

Effect of Advertising Literacy Education on Children's Critical Thinking in Facing Commercial Messages

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Abstract

Digital communication technologies could play a pivotal role in the realm of learning, entertainment, and education for children, and could significantly affect the nature of commercial relations with children. The use of media as new communication technologies for children over the past decade has hosted many researches. The present study aimed to determine the effect of advertising literacy education on 6th-grade primary school female students' critical thinking skills in facing the media commercial messages in the city of Dezful in 2019-2020. The population consisted of all the 6th-grade primary school students in the city of Tehran, of which 60 students were selected using the random clustering method and randomly assigned into two groups of experiment and control. The tool used in this study was Cornell Critical Thinking Test (CCTT), and analysis of covariance was used to analyze the data. The results showed that advertising literacy affected students' critical thinking. The effects on students' inductive reasoning, deductive reasoning, and observational analysis of advertising messages, credibility, and hypothesizing power were found significant.

Keywords: Advertising Literacy, Media Literacy, Critical Thinking

Introduction

Digital communication technologies have created different grounds for learning, entertainment, and education for children, and have changed the nature of commercial relations with children. Children's media use of new communication technologies over the past decade has undoubtedly been of an individualistic use. Though it is challenging to measure the children and adolescents' use of the media due to the municipality of the media and concurrency in use, the reports have revealed that at least 74% of children aged 8-11 years old in European countries spend 36 hours a week playing computer games and watching TV (Ofcom, 2018). Studies in Iran have also indicated that children spend 4 hours and 3 minutes watching TV and other media including a variety of computer games (Kalantari et al, 2012). Most of the children's media use is allocated to popular videogames or animations (Marino and Hayes, 2012). Due to a lack of enough experience and cognitive features specific to their development process, children's perceptions are different from those of adults. Therefore, the increased rate of children's media uses expose them constantly and more than adults to adverse effects of the media, such as abuse of children's popular media products by business companies as an attractive and profitable arena to sell their products, as well as an appropriate opportunity for a commercial relation with children without presence and supervision of parents to affect them (Nelson et al, 2017). It should be acknowledged that most digital content available for children, including games and animations, is made for commercial goals (Ofcom, 2015). Manufacturing companies of children's media products try to increase the number of their consumers and feed them through a constant market.

On the other hand, children watch every day the attractive advertisements of new products in various forms of large companies that are most foreign. Therefore, children become passive consumers of the styles and values promoted by the manufacturers that mostly seek commercial goals and creating an exclusive market of products. The threat would be more serious when children find the values advertised in products different from those of their real-life but attractive (Potter, 2004). Because the manufacturers use creative techniques of marketing to show an ideal picture of their products in the young audiences' mind, as well as to introduce them as a way to be more attractive, to be seen better and accepted by others, and achieve their goals. Thus, children use the branded products more to achieve such benefits and to adapt to the dominant consuming culture because they are informed of such commercial brands in the forms of such medial products from the early ages and turn to passive consumers with no knowledge about how to deal with such messages (Hill, 2011).

Considering the positive correlation between accessibility and the risk of cognitive abuse of children by commercial advertisements, and changing the children to passive consumers of products of large business companies, different countries pursue various policies including restricting, banning, or censoring advertisements for children (O'Neill, 2010). However, the options are not always appropriate or even practical; therefore, the only way to prepare children to cope with challenges if such effects are helping them to keep their intellectual independence, develop their critical thinking skills, and promote their level of awareness and information about the media. Regarding such restrictions, modern education seeks to make children prepared to cope with the media commercial messages in the form of different curricula and media literacy especially advertising literacy.

Today, making children part of consumerist culture is an undeniable reality. Children get prepared for socialization in consumption through receiving education from parents, peers, and schools, and most importantly, the media (Moschis and Churchill, 1978). Children's socialization in the field of consuming knowledge is a skill and viewpoint that is essential for action in the market as a consumer (John, 1999). Despite the claim of being independent of marketing flows, schools have become places for advertising and selling products. A brief look at pictures on stationaries, sports stuff, even the book covers, stickers, and students' clothes are all evidence for unconscious penetration of consumerist culture in different education systems, leading to indisputable acceptance of students (Tatlow-Golden et al, 2016; Buckingham et al, 2005). Therefore, issues such as easy access to different media contents, direct commercial communication with children without parents' supervision, and establishing flexible regulations making the grounds for broad marketing for media producers increase the risks for manipulation and changing children's minds to achieve the producers' special goals (Buckingham et al, 2011; Kenway and Bullen 2003; Sramova 2014).

Since the restrictions on the media messages including marketing ones in modern society are futile, they have posed many challenges for the education systems in the world. Because the risk for alienating the education system with the problems in the real world and inefficiency of educations for children would be increased unless

the curricula provide the chance to cope with problems caused by consumerist culture and education the skills required for this issue (Bakan, 2011). The education systems need to develop the skills of media literacy of communication technologies in children to support them in this regard (Hobbs and Jensen, 2013). Media literacy education program is considered to be one of the most important elements used over the last half-century by different countries in the media and communication policies for performing research, education, and as a tool to critically evaluate the messages and develop the audiences' skills. Media literacy as a set of skills causes the audiences' critical and active reaction to media messages (Hobbs and McGee, 2014).

Media literacy education can be defined as a range of communication skills including the ability to access, analyze, and evaluate, and communicating with media messages in different written and non-written forms (National Association of Media Literacy Education, 2012; Hobbs and Moore, 2013; Rogow, 2015). The skill of analysis and evaluation is gained through identification of media message text and context and helps the person to move from passive acceptance and consumption of media to a complicated communication with it, which includes criticism, examination, and content and formal evaluation (Kellner and Share, 2007; Silverstone, 2004). Therefore, the media literacy area is not limited to the use of applied and media programs but seeks goals such as media critical understanding, developing audiences' metacognitive skills to analyze and evaluate different media messages (Kortoni et al, 2015), gaining pleasant experiences in communication with the media (Ferray, 2015), as well as the active participation of the audience as a citizen in the dynamic society (Potter, 2013; Barren, 2013; National Association of Media Literacy Education, 2012; Silverblatt et al, 2014; Jeef Share, 2001). Table 1 presents the key concepts of media literacy.

Table 1. Key concepts of media literacy education

Topic	Concept
Lack of transparency principle	All information is socially created.
Language (codes and rules)	Media use languages with special codes and rules
Audience's reception	Individuals' and groups' understanding of media messages differs.
Representation (of content and message)	Media encompasses ideologies, discourse, and views that transfer hierarchical power.
motivation	Most media are economically stimulated and organized.

Media literacy allows children to gain knowledge, skills, and perceptions required for full use of opportunities developed by traditional and modern communication services. Media literacy skills also help people to effectively manage the content and communication and protect themselves and their families against possible risks of using such services (Hobbs, 2016).

Rozendaal et al (2014), according to several studies by Friestad and White (1994) and Petti Cacioppo (1986), defined advertising literacy as a variable of media literacy, which is incorporated in a wider concept into the persuasion knowledge. According to the theory of Friestad and White, persuasion knowledge allows young consumers to seriously evaluate the advertising messages and more effectively resist irrational persuasion. Researchers believe that advertising literacy consists of a multidimensional structure including conceptual and attitudinal (Rozendaal et al, 2011, 2009; Nilson, 2016; Hobbs, 2011; Levingson and Helesper, 2006). The conceptual dimension of advertising literacy includes variables such as knowledge about advertisements, understanding the sales intention, understanding the goals of manufacturers' persuasive techniques. The attitudinal dimension involves critical investigation of the tendency towards advertisements from emotional and attitudinal points of view as well as reducing irrational excitement of the consumers to purchase goods (Rozendaal et al, 2014; Hooders et al, 2016). Researchers believe that people's cognitive and emotional defense against adverse effects of covert marketing methods can be fostered through advertising literacy as advertising literacy enables the person to recognize, interpret, and evaluate business persuasive techniques in media products and select and perform appropriate coping strategies (Friestad and White, 1994; Moschis and Churchill, 1978). The important note in advertising literacy is that despite children's cognitive development, children are not empowered enough to emotionally process and interpret the messages. Therefore, the critical evaluation of messages and rational reactions to the messages are not well performed (Apri and Rozendaal, 2016). Based on what was discussed, the emotional element of advertising literacy that shows how to react to messages needs to be considered in young audiences.

Researchers believe in children's emotional and cognitive development over the process of gaining advertising literacy skills in specific stages. Children under 5 years old cannot recognize the marketing messages of their consuming content and consider them as entertainment. At age of 7, they begin to recognize the persuasive purposes of marketing messages, although they may not apply their knowledge effectively as enjoyment and attractiveness of advertisements reduce the motivation for activating the evaluation strategies. Children cannot create conceptual advertising literacy until they are 11 and the attitudinal elements would develop then. When they are 12, they can achieve a serious perception of the motivations of commercial messages and doubt marketing messages (Levignson and Helesper, 2006; Buckingham, 2017; Panic et al, 2013).

According to what was discussed, gaining advertising literacy skills concurrently with children's cognitive and emotional development is necessary. Because lack of such skills reduces the young audiences' abilities to analyze and interpret messages, and they will react passively to accept or reject the sender's requests. In this context, passive assimilation and modeling of the audience with the reference groups in the message (cartoon characters, celebrities, and athletes, or user-generated contents), as well as expecting positive outcomes of the suggested behaviors of media messages and thus the tendency to consumption increases.

In their article entitled "Studying the Role of Media Literacy in University Students in the extent they are affected by commercial advertisements in Female Students of Allame Tabatabaei University", Zandebudi and Zandebudi (2013) found that the respondents' media literacy affected the extent they were affected by advertisements. They also found that the Communication students had higher media literacy.

Majidi Ghahrverdi and Asadi (2010) investigated media literacy of commercial advertisements in 12-18-year-old adolescents in the city of Tehran. The results showed that the participants' media literacy was low and there was a significant correlation between media literacy and adolescents' role modeling of commercial television advertisements. This correlation was weak and negative. It was also indicated that the adolescents' meaning-making was less than other dimensions of media literacy. Niyazi (2016) in his study entitled "Effect of Media Literacy Education Program based on Communication and Information Technology on Awareness and Critical Thinking" showed high awareness and critical thinking in students who received materials through educational multimedia. The results also revealed that media literacy education based on communication and information technology increases critical thinking in the variables of analysis, deduction, and evaluation. The study was conducted on all 2nd-grade primary school students in Tehran.

In his Ph.D. dissertation in the State University of New Jersey, Serafin (2018) investigated the process of media messages from a cognitive perspective in the fields of advertisements in students participating in media literacy education, as the experiment group, and the students who did not receive this program, as the control group. The results showed that the students of the experiment group 5 weeks after the program were at a significantly higher level than those in the control group in knowledge about advertisements, their consumption, and the techniques used in the advertisements.

Regarding incorporating the topic of media and media literacy in the curriculum, Anna Pang (2016) conducted a survey study on 292 Singaporean young people. It was revealed that the people who had participated in courses of media literacy education had higher levels of awareness and critical thinking than those who had not received such courses.

Nilsen (2016) investigated the effectiveness of a 3-hour advertising literacy course on children aged 8 and 9 years old. He performed the study with pretest and posttest and a control group design on students of ten classes of 3rd grade within 3 weeks in three schools in deprived areas of the USA. According to the results, the students in the control group showed a significant increase in understanding of sales intention, persuasive techniques, and the audiences as purposed by the producers.

Rozendaal et al (2011) investigated children's understanding of 6 common techniques used by advertisers, including repetition of advertisement, product display, attractiveness, popularity among peers, humor, popular approval, and rewards in the form of a survey on 209 children aged 8-12 years old and 96 adults over 18 years old. The results and the criteria of children and adults were compared. The results showed that children's understanding of advertisers' techniques gradually developed.

Main hypothesis

Advertising literacy education affects students' critical thinking skills in facing media commercial advertisements.

Secondary Hypotheses

- Advertising literacy education affects students' inductive reasoning in facing media commercial advertisements.
- Advertising literacy education affects students' deductive reasoning in facing media commercial advertisements.
- Advertising literacy education affects the observational analysis of media commercial advertisements.
- Advertising literacy education affects the credibility of media advertising messages.
- Advertising literacy education affects hypothesizing power of media advertising messages.

The main objective of the present study was to investigate the effect of advertising literacy education on the 6th-grade primary school students' critical thinking skills in the city of Dezful in facing digital media advertising messages.

Methodology

The present study was applied and thus the researcher sought more to achieve an applied goal (Delavar, 2013) and develop applied knowledge in the field under study (Sarmad et al, 2012). Despite random assignment, the present study used a semi-experimental method. The data were collected in the form of a pretest-posttest design with an experimental and a control group. In this study, the dependent variable (critical thinking) was measured before and after performing the independent variable (advertising literacy education).

Population, sample, and sampling method

The population of this study consisted of all the 6th-grade primary school female students in the city of Dezful in the academic year of 2019-2020. The sample included 60 students selected using the multi-stage cluster sampling method. First, 4 schools were selected from girls' primary schools in the north, south, east, and west of the city. Then, one class was selected from the 6th-grade classes of each school. The samples were divided into experiment and control groups using random assignments. Both groups took pretest, and after a 10-session program of advertising literacy education, the experiment group took posttest. The data were analyzed considering the research objectives.

Research Tools

The data collection tool in this study was Cornell Critical Thinking Test (CCTT) Level X that is used for children and includes closed-ended questions.

Validity and reliability of the research tool

This scale was developed by Anis for children aged 10-14 years old. It includes 76 items (5 items of experimental sample and 71 final items) and measures the 5 factors of induction, deduction, observation, credibility, and identification of assumptions. The students' answers were in multi-choice form (Hedayati and Koosha, 2017). The first and second factors, i.e. deduction and induction, deal with students' methodology or their problem-solving abilities, and the third factors, i.e. observation, involves sensations and understanding the relations, and the fourth factors deal with examination and experiments, sense of trust, reliability in defending findings and the ability to pursue problem-solving from the beginning to the end, and the fifth factors refers to assumptions and linking the mindsets, knowledge, attitudes, and insights to facts and events, and the formation of an intellectual pattern (Jahani, 2008). To examine the validity and reliability of the scale and the compatibility of the scale with Iranian students' understanding and importantly, the compatibility of words, terms, and phrases with the Iranian culture, Jahani (2008) performed this scale in a group of 50 on a primary basis. The results reported the reliability of the scale for the 5 variables of induction, deduction, observation, credibility, and assumptions as 0.76, 0.76, 0.67, 0.72, and 0.69, respectively, indicating desirable validity and reliability of the adapted from of the scale for Iranian students.

Implementation Method

To implement the advertising literacy education method, for 2 and a half months (once a week for 60 minutes) all students in the experiment group gathered in the school library and sat in a circle around the facilitator and talked about their favorite media products and the marketing messages in their contents. At the first session, the

students' favorite media products were discussed and were classified based on their importance to be discussed in the following sessions. The advertising literacy themes included:

1. The pervasive presence of the media in our lives and their functions
2. Motivations of advertisers
3. Recognizing and analyzing the persuasive elements of different media products
4. Critical recognition and analysis of the effect of media content elements on the audiences' feelings and behavior
5. Recognizing the differences between needs and demands
6. Critical analysis of different perspectives
7. Students' questions, ambiguities, and special and related points of interest

Efforts were made from the beginning of the program to make appropriate communication with students and motivate the subjects to participate in discussions and accept the researcher. It was also attempted to select the marketing messages of media products based on the subjects' age and interests. In the first session, the facilitator with the help of students established regulations for better progress, with which the students were required to comply in all sessions. The regulations were:

- Ask for permission before speaking.
- Do not make fun of other students' opinions.
- Ask questions if they missed some point.
- Focus on talking about the topic.
- Listen carefully to each other.
- Keep talking about the topic based on others' opinions.
- Think well about the discussion during the week.
- Participate actively in the sessions.

The students' favorite advertising messages discussed in the sessions included the advertising messages in the contents of their media such as animations and games, as well as TV commercials. During the sessions, the students discussed in groups the criteria to select media contents, covert and overt messages of media products, designing, the consistency between goals and contents of media products, motivations of advertisers, critical recognition, and analysis of the effect of media content elements on audiences' feelings and behavior, positive and negative points recognizing the differences between needs and wants, quality of information, attention to audiences' needs, as well as imagining building a media product. Both groups took the posttest in the last session, and then the experiment group discussed the way of holding the session, the positive and negative points of the inquiry circle educational method, and what the students received during these sessions.

Table 2 shows the means and standard deviations of the two experiment and control groups in pretest and posttest of sub-variables of critical thinking. As shown, the mean and standard deviation of critical thinking of the experiment group in the pretest were 31.4 and 10.2, and those of the control group were 33.5 and 8.45, respectively. In the posttest, the mean and standard deviation of the experiment group were 45.1 and 9.29 and those of the control group were 35.78 and 7.94, respectively.

Table 2. Description of pretest and posttest scores of students' critical thinking in the experiment and control groups

Groups	Pretest		Posttest	
	Experiment M (S)	Control M (S)	Experiment M (S)	Control M (S)
Induction	2.16 (6.1)	6.10 (1.98)	8.93 (1.93)	6.2 (1.98)
Deduction	1.96 (7.37)	7.55 (2.97)	9.56 (3.12)	7.50 (2.94)
Observation	9.92 (4.03)	10.34 (4.14)	14.23 (5.53)	10.50 (4.12)
Credibility	6.73 (3.67)	6.85 (2.64)	9.80 (2.64)	9.8 (9)
Assumptions	1.76 (0.93)	2.03 (1.37)	2.56 (1.16)	1.9 (1.2)
Total critical thinking	31.40 (10.20)	33.50 (8.45)	45.10 (9.29)	35.70 (7.90)

Since the semi-experimental design with pretest and posttest was used to examine the hypothesis, the analysis of covariance was used to analyze the data to control the effects of pretest as an auxiliary random variable. In this regard, the three assumptions of analysis of covariance were investigated first to use this method to analyze the data related to the assumptions if the assumptions are accepted.

The first assumption of using analysis of covariance was to show the equality and homogeneity of variance of the error of the groups under study. To investigate this assumption, Levin Test was used, and the results are presented in Table 3. As shown, the variance error of the groups was equal and homogenous because the calculated F was not significant at the 0.05 level.

Table 3. Comparison of variance error of the groups understudy

P	DF2	DF1	F
0.419	37	1	0.669

The second assumption of using the covariance method was homogeneity of regression slopes. Table 4 shows this assumption. The results of the analysis showed that homogeneity of regression slopes was realized and the calculated F was not significant at the level of $P < 0.05$. Therefore, the interaction between the auxiliary variable (pretest of critical thinking) and the dependent variable (advertising literacy education) was not significant.

Table 4. The homogeneity of regression slopes of critical thinking test

	Sum of squares	Freedom degree	Mean of squares	F	Significant
Group	522.189	1	522.189	5.311	0.044
Pretest of critical thinking test	1278.231	22	58.101	0.591	0.854
Critical thinking pretest Group X	123.415	5	24.683	0.251	0.93
Error	983.167	10	98.317	-	-

The third assumption was the realization of the linearity of relationships between auxiliary random variables (pretest) and dependent variables. To investigate this assumption, a regression linear scatter diagram, as shown in Fig 1. As indicated, the linearity of the relationships between auxiliary random variables and the dependent variable was realized. Therefore, the third assumption was realized.

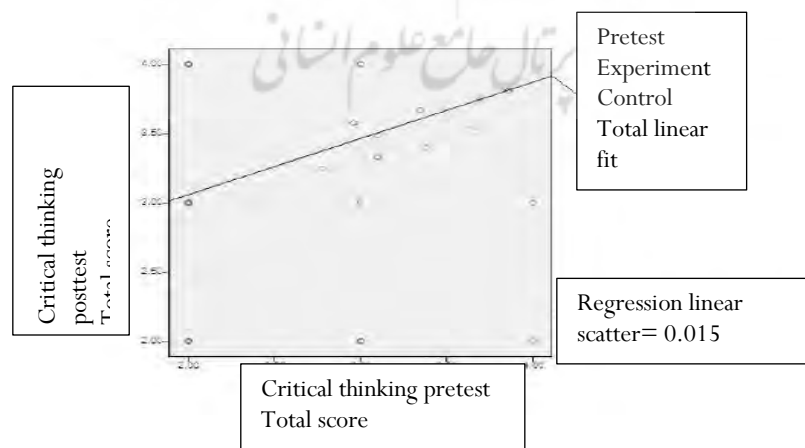


Fig 1. Regression line scatter

Since the assumptions of the covariance analysis method were realized, the research hypothesis is investigated and analyzed as follows:

Table 5. Analysis of covariance of advertising literacy education effect on students' critical thinking

	Sum of squares	Freedom degree	Mean of squares	F	Significant
Group	995.09	1	995.09	14.929	0.000
Pretest	38.027	1	38.027	0.571	0.455
Error	239.54	36	66.654	-	-
Total	67333.00	39	-	-	-

According to Table 4, it is indicated that advertising literacy education increased critical thinking in the experiment group because the calculated F was significant at the level of 0.05. The significant level indicated that the means of the experiment and control groups were not significantly different.

Conclusion

The analysis of the data showed that advertising literacy education had a positive and significant effect on the students' critical thinking skills in facing marketing messages. The effect could be found in all subscales of critical thinking, including induction, deduction, observation, credibility, and hypothesizing.

Though children learn during their development stages how to be passive consumers, it should not be assumed that consumer attitudes and skills develop linearly as they grow. Regardless of children's age, advertising literacy education will have a significant effect on young consumers' behavior so that the children aged 7-12 years old have abilities to gain advertising literacy skills. While learning advertising literacy, children learn features of different media products as well as decision making and critical thinking strategies, which are important in young consumers' behavior and changing to an active and selector consumer.

Encompassing a wide range of issues such as media factors and online safe communication process, advertising literacy education develops children's critical thinking skills, cognitive self-care strategies against different messages of media products and thus helps children to reach a rational understanding. Based on what was discussed, advertising literacy allows children to evaluate messages full of saturated persuasive requests. Children's knowledge of sale motivation and persuasive techniques improves due to the critical evaluation of advertising messages. Based on what was said, the need to transform media literacy education especially advertising literacy as an essential element of the elementary school curriculum is becoming more and more apparent.

According to the findings of the present study and those of similar studies, as well as other researchers (Orik et al, 2019; Ham et al, 2015; Rozendaal, 2011; Rozendaal et al, 2010; Rozendaal et al, 2009; Kalvert, 2008; De Alliso et al, 2009), it can be said that teaching advertising literacy variables helps children to gain an attitude not to have a fixed, passive, and acceptant role, but actively react to what others produced and selected. The participants learn to ask questions, analyze, and evaluate the messages they receive, think about the goals behind the messages, and do not easily accept the messages. Such attitudes toward the media and their messages form and improve critical thinking skills.

Advertising literacy education decreases children's problems in life by increasing their awareness of various media issues such as fake messages and using creative techniques to attract audiences' attention, real objective behind sending messages, asking questions about messages, introducing the right and wrong values of a small group of people through the media to the whole society, etc., motivating audiences to be more interested in identifying and solving problems due to increased awareness and empowerment. Therefore, advertising literacy education improves children's awareness and abilities to solve problems and thus increases their tendency to identify and solve problems.

The course of advertising literacy education shows that many media messages are not real but choices produced by a limited number of people. In this regard, from the perspective of the people who have learned such education, the advertisements that seem real to audiences and invite us to accept them are not always real. Such audiences can understand that the messages sent to them are only choices produced by some people with special goals. In this course, students can realize the real goal of sending a message and learn many messages are organized to attract benefits, power, and wealth, and the audience's interests are not important. Therefore, media literacy education course reduces the acceptance of advertisements in students.

Another finding was the effect of advertising literacy education on young audiences' beliefs. Children learn, through advertising literacy, although advertisements provide information about products and sometimes reduce prices and increase the quality of products due to creating a competitive environment between companies, they are psychologically annoying to audiences due to the regular interruption of media programs, sending untimely messages of animations or games, and polluting the city space with advertising billboards. Through advertising literacy education, children learn that many advertising messages are organized for more benefits and power. They also understand that advertising in modern society brings about consumerist culture and thus physical and psychological adverse effects. As a result, advertising literacy education makes beliefs and attitudes toward advertisements weak and unpleasant.



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