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Couched Potatoes or Critical Citizens: Devising an Instrument to Measure Media
Literacy¹

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Introduction

Claiming that the media play a large role in people's lives has almost become an understatement; they are ubiquitous, and a life without the media is hard to imagine. Besides spending a great deal of time using the media (see e.g., Huysmans, de Haan, and van den Broek, 2004; Papper, Holmes, & Popovich, 2004; Roberts, Foehr, Rideout, & Brodie, 1999), media content also plays an important role in informing people about the world around them. The media constantly disseminate information about current events and political developments (see e.g., Potter, 1998; Silverblatt, 1995), thus providing people with the information they need to make decisions as citizens in a democracy. Moreover, the media provide content that touches on people's culture, their norms and values, and other socio-cultural concerns (see e.g., Brown, 1998; Fiske & Hartley, 1978; Gerbner, Gross, Jackson-Beeck, Jeffries-Fox, & Signorielli 1978; McLeod, 2000).

The media thus play a large role in both people's personal lives, as well as democracy as a whole. In order not to be caught unaware, people therefore need to know about this large role; i.e., they need to be media literate. The need for media literacy is further increased by the fact that the media do not always supply perfectly unbiased, complete, and correct information (Entman, 1989). If people want to actively shape the role that the media play in their lives, they need to, first of all, be aware of the socializing potential and other possible influences of the media. Various authors have pointed out that this awareness could help reduce the influence of the media on people's lives (e.g., Irving & Berel, 2001; Potter, 2004). Furthermore, if one wishes to sustain a well-running democracy, media users need to be able to assess the value of the information presented to them by the media, i.e., they must be media literate (Hobbs, 2005).

In this paper, we will first discuss the relevance of developing an instrument to measure media literacy, and elaborate on its specific focus on television, youngsters, and democracy. Next, we will present the definition of media literacy utilized in this study, as well as the various pretests and pilot studies used to refine the measurement instrument. Following this discussion, we will describe the final instrument, the steps that were taken to ensure reliability and validity, and finally, our findings regarding what the respondents

knew about the aspects of media literacy addressed in our study, and which factors influenced their levels of understanding.

Measuring Media Literacy

Concern about the large role that the media play in people's lives is nothing new. Since the mid-1960s, large numbers of scholars have concerned themselves with media literacy. They have written about what people need to know in order to be considered media literate, and they have spent time and effort developing programs which could help media users become more critical (e.g., Brown, 1991; Court & Criticos, 1998; Criticos, 1997; Dorr, Browne Graves & Phelps, 1980; Greenway, 1997; Hall & Whannel, 1964; Hobbs, 1998a, 1998b; Hobbs & Frost, 2003; Murdock & Phelps, 1973).

However, even though researchers such as Kline (2005) and Mansess (2004) actually claim that children are media savvy and are capable of using the media in a critical manner, the fact is that these claims are based on assumptions, while very little is factually known about how media literate people are, as testified by Buckingham, Hey, and Moss (1992). Most empirical media literacy research is concerned with testing the effectiveness of various media literacy programs (cf. Gonzales, Glik, Davoudi, & Ang, 2004; Hobbs & Frost, 2003; Vooijs & Van der Voort, 1989, 1990) and little research has been concerned with measuring the so-called entry condition; i.e., the level of media literacy that pupils possess before entering a media education project (Alvarado & Boyd-Barrett, 1992; Bouwman, 1989; Duncan, 1992; Fuenzalida, 1992; Hobbs, 1998a; Piette & Giroux, 1997).

Since the late 1980s, various researchers from all over the world (e.g., Hart, 1992; Mansess, 2004; Scharer, 2003; Vooijs & Van der Voort, 1989) have suggested that an important, and thus far neglected, step in the field of media literacy and especially in ensuring the effectiveness of media education programs is the development of a measure to assess media literacy. Thus, in this article we will report on a study into the development of a standardized instrument to measure media literacy.

This instrument could benefit the field of media literacy and the general population in two ways. First, its results could provide insight into the extent and type of media-related knowledge and understanding people have; which determines whether or

not they are able to adopt a critical attitude towards the media. It could supply answers to questions such as: what do consumers know about the media, are they aware of their possible impact, and how do they use the media themselves? Second, the information received from this measurement instrument could render future media education projects more effective, because these projects can be adapted more adequately to students' abilities. Van der Voort and Vooijs (1989) noted that the problem with most media education projects is that because of the lack of information on the entry behavior and/or knowledge of the participants, they are not based on what students already know about the media, but instead on what researchers feel media consumers should know about the media.

So far, three studies have looked into the possibility of measuring children's level of media literacy. McMahon (2003), Buckingham (1993), and Quin and McMahon (1993) used different means to assess various aspects of media literacy. Although all three studies provide insight into how a measure could be developed, none of the constructed instruments are completely standardized, meaning that they could be applied at any time by any one person and immediately provide insight into how students compare on their knowledge about certain aspects of the media and their use. In addition, none of the instruments were assessed in terms of their reliability and validity. The instrument developed in this study will not only be a standardized measure that can be applied in any setting at any time, but its reliability and validity will also be extensively tested. In addition, the studies carried out by Buckingham (1993), and Quin and McMahon (1993) are very similar to other media literacy investigations in that they appear to spend little effort on explaining their views on media literacy. In a number of studies, the definition of media literacy is only briefly outlined before the researchers move on to the description of the study (e.g., Anderson & Ploghoft, 1980; Hobbs & Frost, 1999; Scheibe, 2004). Little attention is paid to why media literacy is defined the way it is, and what each aspect specifically entails, and in many cases, researchers use different definitions. As a result of this lack of unanimity about how to define media literacy there is no clear idea of what it is that people need to know in order to be considered media literate. Consequently, it has been very difficult to create a common body of knowledge from which media literacy research can move forward and explore new areas of media

literacy research. Conversely, this study will construct a clear and detailed definition of media literacy by summarizing existing notions of media literacy into one overarching concept of media literacy.

Focus of the Instrument

Media literacy is a vast, rich, and multi-faceted concept; it can concern every medium, genre, and topic covered by the media. Measuring this concept in its entirety is not possible, hence in order to develop a successful instrument, several decisions needed to be made regarding the focus of this study.

As described above, there are two good reasons why the general population needs to be critical of the media; namely the size of the role the media play on both an individual and a societal level. Either reason would require a very different focus of the measurement instrument. Although these two perspectives are definitely not exclusive, a decision regarding the focus of the measurement instrument needed to be made since measuring media literacy from both perspectives in one measurement instrument would have rendered the measure far too long for practical implementation. Hence the decision was made to approach media literacy from the perspective that the media play a vital players in today's democracy.

Additionally, the decision was made to focus on television. This decision was based on two reasons. First, because it is presently the most pervasive medium of all; i.e., of all the time spent with the media, people, in Western societies, spend between three and four hours per day with television (Papper, Holmes, & Popovich, 2004). Second, many people perceive television as a reliable and accurate source of information about reality (Glasser, 1998; Claussen, 2004). These two facts combined suggest that of all the media, television is probably most capable of influencing its users in some way relevant with respect to democracy.

In light of the focus on media's role in democracy, the decision was made to focus on non-fiction programs. Non-fiction programs such as the news, documentaries and talk shows are instrumental in informing people about the world in general. When people need to form opinions about issues concerning society and their government, they will be more likely to rely on non-fiction programs, as opposed to fiction. Moreover, because

non-fiction is presented as being real, i.e., as reflecting reality, it is a possibility that people are less likely to be critical of its content. Therefore it is especially important to assess how critical people can be of non-fiction programs.

Finally, in this study we will focus solely on youngsters attending middle and high school, i.e., between the ages of 11 and 18. This choice was made because if this study is to aid in the development of media education projects, it should be directed at those audiences at which media literacy projects are usually targeted, which are mainly children in middle and high school.

Defining Media Literacy

The first step towards a successful measure for media literacy is to clearly define media literacy. In this study, we used a meta-definition of media literacy developed by Rosenbaum, Beentjes, and König (2008) that was based on and encompassed the vast majority of the other existing definitions.

In spite of the large amount of different definitions of media literacy, most media literacy scholars seem to agree on the fact that media literacy entails an awareness of one or more aspects of the production and use of media messages (Rosenbaum et al., 2008). Therefore the best way to come to an all encompassing meta-definition, was to create a heuristic representation of media production and use. Such a heuristic representation could be drawn up because, in spite of the variety of ways in which the processes of media production and use have been conceptualized in the past, all of these conceptualizations include reference to three elements; producer, user, and media (e.g., McQuail, 2000). Therefore, these three elements make up the core of the heuristic representation developed by Rosenbaum et al. (2008). ‘Producer’ refers to people who, directly or indirectly help to create media products; ‘user’ refers to people using the media, and both producer and user interact with the ‘media’ through four different processes, which are signified by four arrows in Rosenbaum's et al. (2008) heuristic representation (see Figure 1).

Insert Figure 1 Here

The first arrow (top left) in Figure 1 refers to the manner in which media content can influence producers' ideas about media production. The second arrow (top right) refers to those processes through which both media content and channels are constructed. The third arrow (bottom left) represents the processes through which media influence their users. Finally, the fourth arrow (bottom right) centers on how people deal with the media. On the whole, this heuristic representation of media production and use serves to show that media literacy can be conceived of as an understanding of these four arrows (Rosenbaum et al., 2008).

Rosenbaum et al. (2008) were able to show that the vast majority of existing definitions of media literacy can be interpreted consistently in the light of the arrows in their heuristic representation. In the process of doing so, they were able to flesh out their arrows with what it is that people need to know about each arrow to be considered media literate by the majority of authors on media literacy. This process led to the construction of various dimensions per arrow; i.e., specific aspects of media production and use that people needed to be aware of in order to be deemed media literate (see Figure 1).

Developing the Instrument

The next step involved the development of a questionnaire that could establish how much youngsters knew and understood about the various dimensions of media literacy. This development took several smaller steps to complete. For starters, a first draft of the questionnaire was developed and then pretested among 63 12-13 year old children using a combination of the three-step technique and the cognitive interview described by De Leeuw, Borgers, and Smits (2004), Hunt (1982), and Van der Veer, Ommundsen, Hak, and Larsen (2003). After this pretest, part of questions were replaced with other questions or reformulated, because they did not appear to measure any of the aspects of media literacy, did not discriminate enough between respondents, or proved to be unclear or confusing to the respondents.

In a follow-up study, the revised questionnaire was pretested again. This time, the pretest involved twenty-three focus groups of three 12-13 year old students (cf. De Leeuw et al., 2004; Snijkers, 2002). The purpose of these focus groups was mainly to gain insight in how the youngest participants in the target audience would interpret the

questions, and which questions were too easy. The assumption was that if the youngest group understood the questions correctly and if the questions were too easy for them, this would hold true for the older groups as well. After this pretest, again, some questions were replaced or reformulated.

Besides uncovering various issues regarding the way in which the questions were formulated, these pretests also made it clear that a questionnaire that would include knowledge about all four arrows in the heuristic representation in Figure 1 would be too lengthy. Therefore the decision was made to only focus on the production of media content and the influence of the media on its users. The reason behind this decision was inspired by the fact that the main reason to focus on media literacy in this study is the link between media and democracy. From that perspective, people's awareness of how media content is created and can be biased, and how media users can be influenced by media content is of greater importance than knowledge about media influence on producers and people's dealings with the media.

The questions developed after the pretests were tested in two separate pilot studies; one conducted among the youngest segment of the target audience (153 11-14 year olds), and one was carried out among the oldest segment (68 16-18 year olds). We worked with two different age groups to cover the extremities of the target group, in the hope that the final measurement instrument that would be developed based on these pilot studies would be applicable to the complete age spectrum of the target audience. The results of the pilot studies were used to ascertain which questions properly measured people's knowledge and understanding of the production and influence of media content, and which questions needed to be removed or rephrased.

The final questionnaire was thus developed after the completion of extensive pretesting and piloting. It was tested in a classroom setting among an availability sample³ of 387 native or near-native English-speaking youngsters in grades 6 through 12 (ages 10 through 19) of international or American schools in France and the Netherlands. A reliability analysis carried out per dimension indicated that there were still some questions that appeared not to adequately contribute to the measurement of an awareness of the different aspects of media production or media influence on its users. In regard to media production, the reliability analysis led to the removal of three questions, which left

this dimension with 23 questions and a Cronbach's Alpha of .74. Regarding the second dimension, the influence of the media on its users, one question was deleted from the subset after the reliability analysis, leaving this dimension with 26 questions and a Cronbach's Alpha of .81.

The Final Instrument

The final instrument⁴ is presented in Appendix 1. In this appendix, we present the questions of the final instrument along with the aspects of media literacy they are supposed to measure. The majority of questions in the final instrument consisted of statements that the respondents had to decide about whether they thought that they were unlikely, somewhat unlikely, somewhat likely, or likely. The respondents could also answer that they did not know⁵. In addition, a few questions asked respondents to do something other than check a scale, and provide a more qualitative answer. Finally, the instrument also contained various demographic questions. The questions were grouped into topics that were unrelated to the aspects of media literacy discussed in this study (e.g., "television viewing", "young people"), and each topic contained no more than six questions.

Validating the Instrument

There are several forms of validity, two of which were used in this study: Construct validity and content validity. The first few steps to ensuring a valid instrument have actually already been taken by explicitly defining media literacy, as well as anchoring the questions in existing ideas about media literacy. In this section, we will discuss how the validity of the measurement instrument was further evaluated.

Construct Validity: Hypotheses

One generally acceptable way of testing construct validity is through the use of hypotheses (Cronbach, 1970; Cronbach & Meel, 1955). Hence in this study, the construct validity of the questionnaire was assessed by testing whether several hypotheses regarding the relationship between media literacy and related variables held true for the data collected in this study.

When considering media literacy, there are several variables that could influence one's level of media literacy. After extensive literature research, the following hypotheses were developed.

Media Literacy and Parents' Level of Education

One of the first variables that comes to mind when considering what could impact media literacy in youngsters is parents' level of education. Various researchers (Blau & Duncan 1967; Gottfried, 1984) have argued that parental education levels can impact a child's academic performance. This finding ties in with Bourdieu's theory of cultural capital which argues that children of parents who possess more cultural capital will do well in school (Driessen, Doesborgh, & Claassen, 1999). As education is one of the prime indicators of cultural capital (Carrington & Luke, 1997), one could argue that parents with a higher level of education will be more likely to have inquisitive, knowledgeable children, which leads to the following hypothesis:

H1: The higher the level of education of the parents of a respondent, the higher a respondent's score on the scales that measure their understanding of media production and their knowledge about media influence on its users.

The hypothesis was tested separately for the two scales by testing correlations⁶, and the analysis found that the hypothesis only held for the questions that measured people's understanding of media influence on its users ($r = .20$; $n = 371$; $p = .00$ (one-tailed)), while it had to be rejected for the scale that assessed people's knowledge of media production ($r = .06$; $n = 370$; $p = .12$ (one-tailed)).

Media Literacy and Living Abroad

Potter (2004) proposed the idea that if people are exposed to vastly differing media content, they will quickly observe the differences. In turn, this could lead to an understanding that the news is a man-made creation that depends on the context in which it is produced. Thus, when people live in a country other than their own, as is the case for the vast majority of the respondents in this study⁷, they will be likely to observe the

differences in media content between the two countries, and perhaps more likely as well to acquire knowledge regarding media production. This led to the following hypothesis:

H2: The more countries a respondent has lived in, the higher a respondent's score on the scale that measures his or her understanding of media production will be.

The analysis found that the number of countries a respondent has lived in is significantly related to that respondent's understanding of media production ($r = .11$; $n = 376$; $p = .01$ (one-tailed)).

Media Literacy and Using Different Media Sources

An additional variable that needs to be considered in relation to media literacy is the use of multiple sources to obtain the news. As Potter (2004) contended, making comparisons “across vehicles reveals the editorial perspectives, business constraints, and vision of the audience” (p. 128). Thus when people use multiple sources of information, they might be more likely to realize that the news is formed by the people and organizations that produce it. As the questionnaire did inquire which media were used by the respondents to obtain their news, the following hypotheses were tested:

H3: The more a respondent uses the Internet for news, the higher his or her score will be on the scale that measures his or her understanding of media production.

H4: The more a respondent reads the newspaper for news, the higher his or her score will be on the scale that measures his or her understanding of media production.

The analysis did not reject either hypothesis, and indicated that the more people use the Internet and/or read a newspaper for the news, the higher their score is on the scale that assesses their understanding of media production (Internet: $r = .22$; $n = 369$; $p = .00$ (one-tailed), newspaper: $r = .12$; $n = 372$; $p = .01$ (one-tailed)).

Media Literacy and Social Studies

Another variable that needs to be considered when discussing media literacy is people's general knowledge of the world around them. When people are knowledgeable about the world around them, i.e., events, places, institutions, people and what drives them, and how things work in real life, they should not only have some understanding of how media institutions work, they should also be more likely to realize that the picture presented by the media is less than accurate, and have some understanding of how different people might be impacted by the media (Lewis & Jhally, 1998; Potter, 2004; Thoman & Jolls, 2004). This type of knowledge is reflected in a respondent's grade in social studies, a class which focuses on teaching about social and cultural institutions, different cultures and peoples, economics, psychology, and related topics (IBO, 2005). Thus, respondents who reported a high grade in this class should possess more of the kind of knowledge needed to do well on both scales. This line of reasoning leads to the following hypothesis:

H5: A respondent's grade in social studies will be positively related to his/her score on the two scales that measure understanding of media production and how the media can influence its users.

According to the subsequent analysis, the better respondents did in social studies, the higher their scores would be on the two scales (understanding of media production: $r = .20$; $n = 349$; $p = .00$ (one-tailed); understanding of media influence on its users: $r = .18$; $n = 349$; $p = .00$ (one-tailed)).

Media Literacy and Age

Various researchers (Dorr, 1983; Huston & Wright, 1983) found that knowledge of aspects of media literacy such as television economics, codes and conventions used in television production increased as their respondents progressed through school. Since these two studies specifically looked at aspects that are tied to media production, the following hypothesis was tested:

H6: The higher the grade a respondent is in, the higher his or her score on the scale that measures understanding of media production will be

The analysis confirmed the findings from earlier studies, and found that respondents in higher grades scored higher on media production than respondents in lower grades ($r = .25$; $n = 380$; $p = .00$).

In short, the vast majority of our hypotheses were confirmed.

Content Validity: External Evaluation

In addition to assessing the construct validity, this study also measured the content validity of the measurement instrument. Content validity can be defined as “the adequacy with which a specified domain of content is sampled” (Nunnally, 1967, p.79). Moreover, Nunnally contended that content validity could also be guaranteed by experts outside the study, who review the measurement instrument (see also Litwin, 1995). Hence, this study included a review process wherein middle and high school teachers, as well as college lecturers, all of whom had experience in teaching with the media, were asked to evaluate the measurement instrument. The reviewers were asked to address the level of difficulty of the questions, the appropriateness for the intended age group, whether or not the questions actually measured if the youngsters were critical of the media, and if all of the different aspects of media literacy were relevant and sufficiently presented. The reviewers were also asked if television was the logical focus of the questionnaire. In total, 16 Dutch teachers participated, with an average of 11 years of teaching experience between them.

Overall, the responses to the questionnaire were positive, although there was some critique as well. Some of the criticism addressed at the questionnaire included the fact that Internet had not been included as well. Other reviewers indicated that they were not sure if non-fiction programming was an appropriate choice given the interests of the intended audience, while five reviewers did wonder if the questionnaire would not be too difficult for the 11-15 year old segment. On the other hand, the majority of the respondents agreed that the questionnaire would be able to measure how critical youngsters are of television, that it was appropriate for the intended age group, and that the topics covered by the questionnaire were relevant and sufficiently addressed.

Scores and Correlates: Investigating Media Literacy

Based on the results presented above, one can conclude that the instrument developed to measure media literacy is both valid and reliable. In the final phase of the study, we thus used the data we had collected to gain deeper insight into the concept of media literacy.

Media Literacy: What Do They Know?

One of the first issues we looked into was how well respondents scored on both scales. Analyses showed that respondents scored significantly better on the scale that measured their understanding of media influence than they did on the scale that measured their knowledge regarding media production ($t(378) = -11.2$; $p = .00$; $r = .41$).

Additionally, a correlation analysis revealed that the scores on the two scales were significantly related ($r = .41$; $n = 379$; $p = .00$), which showed that if a respondent did well on one of the two scales, s/he was more likely to do well on the other scale as well.

Moreover, we also looked at how respondents scored on the different aspects that made up the two scales, to see if there was any variation in their knowledge across the two scales. Regarding media production, three conclusions can be drawn: (1) Respondents are well-informed about the fact that there are factors outside the news that will influence news content; (2) respondents' knowledge regarding production procedures is mixed, and respondents could benefit from learning more about the daily functioning of a television station; (3) respondents knew very little about the difference between profit and non-profit television stations. When it comes to understanding the influence media have on its users, one main conclusion can be drawn, namely that respondents are well aware of the impact television can have on viewers' emotions.

Media Literacy: Identifying Causes

Next, we used a multiple linear regression analysis to determine the relationship between the different variables and the respondents' scores on the two scales. Listwise deletion was used to deal with the missing data, and a total of $n=333$ cases were used for both scales. In the previous step, bivariate analysis proved that certain variables were related to one's scores on both or either one of the scales. Because these variables play a

role in how media literate one is, they were also a part of the multivariate analysis. The analysis was conducted separately for both scales.

The production of media content: Explaining the scores

The multivariate analysis proved that the following variables are positively related to the respondents' scores on the scale that measured media production: The number of countries lived in, Internet usage, how often one watches documentaries, the grade received in social studies, and which grade one is in. Interestingly, watching the news was negatively related to one's score on this scale, while no effect was found for reading the newspaper.

While the lack of effect found for reading the newspaper can be explained by the fact that the correlation between newspaper reading and one's score on the media production scale can still be attributed to the use of other media, the finding that watching the news negatively impacts one's understanding of media production, while watching documentaries has a positive effect is actually quite interesting. This finding can be attributed to the nature of either genre, or the characteristics of the viewers. As far as the nature of the genre is concerned; one could argue that the main premise of the news is to present itself as a window on reality, leaving their viewers with the impression that the information they receive is unbiased and complete. One could surmise from this that people who watch a great deal of news lose the ability to view news as a construction. On the other hand, many of the documentaries aimed at 12-18 year olds such as MTV's *Making the Band*, focus on media-related topics, giving viewers insight into how television content is made. Additionally, documentaries provide viewers with information about certain topics they could use to test the accuracy of other non-fiction programs, such as the news. Moreover, some documentaries aim to render the viewer more inquisitive (e.g., Michael Moore's *Bowling for Columbine*), an attitude that viewers internalize and utilize when confronted with other media content. Subsequently, viewers who watch a lot of documentaries may know more about the construction of media content, and might be more likely to question media content, which could explain their higher score.

On the other hand, this finding could also be explained by the characteristics of the viewers. It is possible that people who watch the news a lot do so because they think it is a window on the world, and believe that it is a trustworthy source of information. Moreover, watching the news a lot could also be a part of a regular viewing menu; i.e., when one watches a great deal of television, one automatically watches a lot of news without having made the conscious decision to do so. On the other hand, documentaries are viewed by a smaller amount of people, which suggests that people who watch documentaries exhibit more selective viewing behavior, an attitude which could indicate a more critical attitude towards television in general.

The influence of the media on its users: Explaining the scores

In line with the bivariate analysis, the multivariate analysis found that both parental education levels and a respondent's grade in social studies are positively related to one's score on the scale regarding the influence of the media on its users. Conversely, the multivariate analysis did not uncover a relationship between the grade a respondent is in, and his or her score on the scale for media influence on its users.

When one combines this finding with the earlier finding that the respondents did fairly well on this scale already, one could conclude that respondents already know a great deal about this topic. With teachers and parents constantly pointing out the dangers of television and other media, it is possible that the respondents have internalized this knowledge at an early age, an idea which is underlined by previous research (e.g., Buckingham, 1993; Desmond & Jeffries-Fox, 1983; Roberts, Christenson, Gibson, Moser, & Goldberg, 1980). However, as indicated by the finding that students with higher grades in social studies do better on the scale, it would appear that it is possible to improve one's knowledge of this dimension of media literacy, as long as one is interested in the topic.

Conclusion

This study has successfully attempted to prove that media literacy can be measured in a reliable and valid manner using a quantitative instrument. It has also provided

preliminary insight into the factors that could influence one's understanding of media production and the influence of the media on its users.

Most importantly, however, the study has shown, beyond a shadow of a doubt, that media literacy is such a rich, multi-faceted construct that it will be near impossible to measure the entire construct at once. When attempting to assess media literacy, one will have to focus on one of the many aspects of media literacy, focus on a specific medium, or even a specific genre.

As far as recommendations for future investigations are concerned, it would be beneficial to further increase the validity and reliability of the scales developed in this study. A follow-up study could also attempt to measure the remaining two scales of the heuristic representation of media literacy developed by Rosenbaum et al. (2008). In addition, studies should look into applying the instrument to different perspectives, different genres, or different media. Furthermore, future research should attempt to render the instrument applicable to both younger and older target audiences.

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² This manuscript was written specifically for the 'Onderzoek in Cultuureducatie' (Research in Cultural Education) conference held in Nijmegen, The Netherlands, June 2010. The authors are currently revising this manuscript for submission.

³ De Vaus (1996) points out that non-random samples are satisfactory in research such as this, where the aim is to test questionnaires.

⁴ The complete questionnaire may be obtained from the repository of the Radboud University Nijmegen (http://webdoc.uhn.ru.nl/mono/r/rosenbaum_j/measmeli.pdf, pp. 209-233).

⁵ Please note that the choice for the "don't know" option was explicitly discouraged in the main introduction to the questionnaire, the individual introductions of each topic, and by the fact that this option was presented in a much smaller font than the other options. and by the smaller print of this alternative.

⁶ In this study, a finding is deemed significant if $p < 0.05$.

⁷ The majority of the respondents (n=176) had lived in two countries at the time of the study, while 100 respondents had lived in three countries.

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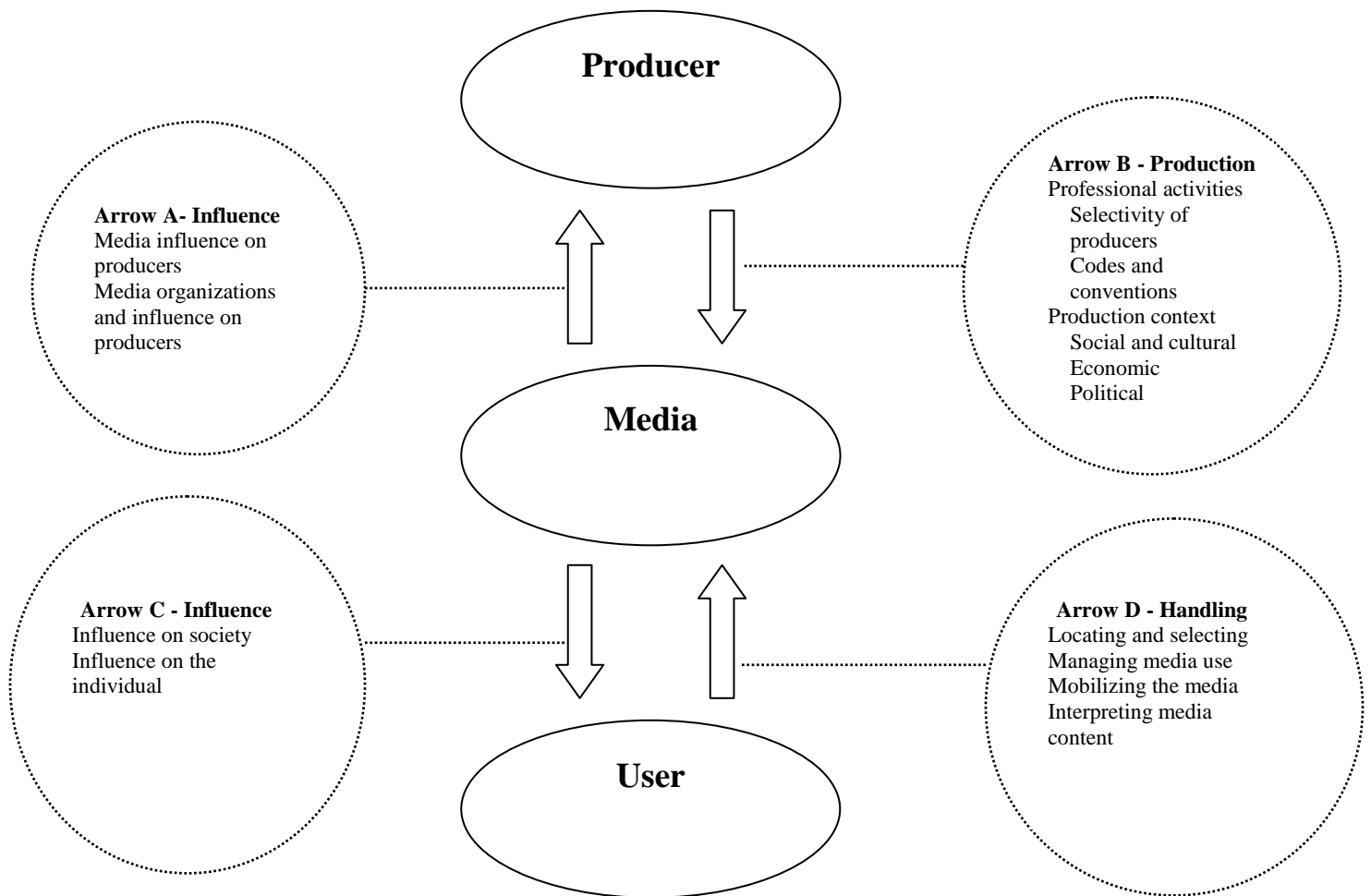


Figure 1. A schematic representation for understanding media literacy.

Appendix 1. The final instrument¹

Items measuring Arrow B - The production of media content
- Television news presents a complete picture of what is going on in the world
<i>Professional activities</i>
<p><i>Selectivity of the producers</i></p> <ul style="list-style-type: none"> - The stories you see on the news are about the only important events that took place that day - The description of an event on the news is complete
<p><i>Codes and conventions</i></p> <p><u><i>Production procedures</i></u></p> <ul style="list-style-type: none"> - When a newsreader reads the news, no other TV station employees are in the studio - The news is filmed before a live studio audience - Which of the following activities always happen when reporters put together a news story? <ul style="list-style-type: none"> - Talk to all the people involved in the event - Make a decision on whether or not to run the story - Hear from the editors how long their story is allowed to be - Below you will see sets of two pictures taken from a television news program. These pictures are also called shots. In television (and film as well), several techniques are used to create these shots. Examples of such techniques are: special effects, props, and costumes. The pictures in each set look very similar. However, in each set one technique is applied differently. Look at each set, and, in the space provided below the two pictures, write down, in your own words, which technique is applied differently, and how². - Below you will see a series of statements from different news programs. Each statement is accompanied by two pictures. Read each statement carefully. Then decide which picture would be used by the news to go with that statement. Indicate which picture would be used by the news by crossing (X) the circle below that picture. In the space provided below the picture, briefly explain why you think they would use that picture³.

¹ Please note that unless otherwise specified, the questions described in this table utilized the following answer scale: Unlikely, somewhat unlikely, somewhat likely, and likely, as well as a “don’t know” option.

² In this question, the open-ended answers were coded using an iterative process, whereby the coding scheme was adapted during coding. The respondents received a “0” if they left the question blank, a “1” if they answered incorrectly, and a “2” if they answered correctly.

³ This question utilized the same coding procedure as the previous question. For this question, the respondents also received a “0” if they left the question blank, and a “1” if they answered incorrectly. The respondents would receive a “2” if they described the difference that determines which picture is used. They would receive a “3” if they described the difference and why this difference was so important.

Dramatic / narrative codes

Extent to which a non-fictional program contains fictionalized elements

- Sometimes, documentaries use actors
- In talk shows, some events are staged

News facts are embedded in a story

- Reporters often turn events into stories
- When an event is presented on the news, it looks the same as when you were there and saw it yourself.

Production context

Social and cultural context

- A reporter's religious beliefs could influence what the news stories look like that s/he makes
- News about gay marriages is presented in the same way in different countries
- Every television station will present news on Islam in the same way
- Whether a news reporter is young or old, the news s/he makes will be the same

Economic context

Difference between profit and non-profit

- Whether a television station has to make money off its programs or not will never influence the kind of programs it makes
- Some television stations do not have to make a profit

Target audience

- Newsround is a news program for young children. When news reporters make a story for Newsround, the stories will be presented differently than when they are made for the regular news

Political context

- News stations can be different in how they present a story because of differences in their political preference
- A reporter's political beliefs can influence how s/he presents a news story

Items measuring Arrow C - The influence of the media on its users

<i>Influence on society</i>
<p><i>Influence on the political system</i></p> <ul style="list-style-type: none"> - Television influences which presidential candidate wins the US election - Let's say the government is considering a proposal for a new law. If several popular talk show hosts call this proposal ridiculous, this proposal has a small chance to be made into a law - Because they want to know which issues are considered important, politicians keep an eye on talk shows that discuss current events
<p><i>Influence on social and cultural institutions</i></p> <ul style="list-style-type: none"> - Television can influence whether men and women share chores in the home - The way in which stories about marriage are presented in the news can change how people behave when they are married
<p><i>Influence on the cultural make-up</i></p> <ul style="list-style-type: none"> - Television has something to do with how young people think about drugs - Differences in television content is one of the reasons why in different countries, people think differently about issues such as gay marriage - Television influences how children between the ages of 12 and 18 treat their parents
<i>Influence on the individual</i>
<p><i>Influence on behavior</i></p> <ul style="list-style-type: none"> - TV plays a role in the political party people would vote for - Television news influences how people think about a political leader - People use the expressions that are used in television programs such as the news and talk shows - Television influences how people behave when they demonstrate against something that is important to them - Television influences what young people wear to parties
<p><i>Influence on opinions and ideas</i></p> <ul style="list-style-type: none"> - Television can influence people's opinions of issues such as politics, HIV medication, drug abuse, and the Middle East - The news can determine how people think about Iraqis - People's ideas about politics can be influenced by television programs
<p><i>Influence on feelings</i></p> <ul style="list-style-type: none"> - Television news can change how people feel about a presidential candidate

- Television news can scare people
- Television news sometimes makes people angry

Factors that mediate influence

- Children who watch the news know more about politics than children who do not watch the news
- People who live in the city react the same to news about the mad cow disease as people who live in the countryside
- Some people really get into a show they watch on television. They relate to the characters on this show and what happens to them. These people are more likely to be influenced by these characters than people who do not care about them
- Sometimes television programs make people really upset. When people are upset, they remember the program better people who are not upset
- People with a lower education will understand the news just as well as people with a higher education
- Television only influences very young children
- There are different reasons why people watch television. Sometimes you have to watch a program for school. Sometimes you watch a program because you want to. When you watch a news program because you have to for school, you'll have a different opinion than when you watch it because you want to.