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THE LOW THRESHOLD OF LEARNING FACT FROM FICTION, IMPLICATIONS FOR MEDIA EFFECTS RESEARCH IN EFFECTS RESEARCH

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Abstract

Previous research has shown that people appear to use television fiction memories when asked to make a judgment about social reality. It has been argued that such memory based judgment occurs because people mislabel fictitious memories or because they do not take information about source validity into account. This study argues that fiction contains cues which tell some viewers that some of what they see resembles reality. In that case a viewer makes an on line, stimulus based judgment and learns a fact while watching fiction. This "sudden insight" was called the data setting effect. In a sample of 501 Flemish students 29% of thirteen year olds had knowledge about police procedures in the USA which they could only have obtained by watching TV fiction. Knowledge levels increased with age. 74.4% of eighteen year olds possessed the same knowledge. The paper argues first, that that the data setting effect is strong and persistent. Second, that it may occur at an early age, which may explain why little or no association between measures of viewing volume and knowledge of the TV world is found in adult age groups. Third, the implication of the first two conclusions is that in TV effects research age should not be treated as a demographic background variable, but rather as a measure of overall lifetime TV viewing.

The low threshold of learning fact from fiction implications for media effects research

Bandura (2001) remarks that it has long been established that people do not learn about the world through direct experience only. In their much quoted text on the sociology of knowledge Berger and Luckmann (1976, p. 86) refer to "hunter societies" in which hunters pass on experiences to younger members of the tribe by telling stories around a camp fire. Bandura believes that such a "vicarious capability" is central to being human. Humans do not have to learn all that their predecessors or contemporaries know by experiencing it themselves. One can learn through processes such as "symbolic modeling" and other indirect, that is mediated, ways. It has been argued that sociologists and psychologists do not take these processes sufficiently into account as "most psychological theories were cast long before the advent of extraordinary advances in the technology of communication." (Bandura, 2001, p. 271, see also Bandura, 1994; Hogg & Vaughan, 1995).

Vicarious learning may be a self-evident process when it refers to what people learn from documentary genres such as television news or newspaper articles. Whether you discover that traffic rules have changed because a police officer gives you a ticket (direct experience) or because you saw it announced on television (vicarious experience) or because a friend tells you (interpersonal experience) does not make a big difference: in all three cases you get the impression you learn something about reality. An entirely different issue, however, is the question whether watching fictional television entertainment might teach a viewer something about reality. Berger and Luckmann do not seem to have acknowledged that their hunters might have shown younger members of the tribe what kind of behavior is expected from a hunter by telling a totally fictitious story about a "silly" hunter. Such narrative fiction would have told their young audience exactly what the tribe thinks of any hunter displaying such behaviors... Regarding present day media there is a lot of research claiming to support the notion that watching fictional television stories teaches viewers something about the real world. The best known approach to this issue is, of course, cultivation theory, developed by George Gerbner and his associates of the Annenberg School for Communication of the University of Pennsylvania. A recent meta-analysis of 5633 findings from several hundred studies in the past 20 years concluded that heavier viewers of television have perceptions and attitudes that reflect the mainstream of what is shown on television more than do light viewers (cf. Morgan & Shanahan, 1997; Shanahan & Morgan, 1999).

Mechanisms of learning fact from fiction

Amongst supporters of this theory there is a lot of discussion about the mechanism which explains how people learn about the real world by watching fiction. Generally speaking, it appears that three explanations can be put forward to explain instances in which people seem to have memories based on exposure to TV fiction which they either regard as "real" knowledge about the world or use as input to form an impression about the real world.

The first explanation is that fiction is sometimes mistaken for fact (e.g., Shapiro & Lang, 1991, p. 698). This perspective sees effects of television fiction on conceptions of reality as a kind of "sleeper effect" in which people remember "event memories", but have forgotten the information about the context (which should tell the individual that the memory is fictional). Effects of fiction, in other words, would then be a kind of processing error. They are, as Mares (1996) defined them, mislabeled events which are the result of source confusion. The typical

findings of cultivation studies appear to be explained by this process: people who are heavier viewers will collect a larger number of mislabeled memories, hence a positive correlation between viewing volume and perceptions of the world as shown on TV.

The second explanation is that "people rarely consider the sources of information they use when constructing their social reality judgments" (Shrum, 1997, p. 351). Many of the issues media effects researchers have dealt with regard perceptions of the world people do not necessarily think about much. Thus, when asked to estimate a proportion (e.g., the percentage of working men who are police detectives) or a particular risk (e.g., the risk of being attacked in one's own neighborhood) people will often not just "retrieve" an already set perception, they will have to apply some kind of heuristic to produce the estimate on the spot. Shrum and Darmani Bischak summarized a number of heuristic processes known from social cognition theory to suggest that "people tend to base estimates of frequency or probability on the general ease with which an example can be retrieved (termed the availability heuristic [...]), the ease with which a particular event can be imagined (termed the simulation heuristic [...], and the similarity between features of the event being judged and a prototype (termed the representativeness heuristic [...])" (p. 189). When forming a judgment about reality people "use the information that is most accessible to form these judgments" (Shrum & O'Guinn, 1993, p. 440). Heavier viewers will find it more easy to imagine a view of reality which reflects the stereotypes they are confronted with through their viewing. Shrum argues that people often "do not take the time or make the effort to ascertain the source of the information recalled and thus do not source discount" (p. 350).

Third, while most progress appears to have been made by people like Shrum who have analyzed processes of fiction effects occurring at the retrieval stage, some have offered alternative hypotheses, which suggest that sometimes viewers knowingly and consciously learn from fiction at the viewing stage. Potter (1993, p. 593) suggested there may be five alternatives to the view that cultivation is a "weak but persistent" effect. One such alternative he referred to as the "sudden insight" effect, which might occur when people believe they notice a fact about reality while they are watching. These would be instances where people form an impression of what is presented to them during their viewing experience (a possibility put forward by Hawkins, Pingree, & Adler, 1987, p. 555).

The first two explanations assume that the effect of television fiction is produced at the retrieval stage. When people are asked about their perception of reality they retrieve memories and use these to construct estimates, attitudes, etc. According to the first theory some of these memories will be mislabeled as real, meaning that people believe they did not get them from fiction. The second theory suggests that people do not always take information about the validity of memories into account. They just use what is easiest to remember, without wondering where they got it from. One might argue that the answers thus produced are not perceptions, but constructions, provoked by a researcher's survey questions or experimental design. Neither theory is at odds with Fiske and Taylor's (1991, p. 328) conclusion that using information retrieved from memory as a basis for judgments (which they refer to as memory-based judgment) mainly occurs in unusual conditions. The third theory suggests that sometimes people learn while they are viewing and store information distilled from fiction, believing it says something about the real world. While it may not be obvious to conclude that people decide that a fictitious story contains "real" elements, Fiske and Taylor's (1991) overview of social cognition theory does suggest that, generally speaking, "people tend to form impressions on-line" (p. 329), a process which they refer to as the formation of stimulus-based judgment. This approach actually argues the opposite of what Shrum's (2002, p. 87) heuristic processing model of television effects

illustrates. When making a memory based judgment (which is what Shrum studies), systematic processing (as opposed to heuristic processing) will cause respondents to source discount. It gives them time to think, which allows them to realize that what they thought they knew does not come from a reliable source. It is argued here that in the case of a stimulus-based judgment the opposite is likely to occur. When people are watching television fiction something may trigger an observation which is retained as a fact about reality. Only those who pay attention and systematically process what they see will be likely to make such a stimulus-based, on line judgment.

Distinguishing fact from fiction

The first two approaches outlined above assume that people would not use television fiction as a foundation for constructing an image of the real world if they were sufficiently aware of the source they are using. Shapiro and Lang (1991, p. 698) express this idea explicitly by stating that "Television entertainment memories would not, in general, be used in deciding what the real world is like because they come from an unreal source" (p. 698). Others, like Mares or Shrum, suggest it implicitly by remarking that people either mislabel their memories (not realizing they are "fake") or do not care much whether they are authentic or not. Shrum (2002) probably sums up the underlying feeling best when writing: "it is counterintuitive that people would perceive a television example (...) as applicable to a judgment about its real-world prevalence" (p. 82).

Other authors, however, suggest that even if viewers are aware of the source and realize they are watching fiction they may still believe they are learning something about reality. Central to this debate is a discussion of the concepts of realism and reality. The fact that a program as a whole is labeled as fiction or drama does not have to mean that all of it is fictitious or, more accurately in the context of the present discussion, is perceived as being fictitious. Potter (1988), for instance, discussed several layers of reality in a work of fiction. Even if people realize that what they are viewing is not really happening or is no recording of something that really happened, this does not mean it is impossible to see a reference to reality in it (cf. Meyrowitz, 1979, p. 75). In fact, Bauer (1992) remarks that viewers expect a high level of "apparent facticity". Fiction which is not perceived as being "realistic" may provoke irritation or rejection. Shanahan and Morgan (1999) see "representational realism" as the "dominant convention" in the way stories are told in Western cultures. They summarize it as "the form of story-telling in which the hearer or viewer is convinced that, if certain assumptions are taken for granted, the events taking place could happen "in reality"." (Shanahan & Morgan, 1999, p. 21; see also McQuail, 2000, p. 352).

Potter (1988) already noted that "media content contains cues which alert viewers to the degree of reality in those messages" (p. 36). He seems to have applied this idea to the distinction between news and fiction, but it can be applied more widely. Realism in this context appears to be created by two sub-processes of what is sometimes referred to as intertextuality (cf. McQuail, 2000, p. 498; Watson & Hill, 2000, p. 317). This is a situation in which one "text" (or media message) refers to another one. On two levels viewers get cues which may give them the impression that fictitious stories they are watching contain lessons about reality. The first process is repetition. If a particular way of presenting a story returns in many different series, films and other settings, this may suggest to viewers that it must therefore be based on a "prototype". Viewers may infer that the most likely model for the prototype was a real one. In this case intertextuality is created by similar texts (or programs) referring to each other. The second

process is what texts other than television fiction tell viewers about the levels of realism in fiction. Most authors appear not to have identified this process so far, possibly by focusing too much on the medium they were studying. Generally the "context" of a program seems to have been defined as those elements of what is shown which alert viewers to the fact that it is fiction. However, there is a much wider context which informs the viewer about the reality level of television fiction. In interviews in various media directors will typically refer to the "research" that went into the making of a series and actors will explain how they went to "boot camp" or on police ride-alongs to learn to portray soldiering or policing in a "realistic" way. Books are sometimes published discussing the extent to which popular series are based on (fictionalized) real events. Thus David Simon's (1991) book "Homicide, a year on the killing streets" was the basis for the series "Homicide, Life on the Streets", which adapted storylines from real events described in the book. David Milch and former New York City Police detective Bill Clark (1995) wrote a book explaining how detective Clark got involved in the development of reality based storylines for "NYPD Blue" and Alan Duncan Ross and medical doctor Harlan Gibbs (1997) discuss in detail whether and to what extent what is shown on "ER" reflects the realities of medical techniques used in the emergency room.

Consequences of the "sudden insight" effect

Potter (1993, p. 593) believes that it may require a lot of viewing before a viewer has a "sudden insight". A certain threshold may therefore have to be reached before this effect can occur. Bonfadelli (1983, p. 417), writing in a Swiss context, however, believes that in certain circumstances the threshold for this kind of learning effect to take place might actually be rather low. The threshold idea appears to be supported by the findings of Rössler and Brosius (2001) whose unusual experimental design suggests that it only takes a fairly small number of repetitions for a cultivation effect to take place.

Both Potter and Bonfadelli realize that a threshold implies the possibility of a ceiling as well. Sudden insight effects are, as it were, binary in nature: either one remarks and retains a "fact" or one does not. More viewing will thus not necessarily lead to more effect: one can notice other or new facts, but one cannot learn more of the same (Potter, 1993, p. 593; Bonfadelli, 1983, p. 417). Potter (1988, p. 160; 1993, p. 593) believes not all viewers will be predisposed equally to "noticing" factual information in fictional representations. All else being equal, however, one would expect heavier viewers to learn more facts and/or to develop more elaborate combinations of facts. Thus they develop increasingly complex "schemas", which Fiske and Taylor (1991) defined as "a cognitive structure that represents knowledge about a concept or type of stimulus, including its attributes and the relations between these attributes" (p. 98). Someone who does not watch a lot of television or does not possess Potter's predisposition to learn facts from fiction might only notice that (on TV and in the movies) in the United States policemen carry badges. A heavier viewer or someone more inclined to notice regularities which suggest they reflect reality, might believe to have learned that not only policemen have badges: security guards and some ambulance technicians may also have them. Or, they may believe that detectives are set apart wearing gold shields, or that police officers from New York refer to their badge as their "shield" etc. The schema of the heavier viewer regarding identification badges is more elaborated because he or she has "learned" more facts, but a basic question such as "Do American police officers carry a badge?" would be answered correctly by both the light and the heavier viewer, given that they had noticed that people presented as police officers in American fiction always seem to have a badge pinned to their uniform shirts, and believed this to reflect reality.

Research design

The present study attempts to examine threshold and ceiling effects connected to the "sudden insight" hypothesis by using a particular feature of the Flemish broadcasting situation. As in many countries television programs produced and first aired in the United States take up a large proportion of what is broadcast in Flanders (Biltereyst, 1991, 1995). Up to 25 % of television fiction is American (Biltereyst, 1995). In fact, all the crime and police shows studied by Scharrer (2001) in an American context have been shown on Flemish TV. While some believe the dosage may be different in different countries (cf. Blumler, Brynin, & Nossiter, 1986; Von Feilitzen, Strand, Nowak, & Andrén, 1989), the conclusion has to be that Flemish viewers are exposed to a lot of the same fiction American viewers watch. This offers an interesting basis for TV effects research. One problem researchers from the United States have been faced with is the fact that they were trying to assess the impact of fictional, but realistic looking storytelling on people's perception of their own (i.e. American) society. The present study will 1) ask respondents who have no direct experience with the United States about their knowledge of facts concerning the United States and 2) will ask about facts for which ordinary respondents have no source of information other than television fiction. This approach follows Shrum's (2002, p 70) recommendation that a good process model of media effects should provide a clear link between the stimulus (in this case: exposure to particular elements of American fiction) and the response (the assumption by the viewer that these elements are the same in reality and the subsequent retention of these elements as knowledge about the USA). It is argued here that this approach makes what Shrum refers to as "threats to internal validity such as spuriousness and reverse causality" less plausible.

Some authors have argued that "crime shows may be an important source of knowledge concerning arrest rights" (Carlson, 1985, p. 17). McNeely (1995) believed that "in some ways, the most direct "contact" that most persons have with the criminal justice system is through the "television experience". Gunther (1971), for instance, hypothesized that "There must be millions of people who have learned simply by watching crime dramas in the past few years, that they have the right to remain silent when arrested." Chernikoff Anderson, Knutson, Giles, and Arroyo (2002, p. 11) discuss a United States Supreme Court case in which one party argues that fictional representations of the Miranda Rights "legitimize the real criminal justice system (p. 11). A law enforcement officer who "reads a suspect their rights" is a common fixture of American audiovisual crime drama. It is a narrative tool which tells the viewer that an officer is lawfully arresting a suspect (as opposed to the countless cases were an officer throws out the book and turns into a self-appointed vigilante). There is a high level of "realism" in this cliché. As a result of a Supreme Court decision in Miranda v. Arizona in 1966, a person in police custody in the United States of America cannot be interrogated unless that person is given the following warnings (Inbau, Reid, & Buckley, 1986, p 221):

1. You have the right to remain silent
2. Anything you say can and will be used against you in a court of law.
3. You have the right to talk to an attorney and have him present with you while you are being questioned.
4. If you cannot afford to hire an attorney, one will be appointed to represent you before any questioning, if you wish.

While the Miranda Warnings, as they are often called, actually do exist, there are a number of differences between the use made of them in real life and the way in which they are customarily represented in television fiction. The most important difference appears to be the chronology of

procedures. On television and in films suspects are usually read their rights at the time of the arrest. In reality only the State of Louisiana has a constitutional provision requiring that the warnings be given at the time of the arrest (cf. Inbau et al., 1986, p. 281). In the real world it is important that suspects are informed of their rights before they are being questioned by the police.

Knowledge of the Miranda Rights might therefore be an excellent vehicle for testing the sudden insight hypothesis:

1. The wording of the warnings refers to the real world, the moment they are usually used in TV fiction, however, differs from reality.
2. Flemish constitutional rights are different. There is no danger of overspill from what local, direct experience teaches the respondent.
3. Flemish viewers have no source of knowledge other than television fiction.

It is important to stress the third point. At the time of the study Flemish television did not yet show any American reality-based shows such as "Cops" or "911" which pretend to dramatize or show "real" policing. Neither are American arrest procedures a subject which generally receives attention in non-fiction genres, including the news media. While it is theoretically possible that respondents in this study went to libraries or searched the internet to learn what the implications of the Constitution of the United States of America are for arrestees, it is clear that this is highly unlikely. It is particularly unlikely because the study only looked at 13 to 18 year olds. By looking at this age-category it was hypothesized that both the threshold and the ceiling of the "sudden insight" model might become visible.

The questions of this study therefore are:

R1: Which percentage of 13 to 18 year olds can quote (at least some of) the Miranda Warnings?
R2: When do the respondents think the Warnings are offered to an arrestee?
R3: Is there an age threshold below which no such learning effects appear to occur?
R4: Is there an age ceiling beyond which no more learning effects appear to occur?
R5: What is the relationship between self-reported TV viewing volume and knowledge of the Miranda Warnings?

Method

Subjects

Fourteen schools were randomly selected from a list of secondary schools in Flanders, Belgium. Ten of these schools were willing to take part in the study which was presented as an omnibus study on the leisure habits of Flemish youngsters. In each school two classes were randomly selected. In those classes all children were asked to take part. These students were given a questionnaire. 545 students took part. Of these 501 had not been to the United States before and were therefore retained for this study. The questionnaire was long and consisted of many questions regarding several subjects. The questions about the Miranda Warnings appeared in a section about "knowledge about the world". The questions measuring television viewing came later, in a different section claiming to deal with "leisure activities" and were only one of a large number of media and leisure questions. This way the study design attempted to avoid the "demand artifact problems" discussed by, amongst others, Morgan and Shanahan (1997, p. 12). 39.1% of the respondents were boys. Mean age was 15.6 (SD 1.65), there was a slight under representation of younger boys.

Miranda Warnings

The respondents were asked "What are the rights of an arrested person in the United States of America?" The question was open ended but as a kind of cue or hint they were given five, numbered lines on which to write their replies. Coders noted for each of the Warnings (including the fifth, rather superfluous, warning which is often added, such as "you can decide at any time to exercise these rights and not answer any questions or make any statements"), whether the respondent reproduced it (though not necessarily verbatim, as there are many different versions) either in Dutch or in English. Second, the respondents were asked: "When should an arrested person be advised about his or her rights?" Four possible answers were given: (1) at the time of the arrest; (2) before interrogation; (3) after interrogation; (4) in court, before the beginning of the trial.

Television use

For each day of the week the respondents were asked to indicate how much they usually watched television on that day, indicated in hours and minutes. These seven measures were summed to obtain an estimate of weekly viewing.

Controls

Controls included demographic variables such as age, level of education and gender.

Debriefing of respondents

Once the questionnaire was handed back by all attendees a verbal debriefing informed the respondents of the true purpose of the survey. None reported ever having been arrested in the United States or having any other form of direct experience with the subject. Also, none of them remembered ever having read a book or seen a documentary on the workings and procedures of American Law Enforcement. Film and television fiction thus appear to be the only source of knowledge regarding this issue.

Results

Knowledge of the Miranda Warnings

Table 1 shows which percentage of each age group was able to quote which of the Miranda Warnings. Table 2 shows the sum of correct warnings by age group.

Table 1: Percentage of Respondents Who Can List a Miranda Warning

		Age					
	Total[a]	13	14	15	16	17	18
1. Right to remain silent	41.8	21.1	26.0	37.6	39.3	57.5	62.8
2. Will be used against you	35.0	20.9	27.3	37.2	34.8	53.7	41.9
3. Right to an attorney	43.6	16.7	24.7	39.8	49.4	54.0	68.6
4. Provided for free	9.5	3.0	6.5	9.7	6.8	14.9	14.0
5. Invoke rights anytime	3.0	0	2.6	1.1	2.2	8.0	3.5
n[b]	501	68	77	94	89	87	86

Note: Percentage respondents in each group who give this answer

[a] Across all age groups

[b] Number of respondents

A little less than a third of the youngest children were able to quote at least one of the Miranda Warnings. Knowledge seemed to increase by age, with about three quarters of the eighteen year olds able to reproduce at least one Warning. Table 1 shows that not all warnings are equally well known. The first three are mentioned most often. Remarkably there is no significant difference between boys and girls for any of the variables with one small exception: overall 15% of the boys knew the fourth warning, while only 1 percent of the girls did so (t 3.047; df 305,193; p<.003). Across all ages 44.3% were unable to quote any of the rights. The majority of those who did know any of the warnings knew more than one: only 10.9% of all respondents only had one right answer, while 44.8% knew two or more. Only 1.4% of the respondents knew all five.

Table 2: Number of Warnings Quoted Correctly By Respondents

		Age					
	Total[a]	13	14	15	16	17	18
Knows 0	44.3	70.8	61.0	47.3	38.6	31.0	25.6
Knows 1	10.9	10.8	10.4	13.2	17.0	6.9	7.0
Knows 2	21.7	9.2	13.0	17.6	22.7	34.5	29.1
Knows 3	16.6	6.2	11.7	14.3	15.9	13.8	29.1
Knows 4	6.1	3.1	3.9	7.7	4.5	8.0	8.1
Knows all 5	1.4	0	0	0	1.1	5.7	1.2
Knows at least 1	55.7	29.2	39.0	52.7	61.4	69.0	74.4

Note: percentage respondents in each group who have this many correct answers
[a] Across all age groups

When are the rights read?

As Table 3 shows most respondents believe the Miranda Warnings should be given when the suspect is being arrested. Interestingly, this "TV answer" is given more often in older groups. In the eighteen year old group just 1.2% of the respondents did not believe the warnings have to be given at the time of the arrest. Incidentally all 1.2% gave the "correct" answer.

Tabel 3: When Are the Miranda Warnings Read?

		Age					
	Total[a]	13	14	15	16	17	18
Time of arrest	84.7	71.2	83.6	79.5	82.9	86.6	98.8
Before questioning	7.8	9.6	4.9	12.3	6.6	12.2	1.2
After questioning	3.8	5.8	4.9	6.8	6.6	0	
Before court case	3.8	13.5	6.6	1.4	3.9	1.2	

Note: Percentage respondents in each group who give this answer
[a] Across all age groups

Threshold and ceiling effects

Tables 1 through 3 show that the respondents were already too old for any threshold effect to show: 29% of the youngest respondents already possessed active knowledge (i.e. produced through non-aided recall) of some of the Miranda Warnings. It is hard to speak of a ceiling effect for the non-aided recall question because even at age 18 a quarter of the

respondents could not reproduce any of the warnings. However, the aided recall question regarding when the rights should be read does show clear evidence of a ceiling effect. While the percentage of respondents believing it is the first option is high for every age, it reaches an obvious maximum by the time respondents are eighteen.

Relationship with TV viewing volume

Mean overall viewing volume was 16 hours and 59 minutes (SD 9H36). Table 4 shows that fourteen year olds watch more than thirteen year olds, but that from the age of fifteen viewing volume start to decrease. Table 5 shows zero order and partial correlations between TV viewing and knowledge of the five Miranda Warnings, the sum of correct answers, the binary variable indicating whether or not a respondent knew at least one of the Warnings and a binary version of the variable indicating whether or not the respondent believed the warnings had to be read at the time of the arrest.

Table 4: Average Weekly Viewing in Minutes by Age

Age	M	SD
13	1080	546
14	1331	725
15	1019	549
16	998	497
17	913	538
18	814	467
All respondents	1019	576

Table 5: Zero Order and Partial Correlations Between TV Viewing Volume Age and the Variables Measuring Knowledge of the Miranda Warnings

	TV[a]	TV[b]	Age[a]	Age[c]
Warning 1	-.11*	-.06	.30***	.30***
Warning 2	.01	.03	.15***	.14***
Warning 3	-.09	-.02	.34***	.31***
Warning 4	-.01	.02	.12**	.14**
Warning 5	-.04	-.02	.10*	.12*
Sum of Warnings	-.07	-.02	.32***	.31***
Knows at least 1	-.12**	-.09^{+}	.31***	.28***
At Time of Arrest or Not	-.09^{+}	-.02	.20***	.19***

Note: $^{+}$ $p < 0.10$ * $p < .05$ ** $p < .01$ *** $p < .001$

[a] Zero Order Correlation

[b] Controlling for Age, Gender and Level of Education

[c] Controlling for TV Viewing Volume, Gender and Level of Education

The results show a small zero order correlation between viewing volume and knowledge of the first warning, correlations of a similar size are found with knowledge of at least one of the warnings and a borderline correlation is found with believing that the Miranda Warnings have to be read at the time of arrest. While these results are close to the $r=.09$ which Shanahan and Morgan report as an overall result of their meta-analysis, they are negative, suggesting that those

who report watching more TV actually know less! When controlling for age, gender and level of education the relationships virtually disappear. Age, on the other hand, is correlated more strongly with all of the variables and controlling for viewing volume, gender and level of education does not appear to influence the relationships.

Discussion

A traditional analysis of these data would at best have revealed a "small but weak" relationship between viewing volume and knowledge of the Miranda Warnings. Critics would have remarked that the relationship was the wrong way around with heavier viewers appearing to possess somewhat less knowledge. A look at the simple frequencies, however, reveals an entirely different picture. About a third of the youngest and about three quarters of the eldest respondents knew at least one of the Miranda Warnings, knowledge which a Flemish youngster in ordinary circumstances will only be exposed to through television fiction. It appears that this kind of knowledge effect starts to occur at a very early age. A new study of children younger than thirteen might show at which age viewers start to remember "facts" they can only have learned by watching fiction. In other words, the threshold for learning fact from fiction must lie at a younger age. Regarding a ceiling effect the matter is more complicated. At age 18 about a quarter of the respondents could not quote at least one of the Warnings. As the distribution of knowledge across ages appears to follow a linear line there is no evidence that this is the ceiling. The proportion of people who are able to quote at least one of the Warnings might therefore be even higher at a later age, but it is also possible that some people never believe or notice "facts" in fiction. This is not true of the aided recall question which offered the respondents four answers to choose from when asking when an arrestee should be informed of his or her rights. Here it is clear that at age 18 a ceiling must have been reached: "knowledge" of the TV version of reality cannot increase far above 98.9%!

As outlined in the theory section many authors have argued that if people use information they get from television fiction they do this either because they do not remember that is where they got it from (the Shapiro/Mares view) or because they do not occupy themselves with the validity of certain memories that are easy to retrieve (the Shrum view). This line of thinking suggests that people somehow either forget or ignore that what TV fiction shows them is "not real". The present study suggests that on some occasions another process explains the relationship between knowledge and TV exposure. From the fact that viewers know that a particular TV program belongs to a fictional genre it does not have to follow that they should therefore believe that all they see exists only in the realm of fiction. In fact, in Western culture the context of TV fiction tells viewers that some of what they see looks exactly like what similar events or elements would look like in reality. Viewers may thus experience a "sudden insight" and make a stimulus-based judgment about the real world, based on a work of fiction. While Shapiro, Shrum and others refer to processes at work during the retrieval stage of memory processes, the sudden insight effect occurs "on line", while viewing. Some viewers appear to make a more or less conscious decision that part of what they are looking at, while imbedded in a fictional story, is showing them something that also exists in the real world.

This effect is probably an either/or effect. Either one notices a particular fact and retains it because one believes it is realistic or one does not. More viewing cannot lead to more effect. Rather, more viewing might lead to a more complex schema in which viewers add to their already acquired knowledge. Thus viewers who know that arrestees should be read their rights become increasingly convinced that the only logical moment to give these warnings is at the time

of the arrest, which is where it appears most often in the TV world, for dramaturgical reasons. More viewing leads to learning more facts, not "better learning" of the first fact.

Potter (1993, p. 593) remarks that a sudden insight effect may not occur to each viewer in the same circumstances. Some might get it after just a little viewing, some after hours and hours and other viewers might never get the impression that a certain stereotype refers to reality. Elsewhere the same author remarks that "some viewers may "see" much more reality in the message than others" (Potter, 1986, p. 160). As McQuail (2000) has remarked, all too often media effects theories start from an underlying transmission model, suggesting that the media "transport" certain perceptions and opinions directly into the heads of receivers. In reality, however, many cognitive processes intervene. As a result the same media message may have a different meaning to different people. Beck (1994, p. 38) therefore introduces a distinction between data (those stimuli produced by the media and serving as "input" to a "cognitive system", i.e. a person) and information (the end product of the personal and cognitive processing of the data by the media user). Applied to the idea of a sudden insight effect Beck's ideas seem to warrant the introduction of two new concepts: data setting and boundary setting. A data setting effect occurs when data in the media message offer little or no room for interpretation. This appears to occur when viewers believe they learn facts from fiction (cf. the Miranda Rights). Either people believe that what they see is as it is in reality, in which case they learn the data, or they do not, in which case no effect occurs. The data in the program differ little from the information ending up in the head of the viewer. It becomes more complicated when the data offered by the program can be interpreted in several meaningful ways. Data in television fiction showing a "mean and dangerous world" may frighten, make aggressive, or simply entertain viewers. In this case boundary setting effects may occur, because such data allow very different interpretations within broad or narrow boundaries. Few people will get the impression that television fiction is telling them the world is a safe place where people can trust one another and are seldom at risk, an interpretation clearly falling outside the boundaries of television fiction. Within the boundaries, however, big differences between viewers may occur. Media fiction may therefore have effects much like those of the agenda setting effect of news, of which Cohen (1963) stated in the sixties that it "may not be successful much of the time in telling people what to think, but it is stunningly successful in telling (people) what to think about".

Finally, the data-setting-hypothesis has severe consequences for media effects research. For two reasons the possibility of a low threshold for data-setting to occur limits the usefulness of correlations and similar data-analysis techniques. First, once a fact is learned more viewing might not make a big difference: although some repetition might be necessary to stop the viewer from forgetting what s/he has learned, repetition can only lead to the viewer noticing other elements (thus developing a more elaborate schema), not noticing "more" of the same fact. A group of respondents can therefore only be divided into those who have and those who have not learned the fact in question. Second, cross sectional studies always relate perceptions, judgments etc. to some measure of current TV viewing habits. This is probably a good research strategy when examining the effect of memory-based judgment, as in studies looking at the availability heuristic, because one can argue that only what is constantly and recently repeated will remain easily retrievable. For those theories not based on the availability heuristic, however, the low threshold shown in the present study poses a bigger problem. As viewing volume decreased with age, while knowledge of the Miranda Warnings increased with age, a classic statistical analysis showed a negative correlation between knowledge and viewing. This result suggests that present viewing habits are not necessarily a good indicator of accumulated total lifetime viewing. If some effects occur once a certain threshold has been reached, after which more viewing may

keep the knowledge active, without increasing anything, then what one watched in the weeks or even months before a cross sectional study was done will be a poor indicator of television's impact (cf. also Shrum's discussion of frequency vs. recency of activation in which it is suggested that recency is a transitory effect: Shrum, 2002, p. 72). This idea also applies to an often made observation regarding the low correlations found in cultivation research. In the societies most studied by cultivation researchers virtually all people watch a fair amount of television. It is therefore possible that the distinction between light and heavy viewers no longer makes much sense: it is impossible for most people to escape being exposed to a minimal amount of the television mainstream. To cultivation researchers this explains why correlations between viewing volume and effect cannot be expected to be very high (e.g., Morgan & Shanahan, 1997, p. 33). Similarly Rosengren (1994) remarked that studies of television fiction's effect usually do not refer to an event (the "effect") which took place during recent viewing behavior, but to the cumulative effect of decades of TV viewing. If, as is often suggested, virtually all twelve year olds have literally seen tens of thousands of fictional murders (cf. Weimann 2000, p. 94), then whether some twelve year olds watch twice as much TV as some other twelve year olds is probably less relevant than the fact that virtually all of them have had several years of exposure.

The conclusion of this study should therefore be threefold. First, this study showed that people can actively recall facts which they learned while they were watching television fiction. Such "sudden insight" effect, was tentatively coined the data-setting effect. Second, as a data-setting effect as abstract as knowledge of an arrested person's constitutional rights in a foreign country were already learned by about a third of a sample of thirteen year olds, it may be too late to try to find a link between exposure and knowledge at a much later age (as would be the case in cross sectional studies of adults). Viewing habits of one period will reveal little about what was learned much earlier, as the correlation between viewing and knowledge shows. Third, as a result: when studying media effects one should realize that age is not just an intermediary background variable measuring some demographic fact which is often included out of habit (and ignored). In much research age should probably be regarded as the central variable which is the best estimate of total TV exposure.

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