

## MQ – MEDIALITY QUOTIENT

**Joanna Juszczuk-Rygallo**

Jan Dlugosz University in Czestochowa, Poland

**Abstract.** *The child's intellectual skills in dealing with the media are reflected in his or her media intelligence. However, the assessment of children's adaptation to life in the world of the media-sphere is difficult to make. The recognition of a pupil's mediality, as well as its systematic development, may have a positive impact on the quality of education. Currently there are no tools in the educational system to diagnose pupils' mediality. Therefore, there is a need to construct a useful indicator of the level of mediality, which may be a Mediality Quotient. In the cognitive perspective, it can become a tool that will contribute to the optimization of the educational process in the intellectual media environment. The aim of the article is to justify the purposefulness of conducting research on media skills of children and to present the assumptions for developing media literacy measurement techniques. The planned actions will allow to identify to what extent children acquire media skills and what is their statistical picture. The results obtained will be used to determine the coefficient enabling the measurement of media skills and their assessment in relation to the statistical average of pupils. Ultimately, the primary objective of developing a scale for measuring the Mediality Quotient of children will be achieved.*

**Keywords:** *children, media-sphere, competencies, intelligence, diagnostic factor, quality of education.*

### Introduction

Mediatization of reality resulting from intensive technological development within the scope of media makes it difficult to formulate unified and clear messages and hinders their direct and easy reception. Progressing convergence of media leads to change of typical meanings of terms such as word, language, text, sign and representation of the signs. This new literacy is formatting complex situation of the recipients functioning in dynamically changing media space. The situation is difficult for a young recipient, whose social, media and cultural awareness is already being developed along with development of cognitive skills. It is also a difficult situation for education system, which cannot keep up with taking into account so quick changes in media culture as far as education process is concerned. In culture there is so called participation gap that occurs and imposes need for searching and developing new forms of cooperation. In the face of overproduction of signs, flickering meaning and circulation of media content we observe development of a so called monitorial citizen. This term means an

individual who, when searching for information, does not read and analyse it, but only scans and follows. He/she enters into details no sooner than he/she perceives the information as crucial for himself/herself. Only then he/she involves in contacts and starts real participation. It is a way of temporary coping with identity gap, in principle without chances to get rid of it. For the monitorial individual participation in culture and social life means a modern participation, where Internet seems to be a kind of a core of public communication space. It refers to situation where public sphere is based on the concept that does not describe it in categories of technology, but says rather about mediation and mediatised space (Lister, Dover, Giddings, Grant & Kelly, 2009, p. 328-332). Therefore, Internet becomes the main tool of involvement. Activity is located on the verge of virtual and natural reality. As noticed by Sławomir Ratajski “Such functioning on the «borderline» requires combination of various and different perception and activity skills, development of self-control instruments” (Ratajski, 2015, p. 12). Special period of personality development is childhood and youth when the essential role for each individual is played by contacts with significant persons. Currently, in the face of social structures weakened by modern tendencies, the role of significant persons is taking over by media, in particular new media. The environment of the new media, leaving reality in the background, becomes a natural environment for the monitorial individual. Under its influence a new type of personality is developed – media personality. Monitorial individual with media personality cannot make a conscious choice among many options offered by media. In this way the individual becomes susceptible to manipulation of the media. It makes it difficult to develop feeling of self-awareness, which is necessary to develop subjectivity.

The article presents a project of a tool for measuring media skills, which are nowadays a factor determining proper development of personality and self-awareness in children. For this purpose, a Mediality Quotient was defined and a battery of six tests for its measurement was designed.

### **Personality and media intelligence**

An individual living in the world of new media is strongly influenced by them. Holistic possibilities, way of perceiving the world, thinking, interpreting values and finally a sense of self-awareness are determined by the individual's media personality. Characteristic feature of this personality is a specific type of activity in media-sphere. Discussion on this topic usually takes place from the perspective of neuronal changes in construction and functioning of the brain as well as intellectual condition of young generation. Janusz Morbitzer (2015) analyses results of some studies conducted from cultural, social and pedagogical perspectives by renowned researchers of this issue. Many results of these studies

show that currently young people, under uncontrolled influence of media, become less intelligent and are deprived of classic skills related to reading and understanding texts. They also have different hierarchy of competencies and cannot control their mental skills. Anyway, much more difficult task is to define conditions which help to avoid such problems. It is similarly difficult to evaluate adaptation to life in the world of media. Hence, J. Morbitzer (2012, p. 51) suggested introducing quality measurement of preparation to appropriated functioning in media surroundings, which he called mediality. It is an individual feature which is related to one's functioning in the world of media; it is an ability to adapt to media environment; it is a sense of SELF in this environment. Development of the sense of SELF in media-sphere refers directly or indirectly to mechanisms of formation of human personality and in this way also identity (Juszczyk-Rygałło, 2016, p. 13-24). Personality is a primary structure; it is a set of psychological mechanisms based in biological sphere of human being, which determines characteristic for a child way of perceiving the world and oneself as well as the way of reacting to challenges of media reality. It is partially a cognitive feature and partially it is shaped in the process of primary socialization. Similar attribute is assigned by J. Morbitzer (2012, p. 55) to mediality. The SELF is a supreme category as the individual's relationships resulting from interpersonal relations and personal social references constitute the individual's own mediality. To a large extent in the process of socialization media features are developed spontaneously by a child at the conscious level (not automatically) and are adopted more or less voluntarily. Some factors that determine mediality of a person are developed with age and may be subject to a serious transformation along with acquiring identity features in the process of secondary socialization. However, as noticed by Agnieszka Zduniak: "An important factor that gives an advantage to primary socialization in comparison to secondary socialization processes is the fact that the primary one is necessary and the secondary is (in general) only optional" (Zduniak, 2013, p. 50). Therefore, mistakes made during socialization development of child's mediality are difficult to be fixed at a later stage (it is possible only by means of its modification that, however possible, is a long-lasting process and not always gives positive results). Hence, mediality is an individual attitude to the world of media, both in the role of a recipient and an active creator of media messages; it is also a motivating factor for media activity (Morbitzer, 2012, p. 53)" This is the definition and interpretation of oneself and it is an answer to the question: who I am in particular circumstances (it is taking a stance to media). Analogical definition is a term adopted for identity (Wróblewska, 2011, p. 181), which has, similarly to mediality, interpersonal, negotiable and changeable character (however mainly within the scope of secondary socialization). "If we assume that intelligence is an ability to adapt to the environment where we live, mediality can be considered as a form of

intelligence – a type of social and cultural intelligence, which can be called media intelligence” (Morbiter, 2012, p. 55). It is the notion, which is comprised in contemporary broad interpretation of the term intelligence that distinguishes its three types such as: social intelligence, verbal, emotional, creative and cognitive. In general, intelligence is the ability of various spheres of human psyche to cooperate when using intellectual potential. Mediality perceived as media intelligence may be examined with the use of factor analysis suggested for intelligence by Charles Spearman. Therefore, we distinguish general factor as statistical value strongest correlated with performance of media tasks and factor responsible for specific and individual media abilities. Individual factor, in contrast to general factor, is susceptible to changes, therefore mediality may be shaped and developed in the process of education. Media intelligence changes with age within the scope of quantity increase of mediality level, but mainly within the scope of its structure. However, in the case of mediality the quantity increase is specific. It is most rapid in younger age and it later becomes more or less constant. As far as structure is concerned, in younger age new media technologies are dominant, when in older age well known technologies are consolidated and new technologies are rather marginalized. For media intelligence in the context of mediatisation an important role is played by so called triarchic theory of intelligence inspired by theory of processing information. Its three components adjusted to media intelligence are following subtheories:

- Contextual subtheory (practical aspect) – it treats mediality as a way of adapting to virtual environment and ability to cope with it.
- Componential subtheory (analytical aspect) – it treats mediality as ability to use media to organize own cognitive processes (learning).
- Experimental subtheory (creative aspect) – it treats mediality as a personal characteristic that allows to use media effectively to solve new problems within the scope of conscious creation of media messages.

J. Morbiter (2012, p. 56) distinguishes three dimensions of mediality:

- Psychological dimension (need for contacts with media).
- Social and cultural dimension (need to communicate and learn with the use of media).
- Hedonistic dimension (need for entertainment delivered by media).

Abovementioned as well as other characteristics of media intelligence may have various scopes of their semantic meaning and radically different practical references. All of them indicate, however, indicate usefulness of the notion mediality (media intelligence) to reflect intellectual values of a pupil in contacts with media.

## **Mediality and media competence**

Mediality as a functional structure of intellectual activities is shaped by socialization, education and participation in culture. It includes four main components associated with media competence (Nosal, 2004, p. 22):

- cognitive (knowledge, conceptual systems),
- evaluative (evaluation criteria, values)
- programming (tasks, problems, motives, objectives),
- metacognitive (critical, reflective and creative thinking), which as functional mental units integrate various forms of cognitive ability, knowledge and thinking.

In broad terms, there are two categories of mediality, defined as media competence (Strykowski, 2004, pp. 33-34):

- competencies of an intellectual and cultural nature
- technical and practical competencies.

The first group covers the four components indicated above and refers to the development of mediality in the area of conscious and critical media reception, while the second is related to the development of mediality within the scope of using the media as a tool for intellectual work. In turn, UNESCO's expert reports (2013, pp. 129-136) distinguish three dimensions of media competence:

- access and search
- understanding and evaluation,
- creation and use, for which performance criteria have been defined (there are one hundred and thirteen of them in total), which describe in detail media skills in narrow areas of competence. The methods of assessing them are not specified.

Mediality, as opposed to intelligence, is a mental unit evoked and developed by tasks, problems, situations and cultural requirements (Nosal, 2004, p. 22). Knowledge of and access to the media determines greater motivation to engage in contact with them and use them for various purposes. This affects the high level of media competence (Literat, 2014, p. 21). Mediality and media competence that describes it are not permanent and unchangeable. They are a kind of continuum without a clearly defined beginning and end. Everyone in this continuum occupies a specific position (level of advancement), which changes smoothly with the acquired experience in dealing with the media (Potter, 2019, p. 27). This allows to develop the level of media competence. The description of these levels should take into account the specificity of cognitive, emotional, moral and social development and be adapted to the requirements at each stage of education. For example, UNESCO (2013, p. 60), with regard to the dimension of media understanding and evaluation, describes three levels of media competence:

- basic level - the recipient has a basic level of knowledge and experience in the field of media, but a significant increase in knowledge is required,
- intermediate level – it is the appropriate level of knowledge and skills acquired while working with the media, but there are shortcomings in some areas,
- advanced level – very good level of knowledge and skills acquired through work with media.

Such a general, superficial and discretionary assessment of mediality makes it impossible to check the actual individual competencies precisely. This is all the more important because, as shown above, competencies referring to mediality are multidimensional, i.e. they consist of several different areas, in a sense independent of each other.

On the basis of the analysis of different competence models, some similarities can be observed in the assessment of mediality (Ptaszek, 2014, p. 9):

- An important element of media competence is a critical understanding of the message (information, text) and its evaluation.
- Technical skills also play a significant role.
- The social functioning of an individual, including cooperation with the use of new media and information and communication technologies, is a component that is closely related to their interactivity.

Without a precise definition of these elements, it is impossible to plan an appropriate diagnostic tool and carry out a reliable measurement of mediality with its help.

### **Measurement of media literacy – Mediality Quotient**

The available methods for measuring media literacy are limited to tools that assess media competence in a selected unitary dimension. Most of the existing tests and questionnaires are observational, self-descriptive or executive (Ptaszek, 2014, p. 13) and do not measure the whole spectrum of competencies, but only a small part of them. Such tests are usually not very extensive and do not check the actual individual competencies, because the person examined assesses his/her own skills, and therefore the measurement is not objective but only declarative. The person examined does not perform any tasks which would then be subject to external evaluation. It should be noted that there is still a lack of diagnostic tools, especially for children and adolescents (Buckingham, 2015).

The proposed tool for measuring Mediality Quotient uses the results of specially prepared task tests diagnosing skills and effectiveness of media work. It includes a study of competencies connected with new media as well as with classical media (press, radio, television). Of course, media competence is also

dependent on the socio-cultural context and the test tasks take this dependence into account. The determination of the media literacy measurement technique was carried out on the basis of practical experience gained in measuring the Intelligence Quotient.

Mediality may be a useful tool to measure intelligence of a child's who functions in the world of media. The level of mediality may be used as a factor to assess and optimize media competencies that allow functioning in contemporary world affected indirectly by media. In this context there is a need to define techniques for measuring mediality. As far as this research project is concerned, it is suggested to use practical experiences that were acquired during measuring Intelligence Quotient (IQ). For mediality such measuring index can be constituted by Mediality Quotient (MQ), which can be defined by David Wechsler's modified formula for Intelligence Quotient (Brzeziński, 2015, p. 56):

$$MQ = K + \frac{k_i(z - s_w)}{\delta_w}, \quad (1)$$

where:

- $K$  i  $k_i$  – correction factors that modify range of MQ values accordingly,
- $z$  – raw result achieved in the test,
- $s_w$  – average in particular age group  $w$ ,
- $\delta_w$  – standard deviation of raw results in particular age group  $w$ .

This formula for a single test allows to transpose raw result achieved by a respondent into so called calculated result, which means a value in the MQ scale.

Comprehensive testing of media literacy requires several tests to diagnose competence in a wide range of media. In this solution, the diagnostic tool is designed as a battery of six tests. These are both executive and situational task tests and one simulation test. Each test consists of twelve tasks. The executive and situational tests allow to choose the solution of the task from five answers with different levels of correctness. Situational tests are characterized by the fact that the examined people solve tasks as if they were performing them in natural life situations. Tasks of the simulation test are performed either in applications that model the natural Internet environment, which ensures the repeatability of the conditions of task performance, or they are performed in the space of the real Internet, the activity of the respondent is recorded, and the way to reach a solution in changing environmental conditions is assessed. The stages of test design are as follows:

- Analysis of construction of the IQ tests.
- Adopting concept of test construction to examine Mediality Quotient.

- Determining factors influencing development of media identity on the basis of analysis of the literature.
- Selecting factors significant for the level of mediality in various age groups of children.
- Constructing tests for examination of particular factors and general mediality.
- Carrying out consultations among media experts and psychologists to verify designed tests; performing correction of the tests construction.
- Calibration of tests, which includes:
  - Performing tests in various age groups on a large population of examined pupils for the purpose of normalization and defining empirical distributions.
  - Calculating raw results, average and standard deviation for raw results in various age groups; adopting values for correction factors: average and standard deviation.
- Selection of significance factors, calculating Mediality Quotient and preparing comparison tables to read Mediality Quotient (so called mediality scale for particular age groups of children).

The battery to determine Mediality Quotient is a set of the following six tests:

1. textual (executive) test - diagnosing the ability to read press materials with understanding. It is in the form of tasks written as text. The respondent indicates his or her answer from among five proposals describing with different accuracy the meaning of information contained in the content of the task.
2. textual and illustrative (executive) test - assessing the ability to decode information in the text and accompanying illustrations. The solution to the task is to choose the answer, as in test 1.
3. info-graphical (executive) test - is set up from the tasks diagnosing the ability to decode information contained in info-graphical diagrams. The way of solving the tasks is the same as in previous executive tests.
4. audible (situational) test - diagnosing the ability to receive audio (verbal-musical) information. Solving the tasks consists in selecting a text description that is the most adequate to the message listened to.
5. Multimedia (situational) test - testing the ability to receive multimedia messages. Solving the tasks - as above.
6. Internet (simulation) test - diagnosing the ability to use the tools and services made available on the Internet. Out of the twelve tasks, nine are performed in the environment of Internet modelling applications, three tasks are performed with direct access to the Internet. The

assessment is made on the basis of the analysis of the registered activity while searching for a solution to the task.

An individual result of each test is the sum of points obtained for the performance of individual tasks and it is defined as a raw result obtained by the examined person in a given test. Only the testing of a sufficiently large group of people (over one thousand) ensures the normalization of the test, which allows to establish empirical distributions and determine the average values and standard deviations for the raw results in different age groups. Only with these determinations is it possible to calculate the Mediality Quotient (MQ) from formula (1). If a designed battery of six tests is used, transposing the raw results obtained in these tests into the final result on the MQ scale requires an estimation of the significance factor of the conversion result obtained for each test from the formula (1). In this way, it is arbitrarily determined how significant the media competence tested in a given test is. For example, these values vary considerably from one age range to another and therefore the raw results of people of different ages, for individual tests, cannot be directly compared with each other.

Using the battery of six tests to calculate the MQ value requires additional modification of the formula (1). This relation takes the form of the following formula:

$$MQ_6 = K + \sum_{i=1}^6 \mu_i \frac{k_i(z_i - s_{wi})}{\delta_{wi}} , \quad (2)$$

where:

$K$  – correction factor modifying the average distribution of results,

$i$  – test number in the battery,

$\mu_i$  – significance factor for the test  $i$  (where  $\sum_{i=1}^6 \mu_i = 1$ ),

$k_i$  – correction factor that modify range of  $MQ_i$  value,

$z_i$  – raw result achieved in the  $i$  test,

$s_{wi}$  – average in particular age group  $w$  for the  $i$  test,

$\delta_{wi}$  – standard deviation of raw results in particular age group  $w$  for the  $I$  test.

This formula can be used to produce conversion tables of the media literacy scale for different age groups and cultural backgrounds.

## Conclusion

Mediality is a measurement of an individual preparation to function properly in media space. At a time of media convergence, when all types of media

messages coexist, such preparation applies equally to children and young people as well as adults. A fully-fledged members of the information society not only use the media, but they are also able to co-create media reality. Therefore, it is necessary to develop appropriate conditions for media education, including lifelong learning. Recognition of mediality and its systematic development surely may have a positive impact on the quality of education of contemporary pupil. Nowadays, in the education system there are no tools for diagnosing mediality of a pupil. Creation of such a useful indicator as Mediality Quotient may become a factor that will contribute to optimize education process in the intellectual media environment.

### References

- Brzeziński, J.M. (2015). Czy (i jakie) potrzebna są testy inteligencji? *Seminarium Polskiej Akademii Umiejętności. 2013–2015*, vol. XI, 49-76.
- Buckingham, D. (2015). *The Media Literacy of Children and Young People. A review of the research literature on behalf of Ofcom*. London: Knowledge Lab. Retrieved from <http://www.researchgate.net/publication/253736824>
- Juszczuk-Rygałło, J. (2016). Kształtowanie podmiotowości ucznia w relacji do jego tożsamości. *Edukacja Elementarna w Teorii i Praktyce*, vol. 11, no. 2(40), 13-24.
- Lister, M., Dover, J., Giddings, S., Grant, I., & Kelly, K. (2009). *Nowe media. Wprowadzenie*. Kraków: Wydawnictwo Uniwersytetu Jagiellońskiego.
- Literat, I. (2014). Measuring New Media Literacies: Towards the Development of a Comprehensive Assessment Tool. *Journal of Media Literacy Education*, 6(1), 15-27.
- Morbitzer, J. (2012). Medialność a sprawność edukacyjna ucznia. *Edukacja i Dialog*, 11/12, 50-61.
- Morbitzer, J. (2015). Refleksje pedagogiczne na temat intelektualnej kondycji cyfrowych tubylców. *Psychologia Wychowawcza*, 5, 115-130.
- Nosal, C. (2004). Psychologia kompetencji w dobie nowej technologii informacyjnej. In W. Strykowski & W. Skrzydlewski (Eds.), *Kompetencje medialne społeczeństwa wiedzy* (pp. 19-30). Poznań: Wydawnictwo eMPI2.
- Potter, W.J. (2019). *Media Literacy*. Los Angeles: SAGE Publications.
- Ptaszek, G. (2014). Pomiar indywidualnych kompetencji medialnych. Pytania i problemy. *Kultura popularna*, 3(41), 6-17.
- Ratajski, S. (2015). Wprowadzenie. In M. Federowicz & S. Ratajski (Eds.), *O potrzebie edukacji medialnej w Polsce* (pp. 11-28). Warszawa: Polski Komitet do spraw UNESCO, Krajowa Rada Radiofonii i Telewizji.
- Strykowski, W. (2004). Kompetencje medialne: pojęcia, obszary, formy kształcenia. In W. Strykowski & W. Skrzydlewski (Eds.), *Kompetencje medialne społeczeństwa wiedzy* (pp. 31-40). Poznań: Wydawnictwo eMPI2.
- UNESCO. (2013). *Global Media and Information Literacy Assessment Framework: Country Readiness and Competencies*. Paris: UNESCO press.
- Wróblewska, M. (2011). Kształtowanie tożsamości w perspektywie rozwojowej i edukacyjnej. *Pogranicze. Studia Społeczne*, vol. XVII, 176-186.
- Zduniak, A. (2013). Socjalizacja w kontekście nowoczesnego społeczeństwa. *Zeszyty Naukowe KUL*, 56, 1(221), 47-61.