components, the bank tries to reduce customer stress by emphasizing how the Bank will do its best to guide customers through the complicated mortgage application process. We did not include this communicative goal in the wheel, as it is unrelated to the actual mortgage decision (as was the process-related information in some MCP components).

Second, the wheel does not expressly mention the National Mortgage Guarantee, while this topic is emphatically represented in the MCP components (see Table I). Ultimately, this guarantee is not the only conceivable safeguard against mortgage affordability problems: for instance, one of the mortgage risks can be a premature decease of the mortgage customer or his/her (financial) partner, and this eventuality may be covered by buying a life insurance. Hence the wheel speaks generally of

Discussed user questions	Component	Overarching communicative goals
Should I buy or rent a house? What are the (dis-) advantages of buying? And what are the (dis-) advantages of renting? What will differences will I experience when I have a house of my own versus when I live in a rental house? What kind of home do I prefer: how many rooms, garden, attic, basement, garage etc.? What wishes could I possibly have regarding a home? What is the difference between buying an existing house or a house to be built? What should I expect with regards to maintaining a house? What is the difference between living in an apartment or a (semi-) detached house?	Paper: 1, 2 Digital: 13, 16 Oral: 17, 18	FTB knows his/her housing preferences
What monthly payments am I able to afford? What monthly expenses would I have regarding the amount of money I want to borrow? And what additional costs can I expect besides my monthly mortgage payment obligation? How much do I want to pay on a mortgage in total?	No paper No digital Oral: 17, 18, 19, 20	FTB knows how much he/she is willing to spend on housing at the moment
What will my income look like in the future? Do I expect any major changes? What will my personal situation look like in the future? And what will my family situation look like?	No paper No digital Oral: 17, 18, 19, 20	FTB knows how much he/she is willing to spend on housing in the future
What buffers do I have to cover unexpected expenses? Am I willing to give up my house when I cannot afford it any longer? What sources are available to me in financially hard times?	Paper: 6 No digital Oral: 19, 20	FTB knows the personal financial risks he/she is willing to encounter
How much flexibility do I want to have in repaying my mortgage?	Paper: 7 No digital No oral	FTB knows the amount of flexibility he/she wants in the initial mortgage contract
What is a mortgage? What is an annuity mortgage? What is a linear mortgage?	Paper: 1, 2 Digital: 14 Oral: 17, 18	FTB knows all different types of mortgages the bank offers (as available in the Netherlands April, 2013)
Should I go for adjustable or fixed interest rates? What is the difference for my situation between adjustable interest rate and fixed interest rate? What are the (dis-) advantages of fixed interest rate terms (shorter versus longer terms) in my situation?	Paper: 1, 2 Digital: 14 Oral: 17, 18	FTB knows all possible interest constructions (as available in the Netherlands April, 2013)

Table II.
Content, component and communicative goals

(*continued*)

Discussed user questions	Component	Overarching communicative goals
What factors are taken into account while estimating my maximum mortgage loan amount? How does the bank calculate my maximum mortgage loan amount?	Paper: 5, 6 Digital: 15 Oral: 17, 18, 19, 20, 21, 22	FTB knows his/her personal maximum mortgage loan amount
What is National Mortgage Guarantee (NHG)? Under what conditions am I allowed to apply for National Mortgage guarantee?	Paper: 1, 2 No digital Oral: 19, 20	FTB knows about NHG, which is a safeguard against certain mortgage affordability risks
What if I cannot pay for my mortgage anymore? When will my mortgage offer expire? When will my interest rate offer expire? How flexible is the Bank in adjusting my mortgage to changing circumstances? And what are the costs of making changes? What early repayment charges do I need to reckon with? What are the initial costs for getting a mortgage?	Paper: 7 No digital No oral	FTB knows all different mortgage loan conditions
What mortgage constructions would be most appropriate in my personal financial situation?	Paper: 6 No digital Oral: 19, 20, 21, 22	FTB evaluates mortgage constructions meeting personal needs and wishes best
What mortgage should I buy?	No paper No digital Oral: 21, 22	FTB chooses the most appropriate personal mortgage

Table II.

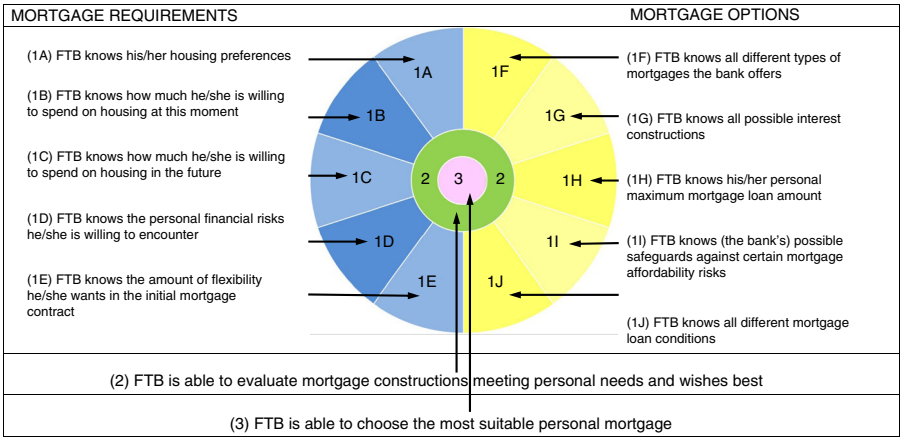

Figure 1.
Decision wheel: decision-making stages and communicative goals

"safeguards against mortgage affordability risks" instead of only the National Mortgage Guarantee. This last decision highlights the partly normative nature of FA that has been mentioned earlier: the communicative goal behind the National Mortgage Guarantee information is generalized and hence suggests other topics to be covered as well.

Communicative tasks and processes

The decision wheel presents the communicative goals required to support the FTB's decision-making process. We mentioned before that in terms of MST, achieving these goals requires performing tasks that involve processes of conveyance and convergence. In Table III we point out where processes of conveyance or convergence occur in the decision-making process. Within the different stages, these processes do not need to follow a particular order.

In the first stage, FTB needs to acquire mortgage knowledge as well as to articulate his/her mortgage requirements. The knowledge component is to be realized in a conveyance process (1.1). As both the FTB and the advisor need to understand the FTB's requirements, and as the advisor may help the FTB in pointing out the issues that require choices, the articulation of requirements is a process of convergence (1.2). Ideally, this first stage ends once all communicative goals in the outer circle of the decision wheel are achieved; the FTB knows his personal mortgage requirements and knows all the Bank has to offer.

This leads to the personal mortgage evaluation stage (2). Traversing this stage of the wheel is complicated because customers' requirements and bank's options are often dependent. Every choice with regards to mortgage possibilities generates a different mortgage construction in the end and these mortgage constructions all have consequences. They influence the monthly mortgage payment or the certainty over a longer period of time. It's the FTB's and the advisor's task to balance a comfortable situation that matches the mortgage possibilities with FTB's wishes and requirements. For instance, when an FTB wants to buy a house that is affordable but a bit expensive in the FTB's personal situation, it might be a good option to go for lower flexible interest rates to save out some money in the beginning. But it does require some extra attention every year since these rates could go up. And that again involves certain financial risks. Since some people are concerned with loss aversion while others are more concerned with risk aversion, the question is: What construction is most suitable to this FTB, taking all preferences and possibilities into account. Processes of convergence and conveyance will go back and forth in this stage of the mortgage decision-making process. Once the convergence (2.2) has taken place, the mortgage customer (re)builds a mental model on the most eligible mortgage constructions (2.1). In the end, it all comes down to the personal purchase decision. The FTB needs to choose from the options left over and the FTB and the advisor create a shared interpretation about the optimal mortgage construction, as they both need to thoroughly understand and endorse it (3).

Table III.
Tasks and processes during mortgage decision-making

	MCP – Stage 1 General mortgage orientation		MCP – Stage 2 Personal mortgage evaluation		MCP – Stage 3 Purchase decision
Task	1.1 FTB builds mental model on mortgages	1.2 FTB and advisor create shared understanding on FTB's mortgage requirements	2.1 FTB builds mental model on mortgage constructions meeting personal requirements best	2.2 FTB and advisor create shared understanding on suitable mortgage options	3 FTB and advisor create shared understanding on best fitting mortgage
Process	Conveyance	Convergence	Conveyance	Convergence	Convergence

Capabilities of the package components

To prepare our evaluation of the fit between MCP components and communicative tasks, Table IV shows their channel capabilities according to MST. The first five columns represent the channel capabilities. As discussed earlier, rehearsability and reprocessability support conveyance, and transmission velocity and symbol sets support convergence. Parallelism has a special status: if it does not disturb shared attention, it can be supportive for both conveyance and also in convergence processes. Based on the five properties, the last two columns provide overall judgements on a components' fit for convergence or conveyance.

Paper-delivered formats are generally very strong in rehearsability and reprocessability, which makes them fit for extended conveyance processes. Analysis gets more complicated with digital components and oral components, because they offer a set of varied capabilities, such as the ability to re-read something or skip certain information.

Table IV shows that digital delivery formats offer smaller symbol sets than oral delivery formats. For instance, a webcam consultation also allows people to look at paper files on their screens. And in FTF consultation, advisors can use all kinds of aids (images, drawings, brochures). So, oral components allow for the use of paper and digital formats, although there is no self-paced reading here. This also holds for e-mail and social media, to some extent, as these allow various kinds of attachments and hyperlinks. Furthermore, social media are stronger on parallelism than other components, because a social media message is reaches a group of recipients and therefore not depends on just one person for a response. When clients post messages on social media, there is a complete web care team with multiple bank employees to answer these messages.

Generally, oral formats are less supportive of conveyance than other channels, as they are low on reprocessability and rehearsability. But since they allow the quick presentation of paper and digital documents, they support conveyance processes to some extent. Regarding convergence, different oral delivery formats with identical synchronicity capability scores may still differ somewhat in their fit for convergence. According to MST, an important determinant of the degree of synchronicity is the simultaneous focus of participants during the task. When looking at the recordings, the common focus of interlocutors in webcam conversations seems to be stronger than that in FTF conversations. This is in line with the findings of O'Malley *et al.* (1996), who compared FTF-interactions with video-mediated interaction. They showed that there is more gaze contact in video-mediated interactions, probable because interlocutors are less confident about the achievement of mutual understanding. To keep track of each other, the interlocutors (need to) look at their screens continuously. Due to this increased mutual focus, webcam consultations may be even more conducive to convergence processes than FTF consultations.

Evaluation of the communication package

We have now set the stage for the actual evaluation of the multichannel communication package. We will ask the following questions for each goal:

(1) What, if any, MCP components address this goal? (see Table V)

(2) Is the number of MCP components for this goal optimal (nor too many nor too few)?

(3) Do the components offer the required information?

Table IV.
Complex components' capabilities drawing on media synchronicity theory

	Convergence support		Both	Conveyance support		Overall support judgment	
	Transmission velocity	Symbol sets	Parallelism	Rehearsability	Reprocessability	Fit for convergence	Fit for conveyance
Printed delivery format							
All paper components	−	−	−	+	+	−	++
Digital delivery format							
7 E-mail	+	0	0	+	+	0/+	+
8 Social media**	+	0	+	+	+	0/+	+/++
9 House viewer – App	+	−	0	+	+	0	+
10 Web pages	+	−	na	+	+	−	+
11 Mortgage calculator	+	−	na	+	+	−	+
12 Starters to starters-tool	+	−	na	+	+	−	+
Oral delivery format							
13 Webcam orientation consultation*	+	++	0	−	−	++	−
14 Face-to-face orientation consultation	+	++	0	−	−	+	−
15 Webcam advice consultation*	+	++	0	−	−	++	−
16 Face-to-face advice consultation	+	++	0	−	−	+	−
17 Webcam mortgage quote consultation	+	++	0	−	−	++	−
18 FTF mortgage quote consultation	+	++	0	−	−	+	−
19 Telephone consultation	+	0	0	−	−	0	−

Notes: *Systems are working properly all the time; **taken in the way currently used in the MCP; –, Low; 0, medium; +, high; na, not available

Components	Goals (see Figure 1 and text below) Stage 1 Requirements A	B	C	D	E	Options F	G	H	I	J	2	3
Printed delivery format												
1 Brochure: Your first house at sale*	A	B	C			F	G	H	I	J		
2 Brochure: Choose the best loan for your house		B	C			F	G	H	I	J		
3 Mortgage orientation report*								H				
4 Mortgage advice report*				D	E			H	I			
5 Mortgage quote*								H		J	2	
6 Mortgage terms and agreements*					E					J	2	
*Brochure: From acquaintance to mortgage agreement**												
*Brochure: From mortgage offer to property purchase**												
Mortgage advice service document												
*Mandatory risk announcement ("Financiële Bijsluiter" – obliged by The Netherlands Authority for the Financial Markets – (AFM)**												
Digital delivery format												
7 E-mail (mainly used as helpdesk service)					E							
8 Social Media (Facebook, Twitter)										J		
9 House viewer – App	A											
10 Online web pages on mortgages						F	G					
11 Mortgage calculator								H				
12 Starters to starters-tool (an online platform where first time buyers can meet)	A											
Oral delivery format (channel choice restricted and limited amount on offer)												
13 Webcam orientation consultation (content similar to 18)	A	B	C			F	G	H				
14 FTF orientation consultation (content similar to 17)	A	B	C			F	G	H				
15 Webcam advice consultation (content similar to 20)		B	C	D				H	I		2	
16 FTF advice consultation (content similar to 19)		B	C	D				H	I		2	
17 Webcam mortgage quote consultation (content similar to 22)								H			2	
18 FTF mortgage quote consultation (content similar to 21)								H			2	3
19 Telephone consultations (mainly used as helpdesk service)											2	3

Note: *Also delivered as PDF online

Table V.
MCP components and associated goals

(4) Are the components presented at the right moment?

(5) Are the components' channels optimal for supporting the task at hand, taking into account the processes involved?

Then we combine these elements into an overall assessment on the MCP design's effectiveness.

The decision wheel's orientation stage comprised two perspectives on mortgages: from a customer's perspective it discusses mortgage requirements (1A-1E) and from

the Bank's perspective it discusses mortgage options (1F-1J). The communicative goals from both perspectives are equally important for the mortgage purchase decision, but they do not receive the same amount of attention in the MCP. Some goals from the customer's perspective are addressed extensively. The "fun" part of buying a house (1A) is exploited in the orientation stage; this goal is addressed in many components: brochures (1, 2), the house viewer App (9), the starters-to-starters-tool (12). All these components adequately support the FTB's reflection on housing preferences (see conveyance process 1.1 in Table III). However, this is not a particularly pressing concern. One of the main reasons people seek mortgage information is because they set sight on a house, so they have already considered their housing preferences. Secondly, the maximum mortgage loan amount (1H) is overwhelmingly addressed by oral components (13, 14), paper components (1, 2, 3) and digital components (10, 11). Unfortunately, this is not very useful since these "early" components offer incomplete or unreliable information; incomplete because they only refer to personal preferences vs possibilities in just one sentence (1, 2), and unreliable because they do not take into account all necessary client information. The only components offering correct information on the maximum mortgage loan amount are the components (4, 15, 16) that are offered in stage 2: the personal mortgage evaluation stage.

Furthermore, a number of orientation goals are not sufficiently addressed in the current MCP. The FTB does not receive sufficient information on personal financial risks, (1D) nor on insurances that cover possible risks (1I); neither do we find adequate discussion on how much flexibility the FTB wants in a mortgage (1E) and on mortgage conditions (1J). All these issues should be covered before the FTB can safely proceed to the next purchase decision stage.

Some of the components offered for stage 1 goals may be less than optimally effective. For instance, orientation consultations are indispensable to create shared understanding on FTB's mortgage requirements (convergence 1.2 in Table III). Unfortunately, they are not as successful as they could be, because they are overloaded with information on mortgage options (1F, 1G, 1H) too.

Two paper components offered in the mortgage orientation (1, 2) address the same topics concerning mortgage forms and interest rate forms (1F, 1G). This is unnecessary since one of those components could do the job all by itself. The components are identical except for a paragraph in component 1 on housing preferences (1A).

The primary conclusion from this evaluation of the orientation stage is that the FTB needs more support in building a mental model on mortgages (conveyance 1.1) especially regarding mortgage risks (1D-1I) and mortgage conditions (1E-1J). It is better not to assign these goals to the orientation consultation; such a FTF encounter is not suitable for extended conveyance processes (1.1), and should focus on creating a shared understanding on FTB's mortgage requirements (1.2).

Regarding the goal of stage 2, the personal mortgage evaluation, three components are offered (5, 6, 15/16). But only two components of them offer actual support: the advice consultation (15/16) and its follow-up advice report (6). The mortgage quote (5) lacks functionality as it only shows the choices already made and does not offer decision support.

Like the orientation consultation, the advice consultation seems overburdened. This reduces the resources for support during the second stage of the mortgage decision-making process. The advice consultation offers the only opportunity before the purchase decision to repair possible mortgage knowledge gaps or misunderstandings. And it is often needed to cover issues that have been inadequately addressed in earlier components, such as information on possible mortgages risks (1D-1I) and mortgage

conditions (1E-1J). Instead of repairing these gaps, the personal mortgage consultation should focus on filling gaps in mental models (conveyance 2.1) as well as creating shared understanding (convergence 2.2). For these tasks, the consultation seems quite suitable, also because it allows sharing written and digital documents.

The third stage of the wheel is currently supported by the mortgage quote consultation (17, 18). In this consultation, the content of the mortgage quote (6) is discussed, and clients have a final opportunity to ensure correct understanding of the mortgage construction or the mortgage terms and agreements (5). Unfortunately, this is also the only occasion in which mortgage terms and agreements are actually addressed. This may be too late, since they contain terms that should have become clear already in the mortgage orientation stage (1E, 1J).

Finally, a few MCP components may offer support in various stages of the decision wheel. Examples of these components are e-mail (7), social media (8) and telephone (19). They can be used for all kinds of questions an FTB could possibly have at every stage of the mortgage purchase decision-making process. The appropriateness of these channels depends on the tasks for which FTB's actually use them. Unscheduled telephone conversations may be fit to achieve convergence on smaller issues (e.g. minor misunderstandings, procedural requests). For sharing financial information, social media and e-mail seem the better choice, with the proviso that for conveying larger bits of information, only e-mail seems suitable.

Conclusions

This paper offers a method for the evaluation of multichannel communication packages that support customers in making complex decisions on financial products. The case study illustrating our approach uses a multichannel mortgage communication package offered by a large Dutch bank. We demonstrated how FA can be used as a tool to outline the main communicative purpose of these extensive packages (supporting mortgage customers to choose the most suitable option at hand) and the communicative goals involved. Furthermore, we showed how MST may help analyzing the match between communicative tasks and media capabilities for our package.

We evaluated the degree of support for each goal by asking five questions: What, if any, components address this goal? Is the number of components for this goal optimal? Do the components offer the required information? Are the components presented at the right moment? Does the component's channel optimally support the task at hand, taking into account the processes involved?

When applied to our case, this analytical procedure yields a number of interesting conclusions. For instance, the mortgage communication package mainly focuses on goals from the first stage of the decision-making process. Within the goals related to this stage, the bank pays more attention to mortgage possibilities than to first time buyers' requirements. An example of a goal-specific finding is that information on safeguards is underrepresented in the package. Regarding timing, we found that information on mortgage conditions is delivered quite late in the decision-making process, as they are only provided with the mortgage quote. Regarding the adequacy of media choices, an example finding is that the mortgage advice consultation is used for a number of quite different communicative tasks at the same time. It addresses new information on safeguards (although its media capabilities are not optimally fit for that goal), it repairs incorrect ideas of customers and is used to match mortgage requirements with mortgage options. Hence this package component seems to risk being overloaded, which may result in cognitive overload for the customer during the consultation.

More generally, our study contributes to the field both theoretically and on an applied level. Theoretically, it complements the micro-economical perspective on mortgage decision-making research by showing how communication process characteristics determine whether effective mortgage decision-making will be possible at all; after all, decision-making presupposes that consumers actually process certain information, reflect on it and if needed discuss it with financial experts.

On a more applied note, our study elaborates on the important responsibilities of mortgage providers in facilitating the mortgage decision-making process, which should be taken up by offering an effective communication package. Our method offers a practicable analytic approach to the evaluation such a package. By combining text analysis, FA and media theory, it presents a plausible account of its effectiveness. To be sure, it does not provide empirical findings, but we need to realize testing all package design decisions is impossible. Hence a desk research method that identifies potential problems is a useful addition to the toolkit of communication designers and consultants. Some of these problems may be a topic for subsequent empirical studies on design alternatives.

Limitations and future research

Choosing a suitable mortgage is a task of daunting complexity. As work in Behavioral Decision Theory has documented, decision makers tend to reduce the complexity of decisions in various ways, such as decomposition (breaking up the decision in presumably independent parts), editing (ignoring relevant aspects of the decision) and biases that simplify information processing (Redlawski and Lau, 2013). In the mortgage domain, the consumer preference for the FTF channel (cited earlier) may be partly induced by the desire to reduce the amount of information and the number of information sources to be reckoned with. While acknowledging the importance of managing decision complexity, our approach seeks to support package designs in which various channels supplement each other, thus increasing the chance that relevant information is processed at a moment at which it can still be reflected on, and does not need to be taken at face value.

To be fair, we need to note that the research into effective multichannel communication packages for consumers is in its infancy. Given the complexity of certain products and services, we feel that consumer communication research may profit from an educational point of view: sometimes, consumers not just need to be informed, but need to be educated. And multichannel communication packages are quite common in the learning field. For instance, Kerres and De Witt (2003) developed an influential framework for the design of blended learning arrangements, paying special attention to channel choice. Such frameworks may help our thinking about designing consumer information environments that make it easier to support complex decisions.

Note

1. In the Dutch situation from 2013 on this is less likely to happen as it once was, as mortgage clients now pay for mortgage advice.

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