Needs and Gratifications for Interactive TV Applications: Implications for Designers

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Abstract

This paper uses the well-established 'uses and gratifications' theory in order to understand and categorize viewers' needs in the context of digital TV applications. The results of this analysis unveil that such needs can either be ritualized or instrumental. Furthermore, the uses and gratifications theory was applied in order to formulate a questionnaire to which 68 current users of digital TV responded. The results of this empirical study reveal that applications most suitable for the interactive television environment should aim at the gratification of ritualized needs, such as entertainment and communication. Therefore, applications that appeal to instrumental needs, such as information and transactions should be included as add-ons to entertainment and communication services. Finally, the implications of this analysis for the design of interactive television applications are exploited.

Keywords: interactive TV applications, uses and gratifications theory, media content.

1. Introduction

Interactive TV is one of the new technologies emerging in the media industry. The impact of interactive TV on the way people watch television will be great, not only because it will enhance the audiovisual experience of the viewer, but more importantly because it will introduce interactivity. This interactivity will allow viewers to play game shows, get information from the Internet as they watch a show, or buy a vast array of products and services online.

This new technology has been studied from a business viewpoint [1] as well as technical one [2]. In this paper interactive TV is examined from a media consumption point of view. Scholars content that interactive TV is a converged product between traditional TVs and PCs [3]. While the term convergence has been used in many different ways with respect to consumer behavior it signifies "*…that consumers are expected to quickly adopt the convergence product and that the now predominant 'passive' television behavior will be replaced by 'active' behavior patterns*" [3].

Therefore interactive TV applications need to be designed so as to make the transition from older to newer viewing behavior smoother for the TV audience. In order to understand the criteria on which to base the design of these applications we need to examine how consumers use television. This aids in determining whether the applications produced for interactive television adhere to existing needs and use patterns of the TV audience.

This paper is organized as follows. In section 2 the uses and gratifications theory is examined, especially in relation to the needs that are dominant in the current TV viewing experience. Following that, in section 3 the results of a survey carried out using 68 audience/users of a Greek DTV platform are reported. Section 4 investigates the implications that dominant needs and uses have for the design of interactive applications. Finally, we present implications of this analysis for designers. Design patterns are proposed so that interactive TV applications can be compliant with the prevailing needs of TV viewers.

2. Uses And Gratifications Perspective

The uses and gratifications theory is concerned with the way people use media in general, and television in particular. The objectives of uses and gratifications theory are (a) to explain how people use media to gratify their

needs, (b) to understand motives for media behavior, and (c) to identify the functions or consequences that stem from needs, motives and behavior [4]. One of the main assumptions of the uses and gratifications perspective is that media selection and use is purposive and motivated and that people take the initiative in selecting and using communication vehicles to satisfy felt needs and desires [5]. Overall, the fact that consumers use media and specifically television purposefully in order to satisfy certain needs has long been supported by the uses and gratifications theory.

The key concept of the uses and gratifications perspective is that the choices people make when consuming media are motivated by their desire to gratify a range of needs. This approach involves certain assumptions: (i) the audience is active; (ii) the audience makes motivated choices, based on previous experience with the media and (iii) media use is only one way amongst other to satisfy needs, which are experienced in everyday life. The needs the audience seeks to gratify while using media and in particular television, are: surveillance, personal identity, personal relationships and finally diversion [6].

Surveillance suggests that the viewers inform themselves about something by using media. Surveillance for the viewers could be further defined as: finding out about events around them and the world in general so as to be aware of their surrounding environment, seeking advice for decision making as well out of curiosity or general interest, and finally learning in order to educate themselves, or to feel secure by acquiring knowledge.

Personal identity refers to the "reinforcement of personal values", i.e. justification of behaviour. The viewers may watch a program in order to compare themselves with the characters or real people shown on television, using them as positive or negative role models.

Integration and social interaction means that audiences are watching the lifestyle and state of affairs of other people in order to "gain a sense of belonging". This 'sense of belonging' can be broken into two categories: Firstly, viewers are able to place themselves in a specific social and economical context, either by comparison with different groups or by identification with their own. Secondly, viewers are able to discuss with other viewers what they watched on television, and thus be able place themselves in a community of viewers and to interact socially with others.

Finally, diversion refers to using media either as a form of escapism from real life situations or as a means to cultural gratification and entertainment. On one hand this means that viewers are bored or anxious and need a distraction to passively take their mind of things and relax, or "ritualized release" to actively divert themselves. On the other hand, by entertainment, viewers seek to satisfy their need for cultural or aesthetic enjoyment.

Research indicates that traditional TV use can be explained through the uses and gratifications perspective.

Towards this direction, several studies have been carried out examining motives that the audience/user seeks to gratify while using television: entertainment, surveillance, escape, companionship, problem solving and personal identity [7]; understanding, learning, companionship and diversion have been identified as being the main factors that motivate viewers to use Satellite TV [8]. Based on the above evidence it can be inferred that in relation to interactive TV applications, people will actively opt for and use the applications that best fulfill the needs that TV catered for thus far.

This approach has mainly contributed towards a better description: (i) of audience behavior; and (ii) of different kinds of content in terms of audience appeal. Notwithstanding a number of limitations of this approach have also been reported. First, it overemphasizes the "activity" of the audience, principally in the face of evidence showing that media and especially traditional media are viewed with little selectivity and consist mostly of habitual and unthinking activities. Secondly, it has been argued that this approach is rather insensitive to media content itself, largely ignoring the textual and cultural specifics of media content [9].

Nonetheless, uses and gratification perspective becomes more valid as technology moves into an electronic information age. Advantages in media technology have allowed the audience to be more in control of the media, and since this approach is based on the concept of an active audience, it is especially appropriate for studying new communication technologies. The current Digital TV environment provides interactivity and therefore gives the audience the chance to be even more active and selective than before.

2.1 Categorizing media needs

In order to better understand the implications of interactivity in the uses and gratification paradigm, we have decided to further categorize these needs in two basic categories: ritualized and instrumental. Scholars assert that media use can be ritualized (diversionary) or instrumental (utilitarian) in nature [10; 11]. Ritualized media use is using a medium more habitually to consume time and for diversion. Ritualized use suggests utility but in an otherwise less active or less goal-oriented state. Instrumental media use is seeking certain content and perceiving that content to be realistic. It suggests utility, intention, selection and involvement [12].

Ritualized use refers to needs that are mostly focused on companionship, entertainment, personal identity and escape. These needs generally refer to the gratification of abstract needs such a curiosity, adventure, advice seeking and community feelings [13]. Conversely, instrumental use is mostly focused on information needs and generally refers to

the gratification of goal-oriented needs, such as achieving an economic advantage or gaining a useful piece of business information

Scholars content that audience uses active mode for instrumental needs and passive mode for ritualized needs [14] and that, cognitive or instrumental needs lead the audience seeking informational content and cognitive involvement [15; 16; 11; 17 and 18]. Researchers have observed links between cognitive or instrumental information-seeking motivation and information gain al information-seeking motivation and information gain during a political campaign [19], about political candidates [20] and about candidates' stand on issues

Media Needs	Uses and Gratifications
Ritualized	Entertainment, Companionship, Escape
Instrumental	Information, News

Table 1: Categorization of media needs

Taking into account the fact that interactive applications on Digital TV will provide the ability for information seeking and transactions we can infer that they will mostly focus on instrumental needs. Therefore, we should examine whether these instrumental needs are indeed strong motivators among the current TV audience. To this end, a survey was conducted aiming at determining whether Digital TV is mainly used for gratifying ritualized or instrumental needs.

3. An Empirical Study

A study was carried out for the purpose of understanding and exploring peoples' needs related to the use of interactive TV. The research question that needed to be examined was which of the two main categories of needs is predominant in current television viewing: ritualized or instrumental.

The instrument used for data collection was a questionnaire that was based on the uses and gratifications scales of measurement: Entertainment/Companionship [7; 8; and 21], Escape [7; 8 and 6], News [7; 21 and 22] and Information [6 and 11]. Furthermore, one more construct was added: Utilities. It was judged that Utilities was an extra gratification sought by current DTV users since it relates to applications currently offered through DTV. Thus, we felt that it was important to distinguish this gratification from Information. A total of 24 gratifications items were used. Respondents were asked to rate their preference on a 5-point Likert type scale: 1 means "strongly disagree" and 5 means "strongly agree".

Finally, it should be noted here that the Greek broadcasting market is dominated by two digital platforms: NOVA and Alpha Digital. NOVA, the first digital platform in Greece, started providing digital satellite services at the end of 1999, while Alpha Digital started in October of 2001. Audience/users of NOVA platform completed the questionnaire since NOVA started providing its services almost two years earlier than ALPHA hence making it almost two years earlier than ALPHA hence making it easier to allocate people.

3.1 Subjects and Demographic Descriptive Statistics

A sample of 68 respondents, current users of digital television, filled in a series of 24 questions pertaining to specific gratifications sought while using a DTV platform. Potential subjects were selected from the university: students as well as academic and secretarial staff.

Furthermore, variables related to demographic characteristics were used: gender, age, education level, members of household, marital status, number of children living at home and are under 18 years old, profession and area of residence. Additionally two variables related to DTV viewing were used: number of hours per weekdays and per weekend. The aim of this research was to test whether the audience/users seek to gratify ritualized needs or instrumental needs while using applications currently offered through digital TV.

Detailed information regarding the demographic characteristics of the sample is depicted the table found in Appendix I of this paper. The sample consisted of 68 individuals. The majority of the respondents were male. Forty-seven percent respondents were between the age of 21-34. Finally, the respondents were classified according to the highest level of formal education achieved.

3.2 Data Analysis and Results

A factors analysis using principal components analysis with Varimax rotation and eigen value greater than 1, was carried out. The results confirmed the existence of the following five separate factors: (1) Entertainment/Companionship (2) Utilities of DTV (3) Information (4) Escape and (5) News. These five factors account for 58% of the variance. The results of the factor analysis are depicted in the table found in the Appendix II of this paper.

To check the predictive power of the five motives a hierarchical regression analysis was conducted. Two separate blocks were employed and they were introduced in two stages. In the first stage, the

Entertainment/Companionship and Escape motives (Ritualized needs) were used, while in the second the Utilities of DTV, information and Escape motives were entered (Instrumental needs).

The results of Multivariate Regression Analysis indicate that 5 motives explained 17% of variance towards digital TV use. More specifically, data indicates that respondents who use digital TV seek entertainment/ companionship and escape (Ritualized needs) gratifications and are more likely to use Digital Television for a longer period of time ($p<0.02$, $R^2 = 0.121$) than those who seek Utilities, Information and News (Instrumental needs) gratifications ($p<0.03$ $R^2 = 0.059$).

Predictor Variables	Block 1	Block 2
Escape	,142	
Entertainment	,265*	
Escape		,173
Entertainment		,252
Utilities		-,132
Information		,030
News		,188
R^2	0.121	0.18

*: Significance (2-tailed) $p<0.05$

Table 2: Regression Analysis

Taking into consideration these results it can be derived that entertainment and escape are the factors that can predict the use of digital TV.

This research provides support that most subscribers of digital TV currently use it mainly to satisfy ritualized needs. Entertainment continues to play a strong role in the way subscribers use digital TV. Thus, it can be concluded that useful interactive services that entail entertainement functions seem to appeal most to DTV subscribers.

Taking into consideration the fact that the television viewer has so far being used to gratify basically ritualized needs as supported by bibliography [23; 24; 25 and 26] and by the results of this survey, we must examine what are the implications of this assertion for the interactive applications of Digital TV. In the next section we are going to explore how the predominance of ritualistic needs could affect the design of interactive applications.

4. Implications For The Design Of Interactive Applications

Successful domestic technologies interleave seamlessly with the social organization of home life in allowing users to establish their own sets of usage practices. Such technologies support a wide range of uses in a range of household situations [27]. As it has been noted, "…*there is a dynamic relationship between the social space -the users, the activities- and the technological space -the configuration of the technologies- leading to transformation of needs"* [28]. However, such a transformation may take years [28]. As with any new technology that has to be incorporated into peoples working and living environment, interactive applications' ease-of-use will depend on how they cater for existing needs.

Since the dominant needs covered by TV usage so far are as asserted by the survey results - ritualized needs for entertainment, companionship and escape - we argue that the main focus of interactive TV applications should be entertainment. In the long run, people's usage of TV might shift and become more instrumental and focus on instrumental needs such as information, but ritualized needs remain the driving force behind TV usage so far.

What is the implication of this observation for the design of interactive TV applications? In terms of interactive TV applications, we can identify four basic categories of content: Entertainment, Information, Transactions and Communications [23; 26; and 13]. These categories have been selected for examination due to the fact that they are the most highly referenced and also they reflect basic groupings of media content. More specifically [13]: Entertainment refers to traditional filmed or live content such as films, television series/movies or variety shows. Information refers to media content that concerns news of any kind; it can include economical, political and sports news, or weather and stock market updates. Transactions refer to content that aims towards the purchase/ordering of goods; an example of this are tele-shopping shows. In the existing digital television environment audience/user is not able to carry out financial transactions per se. Communication refers to content that involves or requires the exchange of messages; examples of this in current TV are shows where the viewer can communicate with the audience of a show, usually though the telephone.

If we were to assign needs to these content categories, we could say that informational and transactional applications refer to instrumental needs, and entertainment and communication applications satisfy ritualized needs. This is because communication and entertainment content aims at the gratification of ritualized abstract needs such as relaxation, diversion and enjoyment. Conversely, instrumental needs are mostly focused on information and transactions because generally aim at the gratification of utilitarian and goal-oriented needs, such as achieving an economic advantage or gaining a useful piece of business information.

Therefore, according to our study, informational and transactional interactive services satisfy instrumental needs, which are not dominant in current TV viewing. This does not mean that all informational and transactional applications are doomed, but rather that they should be designed so as to offer entertainment and/or communication elements as well. Applications that include entertainment and communication attributes and can cover ritualized needs

and therefore will be adopted easier by the mass audience. This is partly in agreement with the results of an ITV trials for AT&T, where four content attributes where identified: information, gaming (a subset of entertainment), transactions and communication. Consistently throughout the trial, usage increased when additional attributes were added to a content category, e.g. when a shopping game was added to the shopping section, usage and satisfaction increased [29]. As it has been noted [30], "*it would be more appropriate to boost the 'killer attributes' of each content category rather than to search for "killer applications"*".

The literature review, in section 2, and the empirical evidence, in section 3, revealed that the most important gratifications for interactive applications are entertainment and communication, and therefore these are the "killer attributes" for every application, the following schematic design pattern for interactive TV applications is suggested (see Figure 1).
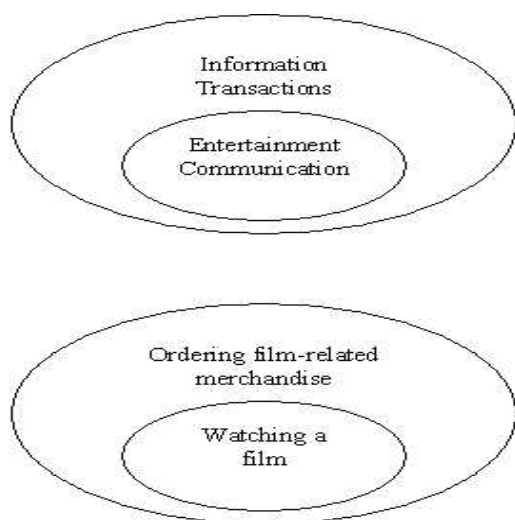

Figure 1: Pattern and Example: Watching a film (entertainment) linked to ordering merchandise application (transactions)

This suggestion illustrates the fact that transactional and informational interactive applications should conform to the dominant ritualistic use of television. Therefore, the core of an application should be entertainment and communication and include informational and transactional elements as add-ons. As we can see in Figure 1, while watching film (entertainment content) the users/audience could have the option of ordering film-relate merchandise (transactions content). In the second one, transactional and informational elements could exist as attributes of entertainment and communications applications. The interactive TV user should be somehow enticed though the benefit of entertainment and communication in order to conduct transactions or to actively seek information on TV.

Information for the sake of information and transactions for the sake of transactions are not likely to be perceived as interesting services for the audience/users of interactive TV applications. This does not apply to entertainment and communications applications, which could stand alone in an interactive TV environment since they adhere to existing desires and needs for using TV.

5. Limitations

Certain limitations of the study need to be mentioned at this time. First, although the results of the factor analysis seem promising on the surface, the reader is advised to keep a very critical eye open when considering the implications of these results. The obtained sample size was only 68, below the desired sample size of 5 subjects per item [32 and 33].

Secondly, it can be argued that in the present situation, digital television channels do not cater for transactions, and therefore the instrumental need for transactions was not clearly measured in the survey. However, it is possible in the present situation to select a specific product and receive a code number. This number implies that this product is being reserved and the user can purchase it at a later moment. The actual transaction takes place at the physical shop. Thus, it can be concluded that in the present digital television environment the need for transactions can be gratified in an indirect manner.

6. Conclusions And Further Research

This paper argues that media consumption is defined by the needs and desires of the audience/users. As far as digital TV is concerned, ritualized needs are predominant. It is further argued that interactive TV applications that conform to ritualized needs will be the ones that audience/user will seek gratifications for. Therefore, the majority of television viewers may adopt interactive TV applications that satisfy ritualized needs easier.

Since ritualized needs, are as argued in this paper, gratified by entertainment and communication type of content, we may conclude the following: in order for purely information and transactional interactive applications to be easily integrated to the current television experience they should be designed as add-ons to entertainment and communications applications. Therefore, transactions and information-based applications should be complementary to entertainment and communication applications. This may solve the problem of "incompatibility" that transactional and information applications have with the intrinsic ritualized motivations for using TV. Overall, such mainly functional and "utilitarian" applications could not stand alone in a TV environment.

Moreover, there are some other factors besides the needs of the audience that influence the adoption of digital TV applications. These factors must be examined in order to provide the broadcasting industry with some useful results, but they are out of the scope of this paper. One important design issue is interactivity. It is argued [34 and 35] that interactivity itself is foreign to the pattern of use of television. It should be further investigated whether the active use of television is an oxymoron that will pose extra obstacles to the adoption and success of interactive services.

Also, media research advocates that TV caters for both ritualized and instrumental needs; nonetheless, results of the current survey content that TV is basically utilized for ritualized needs. However, it should be noted here that several users might use TV in an instrumental, goal-directed manner [36 and 37]. These users will probably be the early adopters of transactional and informational applications and their behavior relation to DTV needs to be further studied and analyzed.

Other factors that may influence the adoption of interactive applications refer mainly to economical and technical constraints. When releasing an application to the general public there are always technical and financial factors to consider, especially if this application is based on new technology. An application can be very popular among the consumers, but if the cost for its implementation on a large scale is such that it renders it unprofitable, then its implementation will be delayed until such obstacles are over passed. Video on Demand for instance is such an application; it could potentially be a killer application, since it has performed great on many interactive TV trials. But the costs of implementing this service are so high and the technical problems are so great, that it will probably not be implemented at all in the near future, despite its suitability in the current TV environment and its user-friendliness.

Acknowledgements

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APPENDIX I: DESCRIPTIVE STATISTICS OF RESPONDENTS DEMOGRAPHIC INFORMATION

Measure	Items	Percent	Frequency
Gender	Male	58,8	40
	Female	41,2	28
Education	Secondary School	10,3	7
	High School	42,6	29
	Graduate Student	35,3	24
	Postgraduate Student	8,8	6
	PhD Student	2,9	2
Age	<18	4,4	3
	18-20	11,8	8
	21-24	22,1	15
	25-34	25,0	17
	35-44	11,8	8
	45-54	17,6	12
	55+	7,4	5
Members of household	1	7,4	5
	2	10,3	7
	3	22,1	15
	4	55,9	38
	5+	4,4	3
Marital status			
	Single	48,5	33
	Married	47,1	32
	Divorced	4,4	3
Number of children living at home <18			
	None	61,8	42
	1	23,5	16
	2	14,7	10

APPENDIX II: FACTOR ANALYSIS – ROTATED COMPONENT MATRIX

Factor Structure of Needs and Gratifications*					
I use DTV because…	1	2	3	4	5
Entertainment / Companionship					
It entertains me	,812				
It amuses me	,832				
It is a good relaxation	,633				
It relaxes me when I am in a bad mood	,587				
I pass my time very well	,647				
Provide a variety of entertainment programmes	,639				
It is a good companion	,577				
Utilities of DTV					
It gratifies me because I can browse programmes through specific criteria		,745			
It gratifies me because I can choose the angle of the camera		,667			
It gratifies me because it gives me info for a product		,551			
It gratifies me because I can see the results of lucky games		,706			
EPG helps me to take info for a programme		,724			
It gratifies me because I can get connected with a music station		,673			
Information					
Provide info for store market			,731		
Provide useful telephone numbers			,760		
Provide info for theatres and cinemas			,774		
Escape					
I feel less lonely			,738		
It helps me to escape for everyday life			,616		
It gratifies me because I can play games			,381		
It helps me kill time			,666		
It helps me forget my personal problems			,637		
News					
I use DTV because it informs me for things that happen in everyday life in Greece					,820
I can learn what is going on in the world					,773
Provide information 24 hours					,526