

# Does Entertainment Suffer From Interactivity? The Impact of Watching an Interactive TV Movie on Viewers' Experience of Entertainment

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*To investigate whether interactivity enhances entertainment in interdependence with individual factors, an experiment with a 3 × 2 between-subject design was conducted. 427 participants aged between 14 and 49 were randomly assigned to a 30-minute TV movie with three different interactivity levels and two different introductions that should diversify feelings of sympathy toward the protagonist. Dependent variables like empathy with the protagonist, suspense, and movie evaluation were measured after exposure, and some were measured during exposure. A number of personality scales were also presented at the beginning of each session. The results indicate that individuals with lesser cognitive capacity feel more entertained, that is, they feel more empathic toward the protagonist, feel more suspense, and evaluate the movie more positively when they watch it without any interactivity, in the traditional passive manner. For individuals with greater cognitive capacity, it is just the opposite: They can use interactivity to their advantage. An increase in their entertainment experience was observed as a direct consequence of their being able to influence the plot of the movie.*

Most contemporary research dealing with media entertainment is based on, or at least associated with, the so-called disposition theory of entertainment (see

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Zillmann & Vorderer, 2000, for an overview). This theory sees the media users' emotional relationships to the protagonists and antagonists of fictional stories and the favorable outcome of the story as essential for any entertainment experience (Zillmann, 1994, 1996). It predicts positive sentiments for media users if they witness or predict positive outcomes for favorable, liked, and beloved protagonists, and negative outcomes for unfavorable, disliked, and resented antagonists. Consequently, it expects negative sentiments if viewers, listeners, or readers witness negative outcomes for their favorites or positive outcomes for the antagonists. The reason for the media users' emotional dependency on the fate of the characters lies in their ability and readiness to empathize with their heroes (Zillmann, 1991). Exposure to TV drama may serve as an example: Whenever TV viewers care about a fictional character in such a drama, they not only hope for the protagonist's positive outcome and fear a negative ending, they also consequently share all emotions along with the character. In a typical drama situation, when the character's failure becomes likely, they may even feel empathic stress, a rather negative emotional experience, better known as suspense (Vorderer & Knobloch, 2000). Unpleasant as it may be during exposure, when the conflicts are finally resolved and the onlookers are presented with a positive outcome for their beloved protagonist, former distress turns into relief. It is exactly this relief that, in retrospect, is often described as the core of the viewers' entertainment experience (Vorderer, Wulff, & Friedrichsen, 1996).

However, this feeling of suspense is only possible when viewers evaluate the story's protagonist positively, that is, when they like him or her (Zillmann & Cantor, 1977). The same dependency on the sentiment toward the protagonist applies to another feature of entertainment—the feeling of empathy with this character: Empathy requires sympathy, or at least an absence of resentment (Vorderer, 1996). Without this positive evaluation, empathy is replaced by counterempathy toward a resented character (Zillmann, 1996). In other words, the moral judgement of the story's protagonist is the central prerequisite for the type and intensity of the viewers' entertainment experience.

Despite the importance of such a positive judgment, very little empirical research has been done to assess its actual impact on the media users' entertainment experience, that is, on their feeling of empathy (with the protagonist) and of suspense (due to the ongoing narrative), and on their evaluation of the media offer itself. Therefore, before turning to the relationship between entertainment and interactivity, we would first like to clarify this relationship more precisely in the context of exposure to a rather traditional narrative, a TV movie.

Hypothesis 1: Viewers who like the fictional character in the movie they watch will feel better entertained (will be more empathic toward the protagonist), will feel more suspense when he or she is in danger, and will evaluate the movie more positively than those viewers who do not like the character or who like this character less.

Although disposition theory has already been applied to different media and to different genres (for an overview, see Zillmann & Vorderer, 2000), it implies another important prerequisite: Within that theory, media users are consistently considered merely witnesses of the events they perceive during exposure. It is one of the basic underlying assumptions of affective disposition theory, that media users are not capable of influencing the narrative they are exposed to. With TV, this assumption is plausible, insofar as TV viewers can in fact only watch and listen to the continuation of the story presented on the screen without intervening. However, with interactive media, such as computer games, users do have the ability to influence the continuation of the story; they may alter the narrative while using the medium. In this case, the question arises that, given that this experience traditionally requires a certain degree of passivity on the users' side, what happens to their experience of entertainment?

The problem becomes even more relevant as the "traditional" media, like television, have become more interactive over the last few years. There is not only an increase in the variety TV offers viewers; TV also has begun to admit onlookers' influence on its contents (Rockwell & Bryant, 1999). The choice of the camera perspective in what has already been called interactive television is only the first step. Further and certainly more appealing developments will follow. The possibility of choosing how a movie will continue throughout exposure, for example, has been discussed as one of the far-reaching and certainly much more attractive developments of truly interactive TV (Vorderer, 2000).

Based on the background of the earlier-mentioned prerequisites for feeling entertained, we would like to address the following question: What exactly happens to this entertainment experience, and in particular to suspense, empathy, and to the evaluation of the media offering, when viewers have an opportunity to use a rather traditional offering, such as a TV movie, in a nontraditional (interactive) way? Two answers are conceivable: Viewers' entertainment experience will be intensified, because the media users become more involved in the narrative while using it interactively, or the entertainment experience will be less entertaining. The assumption that viewers' entertainment experience will be somehow intensified is based on the observation of computer-game players, who

obviously do not simply enjoy a game by witnessing the development or unfolding of a story; they also seem to enjoy struggling with the task and consistently trying to do their best in what is expected and demanded by the rules of the game (Grodal, 2000). They often try to compete with others or with their own previous performance and, hence, they may feel triumph if they are successful, and disappointment if they fail. The highest gratification, together with a very strong sense of being entertained, is often felt when both conditions are combined: when the players meet or even surpass the self-set requirements and expectations of the game (as is the case in situations of flow; Csikszentmihalyi, 1990), while at the same time the story itself presents a beloved hero as being successful. If, however, only one of these two conditions is given, entertainment may feel less intense, which should result in less favorable assessments of the game.

Based on the background of affective-disposition theory, however, it may be argued that media users are only distracted and overwhelmed by the possibility of interacting with a narrative. Instead of purely witnessing the events in order to develop sympathy, empathy, and suspense toward the hero, they have to struggle with new technology and making decisions about the ongoing narrative of a movie. The cognitive capacities and information processing abilities of media users may be of central importance here, as they are in the realm of new media in general. Taking both perspectives and assumptions into account, the following hypothesis seems plausible:

Hypothesis 2: Viewers capable of processing information rather effortlessly (and not overwhelmed or distressed by interactivity) will feel better entertained (will feel more empathic toward the protagonist), will feel more suspense when the protagonist is in danger, and will evaluate a movie more positively when watching this movie interactively than when they cannot interact with it. In contrast, viewers without this ability to process information rather effortlessly will feel better entertained when watching this movie in a traditional, noninteractive mode.

In addition to the viewers' cognitive capacity, there are certainly other factors influencing entertainment experience while interacting with a movie. Age and certain attitudes may be among them. For example, it seems to be likely that young users with a strong affinity for new technology will be more eager to entertain themselves with interactive TV than older people, who are more skeptical toward new technologies. Previous experience with interactive media should also be of importance here. Viewers who are used to interacting with

computer games and/or with the Internet should be entertained by an interactive movie more easily than those who have used the media primarily in a traditional way. Finally, general preferences and personality factors, such as the ability and readiness to empathize with others, could also influence the experience of entertainment, particularly of suspense, while watching an interactive movie. The question as to which of the earlier-mentioned factors is of more or less relevance remains to be answered. Consequently, we formulate the following research question:

RQ: How do users' age and previous experience with interactive media, their generalized preference for suspenseful media contents, and their ability and readiness to empathize with others influence their use of and their entertainment experience with interactive movies?

## METHOD

In order to test the two hypotheses, an experimental study with a  $3 \times 2$  between-subject design was conducted.

## PARTICIPANTS

The 427 German participants were between the ages of 14 and 49, were randomly selected, and their cognitive abilities and previous experience with interactive media were controlled. All respondents were paid DM 20 (~USD 9.50) for their participation.

## DESIGN AND INDEPENDENT VARIABLES

All 427 participants were randomly assigned to the conditions of this  $3$  (interactivity)  $\times$   $2$  (parasocial relationship) between-subject design. Interactivity was manipulated by giving the participants the possibility to intervene with the ongoing narrative of a movie either three times (high level of interactivity), one time (low level of interactivity), or not at all (no interactivity). The second independent variable should influence feelings of sympathy toward the protagonist by establishing a parasocial relationship between the onlookers and the protagonist of the movie. Whereas one-half of the sample saw an introduction to the movie that provided some information about the private background of the protagonist, thereby encouraging sympathy (parasocial relation), the other half followed an introduction that provided technical information about the movie itself (no parasocial relationship).

## EXPERIMENTAL MATERIALS

The experimental movie was a thriller (Finke, 1992) produced for German public television in 1991 (“Moerderische Entscheidung–Umschalten erwünscht” [Murderous Decision: Switching Required]). It was available in two versions: one for each of the two public channels in Germany. Both versions were aired simultaneously in 1991. This movie was used in this study only because it provided these two different versions that made it ideal for allowing the different options presented to the respondents in the two interactivity groups. The original movie also had to be shortened in order to provide a 30-minute story that could be digitalized and stored on a CD, from where it could be retrieved throughout the experiment.

## PROCEDURE

Each participant saw the 30-minute movie, which was interrupted three times during exposure. During these interruptions, all respondents were asked how much they could empathize with the protagonist. Following this question, for participants in the no-interactivity condition and in the low-level-of-interactivity conditions the movie continued. For respondents in the high-level-of-interactivity condition, different options regarding how the movie might continue were presented. For example, the movie was interrupted in the middle of a conversation about money between two characters, one of them being the protagonist. Participants in the high-level-of-interactivity condition could choose whether they wanted to see the female character hand some money to the male protagonist (first option), the female character kiss the male protagonist (second option), or have the movie continue in the way the director thinks would be the best version (third option). If they chose the third option, the respondents saw in fact one of the first two versions, without knowing it. If they chose one of the first two options, they did in fact see what they chose, but this presentation lasted only for a few seconds, before returning to the movie that was the same for everybody (again, of course, without knowing it). Participants in the low-level-of-interactivity or no-interactivity conditions had the chance to alter the ongoing development only at the end of the movie (low interactivity) or not at all (no interactivity), but they were also asked about their feelings of empathy toward the protagonist. With this procedure, two-thirds of the participants felt they interacted with the movie, although all were exposed to almost the same movie.

## DEPENDENT MEASURES

Most of the dependent measurements were obtained using a computer-aided questionnaire; the questions were presented on a screen and could be answered by the respondents using a computer mouse. This required an interface that was developed with Visual Basic software. At the beginning of each session, the respondents could practice using the mouse, in case they were unfamiliar with one (which was rare). Then a number of personality scales were presented on the screen, including a scale to measure the generalized preference for suspenseful media content, and a scale to measure the ability and readiness to feel empathy toward others. The participants were also given instructions, each according to the earlier described experimental manipulations. The movie was then displayed on the same screen in television quality. Neither a keyboard nor the computer itself could be seen, so the participants were not reminded of the fact that they were actually using a computer and not a television set. The questions presented at the end of the movie investigated the feelings and moods of the respondents, their evaluation of protagonists, technical or involving aspects of the movie, and the possibility of intervening in the ongoing narrative of the movie.

In order to obtain information about the participants' capability to process information, two indicators were used. First, the sample was again divided into two different groups, depending on whether they graduated from high school (graduates) or not (nongraduates). It should be emphasized that the German school system features three graduation levels and that by far not everybody attains a high-school level (Abitur). As such, high school graduation served as the first indicator of the respondents' cognitive capacities. Another indicator, usually considered as manifestation of the pace of information processing, was response time, a cognitive correlate of intelligence (Neubauer, 1990; Schweizer, 1995). This information could be measured unobtrusively, in contrast to other possible tests for mental ability that would have extended the comprehensive session furthermore. These two measures for capability of information processing are unsurprisingly interdependent but not equal (graduates had a significantly shorter response time than nongraduates,  $M = 7.7$  seconds vs.  $M = 8.6$ ,  $t(423) = 2.9$ ,  $p < .01$ , but the groups resulting from a split by response-time median only overlap by 59% with the grouping along with formal education).

Because on-line measures were obtained throughout the experiment, it was possible to take the time participants required to answer the questions displayed on the screen as response times. However, prior experience with interactive media may heavily influence these response times. It was necessary, therefore, to adjust for such experiences with regard to the response times obtained in the

experiment. As a second indicator of the respondents' cognitive capacities, therefore, average response times were measured prior to the experiment to take into account the different levels of experience with interactive media.

A 5-point Likert scale was applied to the statement, "Overall, the movie was suspenseful," and displayed on the screen at the end of the movie in order to measure suspense. In addition, participants were asked to continuously rate their level of suspense throughout exposure by using a device that resembled a rather small box with a little button on top that could be moved up or down. Of course, the participants were instructed prior to exposure to move the button upward whenever they felt more suspense, and downward whenever suspense decreased. They could rate their level of suspense in five different degrees. Next to the screen on which the movie was displayed was a light signal, visible to the respondents, indicating the direction in which they had moved the button. Personal conversations with the participants after the experiment, together with analyses of the information provided by using these tools (for example, about the frequency of changing the position of the button throughout reception) did not indicate any problems relating to their usage. The on-line measure of suspense yielded measures for a period of 30 min, a total of 1,851 sec.

Empathy with the protagonist was measured four times by interrupting the movie during exposure, and once again following the end of the movie. The item was constructed as a rating on a 5-point Likert scale, in answer to the following question: "Right now, do you feel for Stefan?" (who was the protagonist).

In addition to using various scales to measure the evaluation of the movie, the protagonist and interactivity, an additional item was used to cover the overall impression of the movie (again on a 5-point Likert scale): "How did you find the movie in general?"

## RESULTS

### Hypothesis 1: The impact of sympathy for the protagonist on entertainment

This hypothesis predicts a strong impact of viewers' feelings for the protagonist on their experience of entertainment, that is, on their empathy with the protagonist, on their feeling of suspense, and on their evaluation of the movie. In order to prove this hypothesis, analyses of variance (ANOVA) were conducted with parasocial relationship as an independent factor, and empathy, suspense, and evaluation as dependent measures. Prior to this, a manipulation check was applied to control the influence of the experimental manipulation of parasocial relationship on the sympathy toward the protagonist. As Table 1 shows,

participants who viewed an introduction to the movie that provided information about the private background of the protagonist (parasocial relationship condition) found the protagonist to be significantly more sympathetic than those who received an introduction providing only technical information about the movie itself,  $t(426) = 4.28; p < .01$ . In contrast to this, the other characters of the story did not rate any more or less sympathetic according to manipulation (Table 1). Therefore, it can be assumed, that the two experimental conditions (with or without parasocial relationship) did in fact lead to different feelings of sympathy toward the protagonist.

TABLE 1

*Sympathy Toward Characters by Either Receiving or Not Receiving Information About the Protagonist*

Sympathy To...	Treatment			
	Information About the Protagonist		Information About the Movie	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Character 1 (protagonist)	4.25	.88	3.88	.91
Character 2	3.03	.89	3.07	.80
Character 3	2.09	.99	2.09	.95

However, this effect did not last very long. When measuring how much sympathy the respondents felt for the protagonist at the end of exposure, all differences had disappeared. Watching the movie for 30 minutes obviously had a stronger impact on the participants' evaluation of the protagonist than did the introduction. We therefore decided to take this measure of post-exposure sympathy into account instead of the manipulated conditions. Based on this, the influence of sympathy for the protagonist on empathy, suspense, and evaluation was analyzed by dividing the total sample (split-half) into two groups (respondents who felt more sympathy for the protagonist and respondents who felt less sympathy). As Figure 1 shows, participants felt significantly more empathy ( $M = 3.37$  vs.  $M = 2.34; t(426) = -11.81, p < .01$ ), more suspense ( $M = 3.42$  vs.  $M = 2.65; t(426) = -7.19, p < .01$ ), and evaluated the movie more positively ( $M = 3.10$  vs.  $M = 2.38; t(426) = -7.80; p < .01$ ) when they liked the protagonist than when they liked him less.

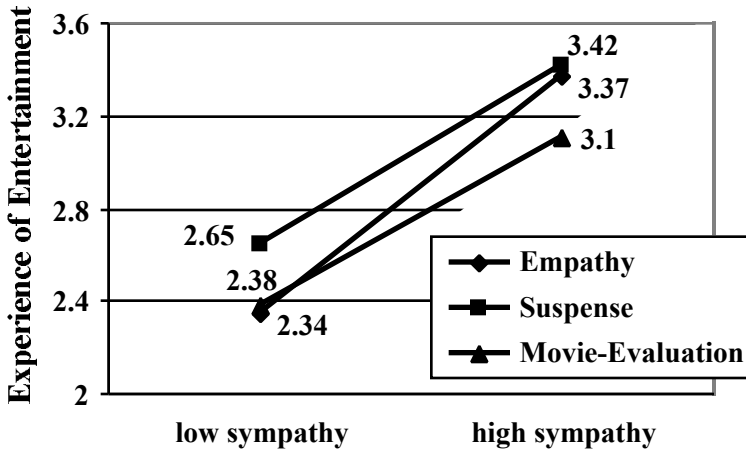


Figure 1. Influence of sympathy on empathy, suspense, and movie evaluation.

Hypothesis 2: The impact of interactivity and cognitive capacity on entertainment

This hypothesis predicts that respondents with greater cognitive capacity will feel better entertained when watching the movie interactively than when they cannot interact with a movie. In contrast, viewers with less capacity should feel better entertained when watching the movie in a traditional noninteractive mode.

In order to test this hypothesis, ANOVAs were conducted with “interactivity” and cognitive capacities, indicated by graduates versus nongraduates or by average response time as independent factors, and empathy, suspense, and evaluation as dependent measures. The resulting six groups comprising three levels of interactivity and two levels of cognitive capacity consisted of approximately 70 respondents each.

The average intensity of feeling empathic with the protagonists was reported to be quite moderate throughout the reception. For the total sample,  $M = 2.92$  on a scale from 1 (*not at all*) to 5 (*very much*),  $SD = 1.02$ . However, it was in fact heavily influenced by the respondents’ cognitive capacities. Using the first indicator, ANOVA showed that viewers who were high school graduates scored significantly lower ( $M = 2.81$ ) than those who were nongraduates,  $M = 3.04$ ,  $t(423) = 2.32$ ,  $p < .05$ . In addition, a statistical interaction was found, indicating that graduates felt more empathy when they were watching the movie in an

interactive way:  $M = 2.94$  for the low-interactivity condition, and  $M = 2.81$  for the high-interactivity condition, in contrast to  $M = 2.66$  for the no-interactivity condition: Nongraduates felt more empathy when they were exposed to the movie without interactivity,  $M = 3.21$ , in contrast to  $M = 2.91$  and  $M = 2.98$ , respectively;  $F(2, 419) = 3.02$ ;  $p < .05$  (see Figure 2).

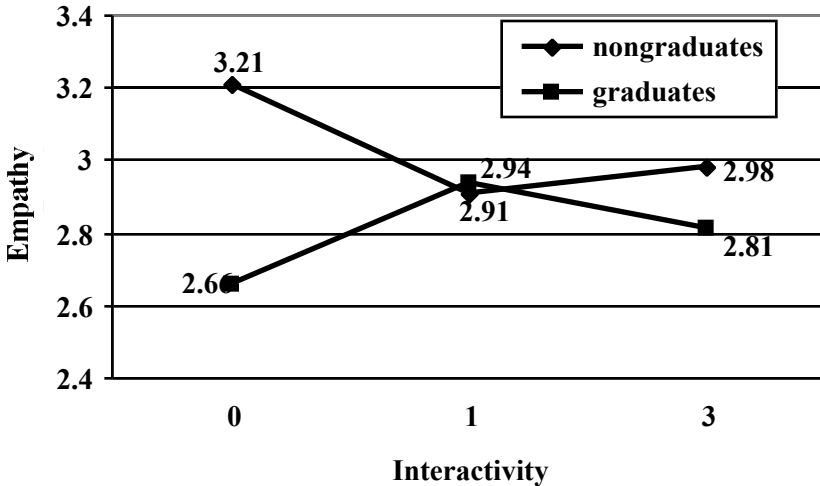


Figure 2. Influence of graduate status and interactivity on empathy.

The average level of suspense yielded  $M = 3.08$  ( $SD = 1.17$ ) for the total sample, with neither cognitive capacities nor interactivity individually having any influence. However, when both factors were taken into consideration simultaneously, a statistical interaction was found: Graduates felt the movie was significantly more suspenseful when they had a chance to intervene with it ( $M = 3.19$  for the high-interactivity condition, and  $M = 3.24$  for the low-interactivity condition, in contrast to  $M = 2.83$  for the no-interactivity condition), whereas nongraduates found it to be more suspenseful when they saw the movie in a noninteractive way ( $M = 3.23$ , in contrast to 3.07 and 2.97 for the two interactivity conditions). Hence, for both graduates and nongraduates, it wasn't relevant how often they could intervene with the movie, but whether they could intervene at all,  $F(2, 419) = 3.05$ ;  $p < .05$  (see Figure 3).

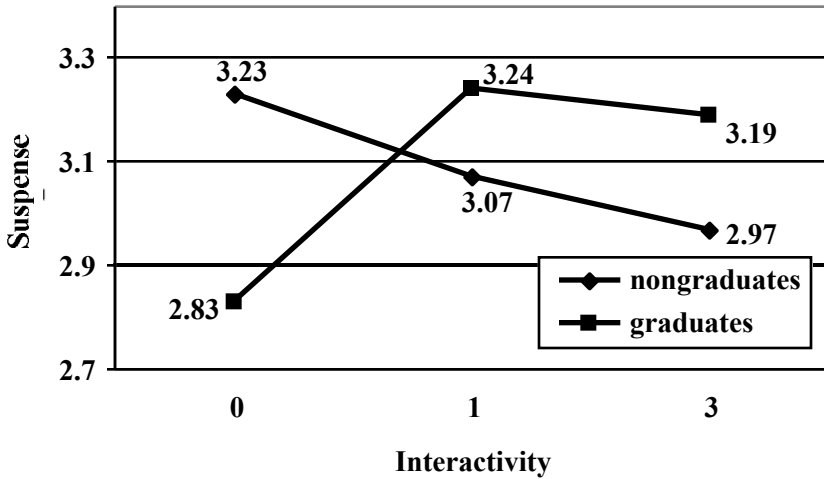


Figure 3. Influence of graduate status and interactivity on suspense.

A similar pattern was found when using the second indicator cognitive capacities. Again, differences between the six groups (three levels of interactivity and two levels of cognitive capacity) were observed, this time as a result of dividing the sample (median split) into two subgroups. One half answered the computer-aided questionnaire rather quickly (greater capacities), one half doing so rather slowly (lesser capacities), and prior experience in dealing with interactive media was taken into account as a covariate.

With regard to suspense, neither cognitive capacity nor interactivity individually showed any influence on the average level of suspense,  $M = 3.08$ ,  $SD = 1.17$ . However, when both factors were taken into consideration simultaneously, a statistical interaction could be found. Participants with greater capacity (shorter response times) felt the movie was significantly more suspenseful when they had a chance to intervene ( $M = 3.06$  for the low-interactivity condition, and  $M = 3.19$  for the high-interactivity condition, in contrast to  $M = 2.74$  for the no-interactivity condition), whereas respondents with lesser capacity (longer response times) found it to be more suspenseful when they saw the movie in a noninteractive way ( $M = 3.31$ , in contrast to 3.23 and 2.95 for the two interactivity conditions). Once again, the combination of cognitive capacity and interactivity led to significant differences,  $F(2, 419) = 4.22$ ;  $p < .05$  (see Figure 4).

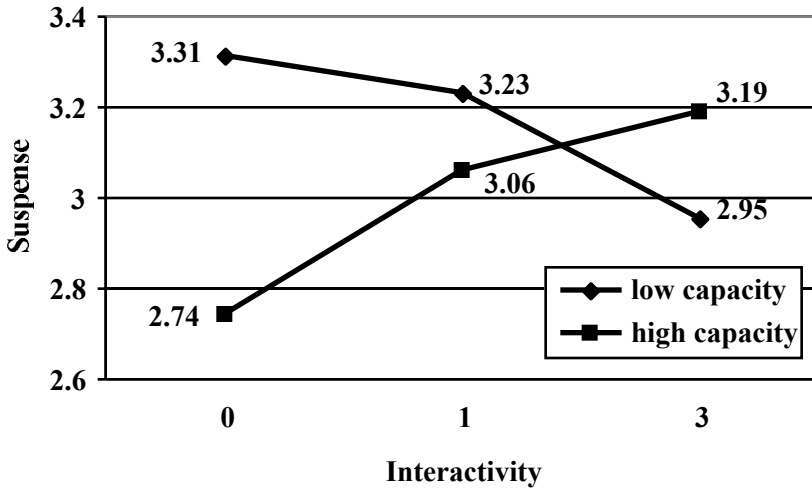


Figure 4. Influence of cognitive capacity and interactivity on suspense.

The general evaluation of the movie was tentatively negative across all participants,  $M = 2.79$ ,  $SD = 1.01$ . Neither their formal education nor the different number of interventions possible with the ongoing narrative of the movie influenced this evaluation. The same holds true for the combination of both factors: No interaction effect could be found. However, when response times were taken into account (as second indicator for cognitive capacities), a significant interaction effect was found. Participants with lesser cognitive capacities evaluated the movie positively when they saw it in the no-interactivity condition ( $M = 3.07$  vs.  $M = 2.82$  for the low-interactivity condition, and  $M = 2.71$  for the high-interactivity condition), whereas participants with greater capacities evaluated the highly interactive version positively ( $M = 2.94$  vs.  $2.55$  for the no-interactivity condition, and  $M = 2.56$  for the low-interactivity condition;  $F(2, 419) = 5.07$ ,  $p < .01$ ; see Figure 5).

As a matter of fact, the possibility of interacting with a movie has an opposite effect on suspense and on the evaluation of the movie within the two different groups of participants: Individuals with greater cognitive capacities (as indicated both by their graduate status and by their average response times) feel more suspense with characters and evaluate the movie positively when they have a chance to intervene with the narrative. On the other hand, for individuals with lesser cognitive capacities, it is just the opposite. They feel more suspense and evaluate the movie positively when they do not have to bother with interactivity. The two hypotheses can therefore be considered supported for the most part.

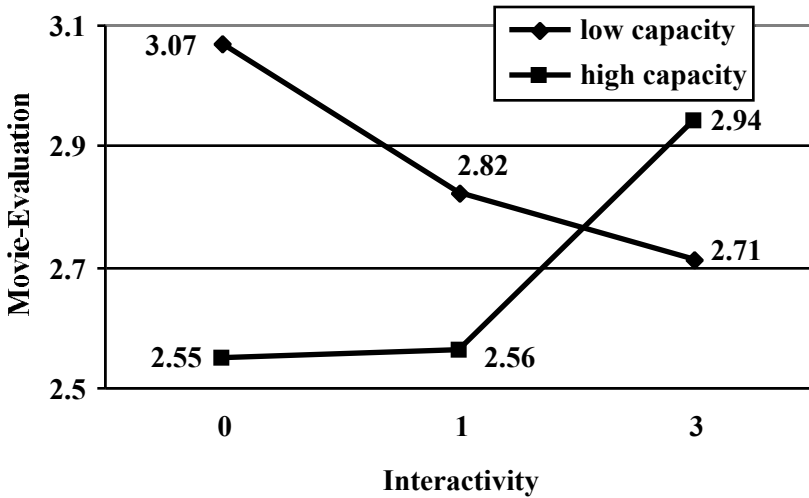


Figure 5. Influence of cognitive capacity and interactivity on evaluation of movie.

### Empathy and Suspense as Processes

However, the analyses of suspense were based on a single postexposure measure only, and the indicator of empathy is limited to the mean of four different measures conducted during and after exposure. It may be argued that these measures, particularly those of suspense, do not give a clear picture of the participants' experience. This experience may be considered to come about as a process and not so much as a state in which viewers happen to be after exposure. If empathy and suspense are, in fact, a process rather than a state, they may change significantly throughout reception. Thus, what respondents usually rate as suspenseful may be nothing but an overall and perhaps strongly biased estimation of how the process looks in retrospect. It therefore seems to be necessary to expand and to broaden the measures by taking into account what happens to suspense during exposure.

As previously mentioned, the participants in this experiment were asked to indicate the level of suspense they felt continuously, that is, on-line. Given these on-line measures, it is possible to study the feeling of suspense over a certain period of time so that one does not have to rely exclusively on single measures after exposure. Time-series analyses lend themselves to scrutinize the data base in great detail, but due to the complexity of the method and the large number of respondents, such an analysis goes beyond our focus. We instead only inspect the obtained data visually. But before doing so, we first refer to the four different measures of empathy.

As far as empathy is concerned, the overall measures (for the total sample) look quite usual ( $M1 = 2.90$ ,  $M2 = 2.81$ ;  $M3 = 2.62$ ,  $M4 = 3.33$ ), so empathy was almost stable. With only a slight decrease during reception until the very end of the movie when it turned around and increased. It should be kept in mind that the fourth and last measure of empathy was obtained after exposure. A significantly higher score of empathy after the movie might in fact indicate a biased estimation by the respondents, because ex-post assessments frequently differ from reports during reception (Fredrickson & Kahneman, 1993).

The same can be shown for suspense. Again, the level of suspense felt throughout exposure was lower at any point than stated by the respondents in the single postexposure measure (reported earlier). If one calculates the mean for the total sample, based on 1,851 seconds,  $M = 2.32$ , whereas the postexposure measure (again for the total sample) was  $M = 3.08$  (see earlier). Looking at the process itself, there is a slight increase of suspense over the duration of the movie, and it is possible to identify “mini suspense and resolution episodes” in the sense of Brewer (1996) that actually fit well with certain scenes in the movie. Not surprisingly, participants rated their suspense the highest during the showdown at the end of the movie (between the third and the final empathy measure).

Along the line of differentiation, we again distinguished between the different groups described earlier (using the first indicator of cognitive capacities: high school graduation), this time applying the procedure to the on-line measures of suspense and the repeated measures of empathy. In order to make it easier to follow the figures, we only include the extreme groups, those with either a high level of interactivity or with no interactivity. Figures 6 and 7 also show the points in time at which the viewers could choose how the movie should continue (given they were in the high-interactivity condition) and the repeated measures of empathy, respectively. Figure 6 describes the respondents with greater cognitive capacities, using graduate status as indicator, Figure 7 those with lesser capacities.

As can be seen, the course of suspense looks pretty similar when comparing the graduates in the high-interactivity condition to those in the no-interactivity condition (Figure 6). When they differ from each other, the highly interactive respondents felt the movie to be more suspenseful than those who didn't interact. Again, empathy was higher among the highly educated when they could interact, for the first and fourth measures in particular (Figure 6).

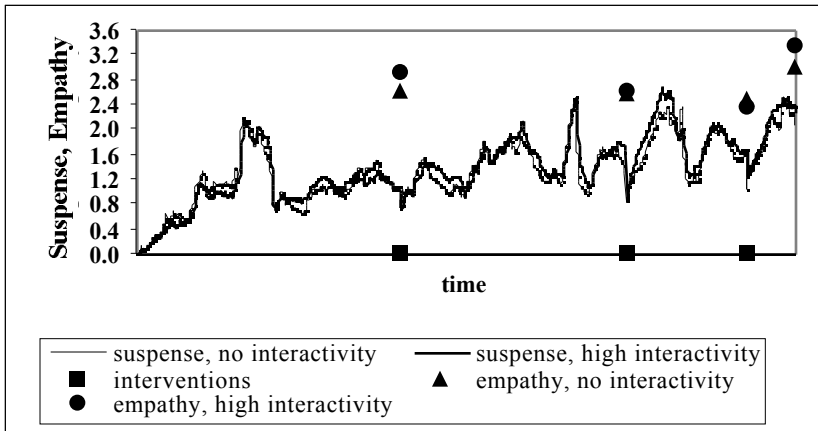


Figure 6. Suspense and empathy of graduates by level of interactivity.

More significant differences can be seen for those who did not graduate from high school (Figure 7). Interestingly enough, both courses of suspense are practically identical up to the first point in time when both groups were interrupted. Briefly after this interruption, the high-interactivity group (those who actually had a choice) felt the movie was less suspenseful than those in the no-interactivity condition (i.e., those who saw the movie interrupted, but only because they were asked how much they empathized with the protagonist and not because they could choose the ongoing developments). The same holds true for empathy. The difference between the two groups developed only after the first interruption. Interactivity seems to distract these respondents from empathizing, with those who did not have a choice about the ongoing narrative empathizing more (see Figure 7).

The on-line measures clearly confirm the results of the ANOVA and even demonstrate, more precisely, that viewers with lesser cognitive capacities feel the same about a movie as long as the movie is not interrupted and as long as they have not been asked to contribute to the development of the movie. Those who are asked, however, immediately begin to feel different in terms of empathy and suspense. The differences between the groups are not a consequence of the interruptions themselves; nor can they be experimental effects. It is the way movies are perceived that makes onlookers' feelings change.

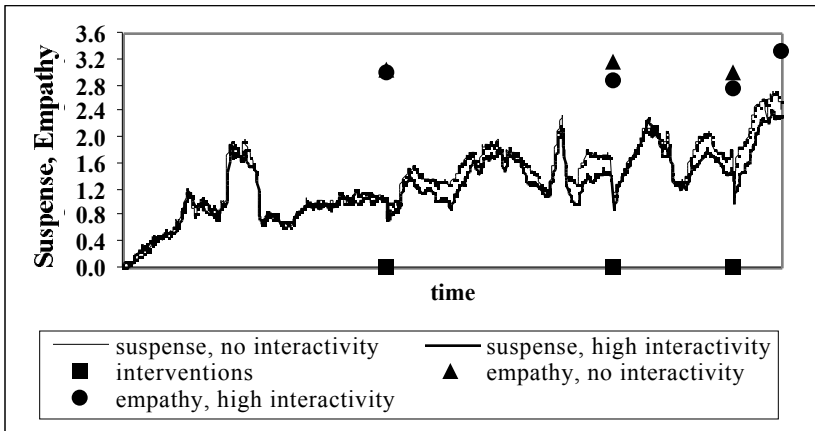


Figure 7. Suspense and empathy of nongraduates by level of interactivity.

Research Question: What influences the respondents' use and evaluation of interactivity?

The research question addressed the issue of whether age, previous experience with interactive media, generalized preference for suspenseful media contents, and the respondents' ability and readiness to empathize with other people have an influence on their usage and evaluation of interactivity, as well as on their entertainment experience. In order to answer this question, the following analyses were restricted to those respondents who had the opportunity to influence the ongoing development of the movie in the experimental condition high interactivity ( $N = 142$ ). Regression analyses were conducted to identify factors that have an impact on the participants actually using the possibility to intervene, as well as to check these factors' impact on the participants' entertainment experience. All factors mentioned in this research question were taken into account (method = forward). Dependent measures (criteria) were, again, empathy, suspense, and evaluation of the movie, together with the number of possible interventions used and the evaluation of this possibility. Table 2 shows standardized values and coefficients of the various regression models. The results clearly show that previous experience with interactive media is the most relevant factor for the actual usage of the interventions possible, as well as for the evaluation of this possibility: The more previous experience participants reported having had with interactive media, the more they chose a specific narrative development of the movie (instead of voting for the director's choice),

and the more positively they assessed receiving the chance to do it. In contrast to this, previous experience with interactive media did not influence the participants' experience of entertainment. Empathy, suspense, and movie evaluation appear to be independent from this expertise. Of importance for their experience of entertainment, however, was the degree to which respondents prefer suspenseful offers in general and whether they were able and willing to empathize with other persons (see Table 2).

TABLE 2

*Regression Coefficients of Various Factors for Using and Experiencing Interactivity*

	Usage of Interactivity	Evaluation of Interactivity	Empathy	Suspense	Movie Evaluation
Experience with					
Interactive Media	.16~	.24**	-.01	.06	-.03
Graduation	.12	-.01	-.10	.10	-.01
Response Time	.01	.06	-.01	-.11	-.09
Age	.01	-.09	-.06	.01	-.07
Preference of					
Suspense	-.10	.02	.05	.11	.22*
Ability to					
Empathize	-.08	-.01	.39**	.09	.07
<i>R</i>	.22	.27	.41	.23	.27
adj. <i>R</i> <sup>2</sup>	.01	.03	.14	.01	.03
<i>F</i>	1.10	1.73	4.69**	1.25	1.83~
<i>N</i>	142.00	142.00	142.00	142.00	142.00

\*\* $p < .01$ , \* $p < .05$ , ~ $p < .10$

## DISCUSSION

The two hypotheses could be confirmed: Viewers who liked the movie's protagonist felt better entertained, that is, they empathized more with him, felt more suspense when he was in danger, and evaluated the movie more positively than those who liked the protagonist less. Also, viewers with lesser cognitive capacities to process information empathized more with the protagonist when they watched the movie in a traditional noninteractive mode. When they saw the movie in an interactive manner, the difference reversed: In this case, the graduates empathized more, the nongraduates less. It seems to be plausible that

with interactivity the nongraduates felt distracted from the movie and could not concentrate on the protagonist as easily. Their attention may have been turned away from the content of the movie toward themselves, as they prepared for the next situation in which they would have to make a choice. For viewers with greater cognitive capacities, it seems as if this choice made them feel even more involved with the story and this, in turn, may have led them to concentrate even more on the protagonist, thus feeling more intensely for and with him. The additional mental effort necessary for interactivity supports a more intense entertainment experience for those who can handle this amount of information easily.

As far as suspense goes, again, the graduates felt more suspense when they could make choices about the ongoing developments, whereas the nongraduates felt less. This shows that interactive television can indeed be entertaining, but not for everybody. Similar results were found for the evaluation of the movie. Viewers with lesser cognitive capacity evaluated the interactive movie more negatively than they did the same movie when they were traditionally exposed to it. In contrast, those with greater capacity evaluated the movie more positively when they watched it interactively. Furthermore, personality factors such as the ability and readiness to empathize, together with a general preference for suspenseful contents, were also of relevance for being empathic toward the protagonist, as well as for a positive evaluation of the movie.

The general conclusion might be drawn that interactive entertainment may in fact be even more attractive than regular entertainment if the right audience is addressed. This is in line with what we know about television and the Internet in general: Regular TV is most attractive to those with a lower level of education, whereas the Internet, being the most interactive medium used nowadays, attracted initially primarily highly educated users with vast experience in using other interactive media. Amid this background, we suspect that the future of interactive media will be successful only with a portion of the general audience. Of course, the crucial prerequisite is not the high school degree, nor is it response time. These are only indicators of specific cognitive capacities that are worthwhile of study in more detail. For future research, more refined measures for mental efforts and agility as well as for decision making should be applied. Furthermore, it is desirable to study higher levels of interactivity that go beyond interactive television, for example in computer games. However, this topic contains even more sophisticated problems for experimental research and the investigation of causal relationships. The days when we could make confident statements, or even predictions, about an overall audience seem to be over.

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