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Health Education in television entertainment- *Medisch Centrum West*: A Dutch drama serial

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Abstract

Worldwide a number of groups have sought ways to incorporate health messages into television entertainment like popular drama- and soap serials. In the Netherlands, the Heart Foundation (NHF) incorporated its cardiovascular health message in several episodes of a popular Dutch hospital serial called *Medisch Centrum West* (MCW). To obtain greater insight into the impact of this so-called 'entertainment-education (E&E) strategy', an evaluation study was carried out. *Medisch Centrum West* was both entertaining and informative at the same time. Although viewers were well aware that the programme included a health message, they did not find it intrusive to their enjoyment of the storyline. It was interesting to learn that fans were more tolerant and positive towards the E&E strategy than non-fans. Age sex and education level explained only 5% of the variance.

INTRODUCTION

There is a need to develop a wider variety of effective and efficient strategies to bridge the gap between cognitive and affective approaches in health education. From their early days, national health organizations have focused on giving serious factual information, mostly appealing to reason and cognitive processing, and assuming that the recipient is actively seeking

information (Bouman, 1989). They relied heavily upon 'transfer of knowledge' as the basic trigger for behavioural change. This emphasis on reasoning, however, proved to be not always effective. In particular, in the case of 'preventive' health it takes more effort to get people involved in the health issue. As long as there is no urgent health problem to be solved, there is often no cue to action for people to seek information or to reflect on their own health attitude and behaviour. More affective and heuristic principles appealing to emotions and human interest need to be integrated in the health communication strategy.
Some people like demanding cognitive undertakings, whereas others are activated by peripheral cues, i.e. by extrinsic features of the communication situation (Chaiken, 1980; Petty and Cacioppo, 1986) Health educators now have to use more sophisticated 'social marketing' principles to raise and hold the attention of their target groups than they have in the past. Social marketing has evolved from business marketing practices, but distinguished by its emphasis on so-called non-tangible products: ideas, attitudes and lifestyle changes (Lefebvre and Flora, 1988). One of the essential aspects of social marketing is a consumer orientation ('what do they want') instead of an expertdriven orientation ('we know what they need') to realize organizational goals. It underscores the necessity for health agencies to be aware of and responsive to consumer needs.

From the marketing perspective, popular television programmes can be an interesting persuasive mass medium (Montgomery, 1989)**.** In the Netherlands people of all socioeconomic levels spend more hours watching television than reading books, magazines or newspapers (Vierkant, 1987; Knulst and Kalmijn, 1988; Knulst and Kraaykamp, 1996.) Reading habits in the age of television have changed. According to the Central Bureau for Statistics (CBS) in the Netherlands, television viewing increased, particularly between 1980 and 1985, while the average reading time was found to have fallen every 5 years from 1975 tot 1990. The average viewing time in 1990 was 11 h/week, compared to a total reading time (newspapers, magazines and books) of 5 h/week (Knulst and Kraaykamp, 1996, p. 269) We consider that this general trend is also found in other western countries. For many people television has become an intergral part of daily life, not only in the Netherlands but world-wide, and is used to gratify different needs, varying from the need for information, to (para) social interaction, structuring daily life and entertainment **(Rosengren et al, 1985)**

More and more we see the development of television programmes in which health education and entertainment are combined. This so called entertainment –education (E&E) strategy is defined as 'the process of putting educational content in entertainment messages in order to increase knowledge about an issue, create favourable attitudes, and change overt behaviour concerning the educational issue or topic" **(Singhal, 1990)**[1]

The essence of the E&E strategy is to use mass media characters as models of behaviour for influencing people towards social change. Television programmes such as comedies, drama

1 In a personal conversation with Singhal, the first author discussed the rather static and linear nature of this definition. The E&E strategy is a matter of negotiated agreement, a careful balancing between message and form, and dealing with different stakeholders and collaboration partners. A more interactive formulation was suggested. Singhal redefined the E&E strategy as follows: "Entertainment-education is the process of purposively designing and implementing a media message to both entertain and educate in order to increase audience members' knowldege about an education issue, create favourable attitudes and change overt behaviour" (Singhal and Rogers, 1998)

and soap serials, quizzes and game shows reach large sections of the public, and can be a promising vehicle for the promotion of a healty lifestyle **(Atkin and Wallack, 1990).** According to Montgomery: 'As a popular art form, it has a unique ability to engage viewers in ways that news and public affairs programs to not. For young people, it serves as an "electronic classroom", in which lessons are taught each week through the action of its characters **(Montgomery, 1990, p.115).** In the USA, and also in several western countries a number of groups have sought ways to incorporate health promotion messages into the plots of prime-time television entertainment.

In the Netherlands, people belonging to lower socio economic groups die, on average, five to seven years earlier than those of higher socio economic groups. The former have also been reported as having higher mortality and morbidity from cardiovascular diseases (Mackenbach, 1994; Nederlandse Hartstichting, 1994). For this reason, in its health policy document the Netherlands Heart Foundation (NHF) states that it will pay more attention to targeting lower socio-economic people. In order to reach these groups, entertainment television as a popular medium was selected to convey the message. Poorly educated people spend a greater proportion of their viewing time watching light entertainment programmes (games shows, music shows etc) and drama (films, series, soaps) compared with those holding secondary and higher qualifications, (Knulst & Kraaykamp, 1996:268/267; see also Hobson, 1982, Bucking-ham, 1987, ResCon, 1992). Based on these epidemiological signals the NHF decided to utilise the above mentioned social marketing principles through participating in a popular hospital drama serial called Medisch Centrum West (MCW) (see also Bouman, 1993;1994;1996).

MEDISCH CENTRUM WEST (MCW).

Medisch Centrum West was a hospital serial broadcast by TROS[2] once a week on prime time (8.30 PM) during the years 1988-1994. The serial was based on realistic medical themes and was organized around romances and intrigues between doctors and nurses. An emphasis was placed on patients afflicted with diseases requiring hospital treatments. In this way, audiences become 'medical voyeurs' which makes these serials very appealing and attractive to a large number of people (Karpf, 1988; Turow, 1989). More than 2,5 million viewers on average watched the serial weekly.

The Netherlands Heart Foundation made a transaction (so-called inscript sponsoring[3]) with the TROS broadcasting organization, based on a negotiated agreement to write several cardiovascular health themes into the script and to show posters and leaflets during the serial. The NHF briefed the scriptwriters team and checked the content of the cardiovascular health message for its medical and educational value. The hospital setting of the serial lent itself well to the realities of dealing with heart patients and their families. Each cardiovascular health theme was captured in a storyline of approximately 12 minutes, divided into 10 fragments of 70 seconds.

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2 TROS is one of the broadcasting companies of the Netherlands and is well known for its high level of entertainment programmes.

3 Inscript sponsoring refers to a financial transaction between an organization and a broadcasting or production company in order to incorporate items into an already existing tv-programme. This is to be distinguish from inscript lobbying (where no financial transaction is involved) or from a co-production (a mutual investment in a new tv programme).

During the television season of 1992-1993 three episodes dealt with cardiovascular issues. In the first episode 'nutrition and cardiovascular diseases', the audience was informed about a healthy and low fat diet and the important role of the dietician. This episode also showed that a single cholesterol measurement is not accurate enough to get a reliable indication of the actual blood cholesterol level. Instead, two or three measurements with regular intervals in between need to be taken in order to gain a more precise measurement. In the second episode 'women and cardiovascular diseases', the message was focused on the fact that, after meno-pause, women are as vulnerable to heart diseases as men. In the third episode, on 'organ - donation', viewers received information about heart transplants and the procedures for filling in a donor codicil.
These three cardiovascular health themes were selected by the Netherlands Heart Foundation for their preventive potential (especially episode 1 and 2). They were approved by the scriptwriter because of their potential dramatic impact (especially episode 3).

THEORETICAL PERSPECTIVES

Some television drama serials are deliberately designed to promote social change. Medisch Centrum West however already existed as a popular drama serial and was not specially designed for health communication purposes. The main characters of MCW were already established, so it was not possible to apply all the guidelines of the E&E soap serials as formu-lated by Miguel Sabido. Several theoretical perspectives however were applied by the NHF in the design of the script to include the cardiovascular issues in Medisch Centrum West.

Social Cognition

The E&E approach draws upon Albert Bandura's (1986) social cognitive theory, which posits that an individual can learn by observing and imitating the overt behaviour of others in real life or on television (vicarious learning). Bandura found that imitation or modelling could be influenced by the type of reinforcement the rolemodel received; rolemodels who were rewarded were more likely to be imitated than models who were punished (Signorielli, 1993). According to this social cognitive theory, vicarious learning best takes place when viewers can *identify* and relate with these role models and when viewers *recognize* the issues as relevant for their daily life. As Hobson says 'sometimes storylines are touchstones for experiences which viewers have and which they see reflected in the serial' (Hobson, 1982: 134).

For health communication to be effective it is essential that the message is *realistic* and *credible* to the audience, in the sense of 'true to life characters' and 'realistic, credible plots and storylines'. This does not mean that every detail must conform to reality. Realism is defined by Fiske (1987: 24) as 'the way it makes sense of the real, rather than by what it says the real consists of'. Raymond Williams (1977) lists three main characteristics of realism in drama: that it has a contemporary setting, that it concerns itself with secular action (human action described in exclusively human terms) and that it is socially extended. By the latter he means that it deals with the lives and experiences of ordinary people.

Agenda setting

Television programmes can direct viewers attention selectively to issues and problems. This 'agenda setting' is referred to as the power to 'structure issues'. In relation to TV-drama and soap serials, social learning theory can be expanded to include the influence of peer group

behaviour. *Talking with others*, neighbours, family and friends about popular serials stimulates people to consider and incorporate the serial's ideas and messages. Buckingham (1987: 162) says 'the desire to 'see' what everyone's been talking about reveals a degree of social pressure to watch soap and drama serials, and often people start watching in order to avoid feeling left out of conversations'.

Uses and Gratifications

Research indicates that the cognitive processing of information occurs best when triggered by a positive affective evaluation. Emotional appeals can lead to attitude change especially when people's motivation to think about the message is low (Pieters & Van Raay, 1988; Petty & Cacioppo, 1986; Cafferata en Tybout, 1989). If viewers do not *appreciate* the E&E formula they will stop watching and become less receptive to the message. The drama must therefore be sufficiently gratifying. To entertain the audience is the aim of all programme makers and even those who seek to inform and educate know that they need to be entertaining in the widest sense if the audience is to remain interested and continue viewing. To entertain and inform without alienating an audience and to keep them 'hooked on the programme' is vital (Hobson, 1982: 47). Also Singhal, Rogers and Brown (1992) state that the repetition of the educational content in an E&E message is important in achieving the desired educational effect, but they warn against making the educational content too blatant or 'a hard sell'.

RESEARCH

In order to find out if the NHF succeeded in reaching its target audience and how MCW viewers responded to these efforts, an evaluation study and panel discussion[4] were held (an elaboration of the panel discussion is beyond the scope of this chapter, but reference to the results of the panel discussion is made where relevant).

The evaluation study was set up as a post-test only design with non-equivalent groups. Due to practical problems such a design is often used in media effect research, despite it's methodological limitations. Without a pre-test it is more difficult to measure possible changes in knowledge, attitude or behaviour. To compensate for this, in the present research three subsamples were selected and interviewed: viewer 1: regular MCW viewers who saw the specific cardiovascular health episode; viewer 2: regular MCW viewers who normally watch the series but missed the specific cardiovascular health episode; viewer 3: non-MCW viewers. Comparison of viewers 1 and 2 is of special interest here and often not found in other media research.
Based on the theoretical perspectives mentioned above the following research questions were formulated:

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4 The episode about 'nutrition and cardiovascular diseases' was previewed and discussed in a panel discussion by 22 people, 15 years and older, divided into two focus groups. There were 13 men and 9 women. Only six of them had a higher or middle level of education. All of the participants were more or less familiar with the serial. The discussion was led by a trained interviewer and taped on video. The participants were not told beforehand that the study had been initiated by the Netherlands Heart Foundation, to prevent them from giving socially desirable answers and from directing their attention to the heart health theme.

A:Did viewers get involved in the health issues of the MCW serial (identification and recognition),
B:How did they evaluate the credibility of the medical and health information in MCW (credibility and realism),
C:Did the health information have an impact on their everyday life in terms of reflection (talking with others),
D:Did the MCW audience appreciate the combination of health information in a drama serial in general and in these three episodes specifically (appreciation)?
E:Did viewers actually notice and maintain the health information interwoven in the three episodes? (knowledge).

An important aspect of the research was to examine whether there were differences in opinions and reactions between men and women, older and younger, and lower and higher socio-economic respondents. The assumption was that this would be the case for level of education. It was also interesting to know if variables other than sex, age and education would account for differences, such as the question whether respondents were familiar with cardiovascular diseases by having a life history as heart patients, or having a heart patient in their inner social circle.

THE SAMPLE

The three episodes were broadcast on December 25th of 1992, January 29th of 1993 and February 19th of 1993. Within a week of the broadcast of each of the three episodes a random sample of about 2000 telephone numbers were dialled, obtained from the directory of the National Dutch Telephone Company. In the case of there being more residents of 15 years or older, the person whose birthday came first in that year was selected.

The decision to ring 2000 telephone numbers was based on the aim to reach at least a sample of 180-200 MCW-viewers, considering an average viewerrate of 15% and a non response rate of 35%. This procedure resulted in respectively 1303, 1108 and 836 persons willing to be interviewed, a corresponding response rate of 56%, 58% and 51% respectively. The non response rate seems higher than the calculated 35%, however it turns out that, assuming 15% ratings for the serial, the response rate of the MCW-viewers in the sample has been 78%, 94% and 79% respectively, which is actually quite high. Those respondents (333, 282 and 197 respectively) were the type 1 viewers who had seen the previous week's specific MCW episode. All respondents were actually interviewed (93%, N=754 over three polls) and about 1 in 4 type 2 viewers who had missed the previous week's specific episode, but usually watched the serial (27%, N=243 over three polls). This article mainly reports on these two respondent groups. Those respondents (viewer 3) who never watched MCW are only referred to and discussed for reasons of comparison. Of this viewer 3 category also about 1 in 4 of those willing to be interviewed were interviewed (26%, N=395 over three polls).

COMPOSITION OF THE AUDIENCE

Analysis of the composition of the audience (which is a standard practice of the National Broadcasting Foundation (NOS) for every television programme broadcast) shows that the

three MCW episodes under consideration were watched by people of both sexes, of all age groups and of all education levels. Compared to the total population of the Netherlands aged six years and over however, relatively more women (61% against 51%) and more people of lower socio-economic background watched MCW (78% against 73%) had a low or middle level of education; in the Netherlands a low level of education refers to having only completed primary school or low vocational training, and a middle leel of education refers to at most three years of secondary school or middle vocational training). In the research sample under analysis, compared to the official statistics, of the MCW audience, women and the better educated are overrepresented. The sample, therefore, was weighed for sex and education and, for the sake of completeness, also for age and family size. After this weighing procedure the sample may be conceived as being representative for the MCW audience of 15 years and older (with respect to these characteristics). The frequency distributions reported in this article refer to the weighed sample. Of this weighed sample, as well as of the MCW audience, 60% is female, 77% is educated to a level lower than those who have completed highschool, while the age distribution is as follows: 35% between 15 and 29 years, 35% between 30 and 49 years and 30% over 50 years.
The frequency distributions of age, sex and education were quite similar in the three subsamples. When reviewing one or more of the subsamples - as distinguished from the total sample - likewise is referred to the weighed versions.

DATA ANALYSIS

The interviews were conducted by telephone. The questionnaire consisted mainly of structured questions. Each of the four theoretical concepts (identification, credibility, talking with others, appreciation) were measured by means of statements with pre-coded answer categories. The frequency distributions of the answers can be found in Table 1.
To analyze if the items validly measure the concepts they are supposed to measure, and for the sake of summarization of the data, principal component analysis was carried out on each of the four groups of items. For each of the four groups of items, this procedure led to a rather strong first factor, which represented the concept quite well and thus four factor scales were constructed (Eigenvalues between 1.6-2.7). Only the principal component analysis on items 11 to 17 led to two factors with an Eigenvalue higher than 1.

The effect of sex, age and level of education on respondents' opinions was analyzed by analysis of variance with the factor scale (=concept) as the dependent variable, and sex, age and education level as independent variables. Both age and level of education were measured in three categories, therefore analysis of variance was preferred to regression analysis. Within ANOVA the 'regression' method was chosen to adjust the effects of each independent variable for possible confounding effects from the other two independent variables. Further, the effect of familiarity with cardiovascular diseases on respondents' opinions was analyzed by means of a oneway analysis of variance with factor scale as the dependent, and familiarity with cardiovascular diseases as the independent variable.

The respondents' knowledge of the health information that was interwoven into the three episodes was measured by means of three different batteries of 5 to 6 statements with pre-coded answer categories, covering the health information given in the episode under consider-

ation. The percentage of correct answers of the regular viewers who saw the episode, the regular viewers who missed the episode and the never-viewers are reported in Table 2. The differences between the three types of viewers were tested for significance by means of oneway analysis of variance procedures (with knowledge statement as dependent and type of viewer independent variable) including multiple range testing: see Table 2, columns 4 and 5.

Likewise (as for the respondents' opinions) the effect of familiarity with cardiovascular diseases on respondents' knowledge was analyzed by means of oneway analysis of variance procedures (with knowledge statement as the dependent and familiarity as the independent variable).

To examine whether or not the knowledge gained from the broadcasted health information was retained, the regular viewers interviewed after the second episode who had seen the first episode, in addition to submitting to them knowledge statements about the second episode were also given the statements about the first episode. This was done analogously in the poll after the third episode with respect to the health information of the second episode.
The percentage of correct answers one week and five weeks after the broadcasting are reported in Table 3. The differences in the percentages of correct answers over time were tested for significance by means of Chi^2-tests and are reported in Table 3.

RESULTS

insert: (Table 1)

A. Identification and Recognition

Only one third of the sample agree or partly agree that they sometimes identify with particular situations in MCW (Table 1, items 1 to 4). However, two thirds of the respondents agreed that 'for example, if there is a heart patient in MCW, I sometimes think: that could happen to me too'.
About half of the respondents agreed (most of them partly) that 'what is said about health in MCW often relates to me too' and that 'MCW frequently contains health information I can apply in everyday life'. Of the respondents, 50% more or less felt that they had learned something from the health information in MCW and could apply it in everyday life.

B. Credibility and Realism

The majority of the respondents agreed or partly agreed (79%) that they thought the stories were credible and the MCW doctors' recommendations about health and illness were true (76%), (Table 1, items 5 and 6). When questioned specifically about the risk-factor of cardiovascular diseases, the respondents agreed even more (item 7).
Also, most of the members in the panel interview (14 out of 22) underlined the statement that the information about health and diseases given by the medical staff in the serial, was true, as a respondent said: 'I am sure they have a team to do the medical research for the script' and another said: 'There must be truth in this medical information'. In the panel interview, however, some respondents also said that the way things were dramatized was not always realistic: 'There is so much happening in such a short space of time' and 'There are so many conflicts and troubles, in real life this wouldn't happen'. But they were aware of the fact that

incidents in MCW can happen in 'real life' and do happen, if not to them, then to other people in their social cricle.

C. Talking with others

10% and 35% respectively said they 'often' or 'sometimes' talk with others about what happened in MCW (Table 1, items 8 to 11). For about one third of the respondents who talk with others about what happened in MCW, the conversation included health issues.
When asked about the previous week's MCW episode specifically, 19% of the sample said they had actually discussed it with others. Moreover, 26% of the respondents reported having reflected upon and thought about that week's MCW episode.

D. Appreciation of health information in drama serials

Did the MCW audience get annoyed at the E&E format, or was it a too blatant or hard sell of the health message? A high proportion (60%) of the sample disagreed that health information in a drama serial makes such a serial too "preachy" (Table 1, item 12). The overwhelming majority (86%) disagreed that health information in such a serial reduces their viewing pleasure. Between 80 and 90% of the respondents agreed or at least partly agreed that they like to be educated in health matters in such a serial, that health information in such a serial is useful and that entertainment and health communication can well be combined. 72% (partly) agreed that the appeal of health education in a serial is greater than by means of a leaflet. The majority of the sample also disagreed or partly disagreed that they would not take the health information in such a serial seriously.
Items 12, 13 and 15 were not only submitted to the respondents for the purpose of measuring their general attitude towards health information in a drama serial, but also to the specific episode: the three questions were asked using similar wording in relation to last week's episode in particular. Comparison of the frequency distributions of the answers (see Table 4) indicates that the respondents are inclined to judge the E&E format even more positively in relation to the specific episode watched the previous week than in general.

(insert Table 4)

The statements measuring the appreciation of the E&E format (Table 1, items 12 to 18) were submitted to the regular viewers, and also to respondents who never watch MCW. Oneway Analysis of Variance with 'appreciation' [factor scale, see next paragraph] as dependent and 'type of viewer' as independent variables shows that the effect of being a regular viewer or not is significant ($F=124.3,1,275$; $P<.000$, $R^2=.09$). Comparison of the group means shows that the regular viewers appear to appreciate the enter-educate format significantly higher than the non-viewers.

E. Knowledge

To measure whether viewers actually noticed and retained the health information that was interwoven into the three episodes of MCW, the questionnaire contained three different batteries of five or six knowledge statements with pre-coded answer categories, each one covering the cardiovascular health information given in the episode under consideration. Comparing the percentage of correct answers of the subsample that saw the episode (Viewer 1) with that of the subsample that usually watched MCW but missed the episode (Viewer 2), clarifies the question of whether or not viewers pick up health information in a drama serial.

Comparison with the subsample of respondents who never watch MCW (Viewer 3) may give insight into the question of whether or not regular viewers and non-viewers differ in knowledge about health issues. The percentage of correct answers for each subsample are reported in Table 2, columns 1 to 3.
The effect of type of viewer on knowledge is tested for significance by means of Oneway Analyses of Variance (with knowledge item the dependent and type of viewer the independent variable), see Table 2, column 4. The differences between the various types of viewers are tested for significance by means of Scheffé's Multiple Range Test, see Table 2, column 5.

(insert: Table 2)

As indicated earlier, the first episode contained information about 'nutrition and cardiovascular diseases'. With respect to four of the five items about this subject (item 1 being the exception) there are significant differences between the subsamples. (The four items are: 2. Snacks as well as normal foods can stimulate a high cholesterol level. 3. Baking in oil is healthier than baking in cooking fat. 4. Some kinds of fish are better for the heart than meat. 5. The cholesterol in the blood should be measured various times to determine its level.) Inspection of Table 2 shows that in three of these four items the difference is evident with the regular viewers: respondents who saw the episode knew better than respondents who missed the episode. On two items respondents who saw the episode also had more knowledge than respondents who never watch MCW, but on the other item there was no difference.

The health information in the second episode was about 'women and cardiovascular diseases'. Significant differences are found between the subsamples on only two of the six items (6. After menopause the probability of cardiovascular diseases is almost as large for women as for men. 8. Female hormones can protect against cardiovascular diseases.). On both items the differences between regular viewers who saw and who missed the episode are significant, as well as between repondents who saw the episode and respondents who never watch MCW.

The information in the third episode was entirely about organ donation. Here too there are significant differences between the subsamples on two of the five items (13. Many children are on the waiting list for a heart transplant. 16. The family of the deceased donor never knows who receive(s) the organs). Further inspection shows that both regular viewers who saw and who missed the episode know better than the respondents who never watch MCW that there are many children on the waiting list for a heart transplant. However both regular viewers who saw the episode, and the respondents who never watch MCW know better than the regular viewers who missed this episode that the family of the deceased donor never knows who receive(s) the organs.

Considering Table 2. as a whole, we can say that there is a general tendency that regular viewers who saw the episode (Viewer 1) performed on average better on the knowledge items than regular viewers who missed the episode (Viewer 2) and than respondents who never watch MCW (Viewer 3), while we expected the never viewers to perform better, because they are in general higher educated. The effects of 'type of viewer' on the items did not change after correcting them for the effects of age, sex and level of education. [5] These differences in the

5 To certify that the effect of 'type of viewer' as reported in Table 2 is due to 'type of viewer' only and not to the difference in composition of the subsamples, Analyses of Variance were conducted with each item as dependent

performance of the knowledge test in favour of viewer type 1, seem therefor to be due to the viewing of the episode and the exposion to the specific health items. A probable explanation might be that the knowledge statements in the episodes were rather specific instead of general statements. Never viewers (higher educated) may not have known the specific answers, while in general they are regarded as people with an adequate and sufficient health seeking attitude and behaviour.

In order to gain insight into whether the achieved knowledge was maintained over time, the respondents who were interviewed after the second episode were asked if they had also watched the first episode. If this was the case, the knowledge statements relating to the first episode were also submitted to them. Their answers - about one month after the episode -were compared with the answers of the respondents interviewed within one week after the episode. The same procedure was followed for the knowledge items relating to the second episode: these were also submitted to the respondents who were interviewed after the third episode and who happened to see the second episode[6].

(insert Table 3)

Table 3. shows that in five of eleven items the answers of the respondents to the statements were significantly less correct after one month than they had been within a week of the message being broadcasted, while in six of the eleven items there was no significant difference in knowledge after a month.

The effect of sex, education and age.

We were interested in examining whether there were differences of opinion and reactions towards health education in MCW between men and women, older and younger people, and between lower socio-economic and higher socio-economic groups.

To answer this question an analysis of variance was conducted with the factor scales 'identification', 'credibility', 'talking with others' and 'appreciation of the enter-educate format' as dependent variables, and sex, age (in three categories) and level of education (in three categories) as independent variables.

However, the explanatory power of the four models is low and not impressive: never more than 5% of the variance of the model is explained by the combined effects of the three independent variables. Therefore we decided not to elaborate on these effects.

Influence of familiarity with cardiovascular diseases.

The effect of being familiar with cardiovascular diseases on respondents' opinions and knowledge was analyzed by means of Oneway Analyses of Variance (with factor scale, respectively item dependent variable, familiarity independent variable).

Respondents who are familiar with cardiovascular disease tend to be more involved in the health issues of the MCW serial (identification, F=10.5,1,968; p=.001) and the health information in MCW has more impact on their everyday lives in terms of reflection and talking

variable, and age, sex, level of education and type of viewer (in that order) as independent variables (SPSS, ANOVA, hierarchical method).

5As there was no fourth episode this could not be done with the third episode.

with others (talking with others, F=7.8,1,759; p=.005). However, in both cases no more than 1% of the variance in answers can be explained by familiarity.
The effect of familiarity on 'credibility' and 'appreciation of the enter-educate format' was not significant. Neither is the effect of being familiar with cardiovascular diseases significant for any of the sixteen knowledge items, not even after correcting for the effects of sex, education, age, or for type of viewer.

DISCUSSION

Despite our assumption that the variables 'sex, age and education level' would explain much of the difference in opinions and reactions of the respondents, they explained only 5% of the variance of the model. The variable 'familiar with cardiovascular diseases' also does not contribute to differences in answers.
The drama and soap serial format was originally designed to appeal to women (Ang, 1982; Frissen 1992; Brown 1994). An explanation of the relatively high proportion of men who watched MCW might be that television viewing has to be seen less and less as an isolated individual activity and more as a social, even a collective activity. Television is often purposefully used by family members to construct occasions of interaction and a context in which to interact (Lull, 1990; Morley, 1986). In the panel interviews MCW viewers told the researchers that they often watched the serial as a weekly family ritual (NOS-KLO, 1992, 1993), which indicates that the gratification offered by television goes beyond the direct consumption of information or entertainment. It structures family life and effects social bonding possiblities.

It is interesting to see that while one third of the sample agreed or partly agreed that they 'sometimes identified with particular situations in MCW', twice as many, that is, two-thirds agreed or partly agreed that 'if there was a heart patient in MCW, they sometimes thought that it could happen to them too'. This large difference in percentage might be due to the more specific formulation of the second statement. Also, the incidence of cardiovascular diseases is quite high in the Netherlands (40% of the total death rate/ or 143 per day), so many respondents have had experience with it, either in their own life history, or through people they know (Nederlandse Hartstichting, 1994).

Results show that the majority of the respondents on the average 80% (see table 1, questions 5,6,7,) saw as realistic both the stories themselves as well as what the doctors in MCW said about health. This was even more specific in the case of information about cardiovascular risk factors. The fact that health information was given by medical professionals who used a lot of medical terms in the dialogue clearly influenced the 'aura' of truth and trustfulness. Anne Karpf (1990) also mentions this effect in her book 'Doctoring the media'. Hospital serials seem to be a good setting for dealing with such educational topics.

The series did set an agenda for social discourse. Respectively 10% and 35% of the respondents said they 'often' or 'sometimes' talk with others about what happened in MCW. For about one third of the respondents the conversation included health issues. Also 26% of the respondents reported having reflected on the specific episode. This can be regarded as a promising finding.

In five of the eleven cases, answers to the statements were significantly less correct after five weeks than they had been within a week of the message being broadcast, while in six of the eleven cases there was no significant difference in knowledge after a month. Why some of the statements were retained better than others is hard to explain. It could perhaps be related

to the statements were dramatized or articulated in the actors' dialogues in a prominent way or not. Another possible explanation is that additional information sources may have contributed to the retention of knowledge (health campaign material of other organizations).

The overwhelming majority of the sample did not agree with the statement that the E&E format made the serial 'too preachy' or reduced their pleasure in watching it. Although they were well aware that the programme included health messages, they did not find it intrusive for their enjoyment of the fiction. A most interesting aspect was that a comparison of group means shows that the regular viewers appear to appreciate the E&E format significantly higher than non-viewers. Fans are more positive towards the E&E strategy regardless age, sex and education level. That might indicate that regular viewers or fans of soap and drama serials are, though not on a discursive level, more flexible and 'open' to experiments with their 'favourite' television format, than never-viewers, or perhaps that non-viewers, who dislike the format of soap and drama serials anyway, do not want to bother about the E&E issue at all. For the non-viewers are mostly the higher-educated, who are often more sceptical about so-called 'hidden persuasion' or 'clandestine advertising' and are used to getting their health information in a more 'sophisticated' way. The proof of the pudding is clearly in the eating. Watching an episode in which health education and amusement are harmoniously combined in practice, takes away some of the hesitation that might exist in theory. It seems that either you like it and 'go for it', or you don't like it and 'stay away' from it. This may indicate that the liking or disliking of soap and drama serials as a television genre is the most important factor.

Implications for practice

From the social marketing perspective, NHF's choice of this television format to communicate with lower socio economic groups is a legitimate one. More of the
lower socio-economic than higher socio-economic viewers watched MCW. The choice of the medium and the drama genre was in tune with the target group. An important aspect of the present research is the fact that 'outsiders' (non viewers, higher educated) judge the entertainment-education formula more negative and questionable than 'insiders' (the actual viewers and fans). For health communication professionals, who are often non-fans and higher educated this is, from a professional point of view, very important to realize. For their cultural taste is based on other aesthetic norms and values than lower educated (Bourdieu, 1973). It is time to re-validate popular culture as a 'highly' esteemed communication channel and tool.
Medisch Centrum West was a 'soapy' type of drama. It was not a real soap in the sense that it was not broadcasted daily. Also the production costs and contents differ from prime time drama (Cantor & Pingree, 1983). This distinction is relevant, for daytime serials evolve slowly each day, certain patterns emerge. Identification with positive or negative role models, one of the basic theoretical notions of the entertainment-education strategy, is more likely to occur when viewers engage in watching the serial over a longer period of time. 'The viewers of popular television series and films become quite familiar with the characters and often experience strong reactions to the things that they do and to the things that happen to them' (Hoffner & Cantor, 1991:63).
In MCW the three episodes with cardiovascular health messages were dealt with within that specific episode and related to 'guest' role models that were written into the script especially for that occasion and written out of the script after the episode was broadcasted. The effects of the E&E strategy in MCW could have increased when the message was related to main characters of the permanent cast, and not only to guest actors/actresses. Of course this choice for relating the health message to guest actors or permanent actors depends on the negotiation

process with the producer and scriptwriter. In this case the scriptwriter didn't want to redesign his complete script for the purpose of the inscript-sponsor. Of course when a health organization (co-)produces its own prime time serial it is possible to design positive and negative rolemodels for the educational purpose, according to the E&E methodology of Miquel Sabido.

Implications for research

The evaluation study was set up as a post-test only control group design. As indicated earlier this had some methodological limitations. However, comparison of the three types of viewers (regular MCW viewers who saw the heart health episode; regular MCW viewers who did not see the last episode; and never MCW viewers), showed some interesting perspectives. Because of the three types of viewers it was possible to compare fans with non-fans.

In general it is clear that there is much more to television's influence than can be studied by the impact evaluation of the type used in this research (Halloran, 1970). In other research traditions, such as in ethnographic or cultural studies, the role of the viewer in negotiating meaning is stressed. It is interesting for future entertainment-education research to combine audience survey research with ethnographic and cultural studies to get more insight in the active role of viewers in the decoding proces and the constructing of meaning. For this active 'sense-making process' plays a big part in the success of soap and drama serials (Morley, 1986; Lull, 1990)

For example it would be interesting to research more in-depth the identification process with positive and negative role models. What are the mechanisms behind accepting or rejecting role model's health behaviour. How subtle is the balance between entertainment and education when non-dramatic health issues are involved. When does the viewer back off and stop being a fan. These are interesting questions for the practice of enterainment-edcuation television as a rising new genre.

Table 1:
Extent to which respondents **identify** with medical and health problems in MCW (items 1 to 4), evaluate the **credibility** of the medical and health information in MCW (items 5 to 7), **talk with others** about MCW (items 8 to 11) and **appreciate** health information in a drama serial (items 12 to 18).

Identification and recognition	agree	partly agree	dis-agree	don't know	Total N=998
	%	%	%	%	%
1. Sometimes I identify with particular situations in MCW to my own life.	20	12	66	2	100
2. For example if there is a heart patient in MCW I sometimes think: that could happen to me too.	57	10	32	1	100
3. What is said about health in MCW often relates to me too.	9	43	46	2	100
4. MCW frequently contains health information I can apply in everyday life.	9	41	48	3	100

Credibility and realism					
5. I think the stories in MCW are credible.	42	37	20	1	100
6. I think the MCW doctors' recommendations about health and illness are true.	47	29	14	9	100
7. I think what the doctors in MCW tell about risk factors of cardiovascular diseases is true.	68	18	8	7	100

Talking with others	yes, often	yes, some-times	yes, rarely	never	
	%	%	%	%	%
8. Do you ever sit to talk with others about what happened in MCW?	10	35	11	44	100

	nurses/ doctors	health issues	both	don't know	not ap-plicable	
	%	%	%	%	%	%
9. If yes, do you talk about the events of the nurses and doctors in MCW or about health issues in MCW?	23	12	19	1	44	100

	yes	no	don't know	Total N=754[7]
	%	%	%	%
10. Did you reflect upon the issues in last week's MCW episode?	26	73	1	100
11. Did you talk with others about last week's MCW episode?	19	80	1	100

Appreciation of enter-educate format	agree	partly agree	dis-agree	don't know	Total N=998
	%	%	%	%	%
12. Health information in a drama serial makes such a serial too preachy.	18	19	60	2	100
13. Health information in such a serial reduces my pleasure in watching it.	6	8	86	0	100

Items 10 and 11 were not submitted to the subsample of respondents who had not seen last week's episode of the serial.

14. I like learning about health through such a serial.		57	20	22	1	100
15. I would not take the health information in such a serial seriously.		16	30	53	2	100
16. I find health information in such serials useful.		68	19	13	1	100
17. Entertainment and health education can be very well combined .	81	11	7	1	100	
18. Health education through a serial has a greater appeal to me than through a leaflet.	60	12	27	2	100	

x

Table 2:
Percentages of correct answers to the knowledge statements regarding 'nutrition and cardiovascular diseases' (episode 1), 'women and cardiovascular diseases' (episode 2) and 'organ donation' (episode 3) by type of viewer.
Because some of the statements evoked a rather high percentage of 'don't know' answers, the columns A contain the percentages of correct answers computed on the basis of the complete subsamples, while the columns B contain the percentages of correct answers computed after excluding the category 'don't know' from the subsamples. The absolute number of correct answers is the same in column A and B.
The differences between the three subsamples (types of viewers) were tested for significance by means of a Oneway Analysis of Variance procedure (after excluding the category 'don't know' from the subsamples) with Statement dependent and Type of viewer as independent variables. The level of significance is reported in the table if smaller than 0.05. The groups that differ significantly on the .05 level (Scheffé Multiple range test) are also reported in the table.

		TYPE OF VIEWER						EFFECT	GROUPS
		1 saw last episode		**2** didn't see last episode		**3** never watches MCW	on State-ment	of Type of viewer from each other	that differ significantly
		N=275	N=77		N=135	(p-value)			
Nutrition and cardiovascular diseases		% A	% B	% A	% B	% A	% B		
1. By keeping a low-fat diet the cholesterol level in the blood can decrease. (true)	85	89	79	89	85	88	n.s.		
2. Snacks as well as normal foods can stimulate a high cholesterol level. (true)		95	99	81	91	92	94	.01	1-2
3. Baking in oil is healthier than baking in cooking fat. (true)		80	92	53	66	55	68	.000	1-2, 1-3
4. Some kinds of fish are better for the heart than meat. (true)		86	92	77	86	76	83	.01	1-3
5. The cholesterol in the blood should be measured various times to determine its level. (true)		67	78	58	68	57	74	.001	1-2
		N=282	N=90		N=137				
Women and cardiovascular diseases		% A	% B	% A	% B	% A	% B		
6. After menopause the probability of cardiovascular diseases is almost as large for women as for men. (true)		56	78	16	35	22	48	.000	1-2, 1-3
7. The same risk factors of cardiovascular diseases hold for women as well as for men. (true)		56	62	56	60	53	59	n.s.	
8. Female hormones can protect against cardio-vascular diseases. (true)		45	76	21	50	23	61	.003	1-2, 1-3
9. Cardiovascular diseases are common with men only. (not true)		78	83	81	85	68	75	n.s	
10. Diabetes increases the risk of cardiovascular diseases. (true)		41	65	41	57	44	65	n.s.	
11. Cardiovascular diseases are always hereditary. (not true)	58	65	68	71	66	75	n.s.		
		N=197	N=76		N=122				
Organdonation		% A	% B	% A	% B	% A	% B		
12. There are not enough donor organs available. (true)		87	95	86	97	90	96	n.s.	
13. Many children are on the waiting list for a									

heart transplant. (true)	61	87	44	78	42	65	.000	1-3, 2-3
14. Organ donation after death relates to one organ only. (not true)		85	90	70	79	85	90	n.s.
15. Deciding about organ donation should be done soon after death, because of the decreasing quality of the organs. (true)		95	97	88	95	93	96	n.s.
16. The family of the deceased donor never knows who recieve(s) the organs. (true)	73	84	50	56	63	73	.000	1-2, 2-3

Table 3:
Percentages of correct answers to the statements within a week of broadcasting and a month after broadcasting. Because some of the statements evoked a rather high percentage of 'don't know' answers, the A columns contain the percentages of correct answers computed on the basis of the complete subsamples, while the B columns contain the percentages of correct answers computed after excluding the category 'don't know' from the subsamples. The absolute number of correct answers is the same in column A and B.

The differences in the percentages of correct answers as measured over time are tested for significance by means of Chi^2 -tests. The p-values smaller than 0.05 are reported in the table. The data were tested after excluding the 'don't know' answers, but inclusion of these answers changed the Chi^2-values only marginally.

		interviewed right after episode		interviewed a month after episode		p-value of
Nutrition and cardiovascular diseases		N=275 % A	N=198 % B	Chi^2 % A	% B	
1. By keeping a low-fat diet the cholesterol level in the blood can decrease. (true)	85	89	80	88	.03	
2. Snacks as well as normal foods can stimulate a high cholesterol level. (true)		95	99	88	94	.01
3. Baking in oil is healthier than baking in cooking fat. (true)		80	92	62	75	.000
4. Some kinds of fish are better for the heart than meat. (true)		86	92	84	91	n.s.
5. The cholesterol in the blood should be measured various times to determine its level. (true)		67	78	64	76	n.s.
Women and cardiovascular diseases		N=282 % A	N=167 % B	% A	% B	
6. After menopause the risk of cardiovascular diseases is almost as high for women as for men. (true)		56	78	35	58	.001
7. The same risk factors of cardiovascular diseases hold for women as well as for men. (true)		56	62	62	70	n.s.
8. Female hormones can protect against cardiovascular diseases. (true)		45	76	29	55	.001
9. Cardiovascular diseases are common with men only. (not true)		78	83	77	83	n.s.
10. Diabetes increases the risk of cardiovascular diseases. (true)		41	65	43	61	n.s.
11. Cardiovascular diseases are always hereditary. (not true)	58	65	59	68	n.s.	

Table 4:
Comparison of the answers to those appreciation-items that were stated in general terms as well as in relation to last week's episode in particular.

Wilcoxon's matched-pairs signed rank test (carried out on the unweighted sample) shows that the frequency distributions of items 13 and 15 differ significantly for the general question as compared to the specific question. One should keep in mind that the test statistic relates to those respondents only who gave a valid answer to both the general as the specific version of the item under consideration.

	agree	partly	dis-agree	don't agree	Total know	Wilcoxon's Matched-pairs signed rank test
		%	%	%	%	
Item 12						
Health information in a drama serial makes such a serial too preachy. (General version)		18	19	60	2	N=998 100%
The information (in last week's episode) was made too preachy. (Specific version)		14	15	60	11	N=754 100%
						Z = -1.7
						p = .86
Item 13						
Health information in such a serial reduces my pleasure in watching. (General version)		6	8	86	0	N=998 100%
The information given (in last week's episode) reduced my pleasure in watching. (Specific version)		4	3	84	9	N=754 100%
						Z= -2.9
						p = .004
Item 15						
I would not take the health information in such a serial seriously. (General version)		16	30	53	2	N=998 100%
The information woven into the story was incredible. (Specific version)		11	12	63	14	N=754 100%
						Z = -3.4
						p = .0006

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