



# Suitable measurement instruments for questionnaire research between children respondents

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## Abstract

Reading is perceived to be one of the essential competencies for current age, regarding phenomena of globalization, informatization, knowledge-based society or life-long development of people. Attitudes toward reading are shaped in early childhood. It seems to be crucial to explore effectively children's attitudes toward reading, using suitable instruments and design them according to children's age and level of maturity. Using customized designs of research instruments, it is possible to obtain relevant information and accordingly build effective strategies in education. Presented article deals with these issues and is based upon case study of particular questionnaire survey between early readers.

*Keywords: reading; questionnaire survey; design of questionnaire instrument, early readers*

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## 1. Introduction

This article deals with measurement instruments suitable for exploring children's attitudes to reading. Reading is perceived to be one of the core competencies for this century. Regarding this idea, it is highly desirable to measure children's attitudes toward reading and design appropriately academic, educational and developmental strategies adopted in education process. Appropriate and suitable measurement instrument is essential to provide relevant information about children's reading attitudes and habits.

The empirical research introduced in this article employs two designs of questionnaire regarding children's reading attitudes and tries to reveal, which design is more appropriate to use in case of early readers (children from first to third grade of elementary school). One design of questionnaire can be labelled as "traditional", the second can be labelled as "customized". Results from both surveys were compared and it turned out that both provide different results. Based on consequent consultations with either respondents' groups and their teachers, it could be concluded, that it is highly desirable to customize the design of measurement (questionnaire) instrument to the age and level of maturity of children.

The article is structures as follows:

- The first part outlines theoretical basis for the research, focusing on the importance of reading as a core competency and current state of knowledge about children's attitudes toward it, as well as on ways of measurements.
- The second part introduces methodology of empirical research.
- The third part shows the results of the empirical research itself, based on comparison of two different designs of measurement instruments application.
- The final part concludes.

## 2. Reading – its importance and research of reading attitudes

Presented empirical research is embedded into the phenomenon of reading and early readers' attitudes toward it. It is phenomenon that significantly influences development and personality of individuals as well as shapes whole communities, societies, or economies (Ogunrombi & Adio, 1995). Reading culture is not formed separately, it is a part of educational process and is determined by society as well as individual's characteristics (Kamalova & Koletvinova, 2016). Following findings of Bano et al., 2018; Khatib & Mehrgan, 2012; Amin, 2019; Kamalova & Koletvinova, 2016; Ogunrombi & Adio, 1995; Mol et al., 2009; Leppänen et al., 2005; Hopper, 2005; Celik, 2019 or Nation, 2015, reading is not a sole knowledge or competency, but has complex relationships toward:

- Academic success of children and students
- Personal development during whole life and carrier success
- Shaping critical thinking, ability to reflexion of mental processes evolving from external stimuli
- Shaping decision-making competencies and logic thinking, analytical thinking or creativity
- Enhancing of thinking patterns and sensitivity toward accepted information
- Enrichment of vocabulary, memory capacity or imagination
- Buffering of other competencies and abilities (e. g. writing, orthography)
- Building complex and full intellectual basis, emotional basis, independence, self-realization and satisfaction.

Defining reading itself, it is relationship between reader and text; demanding and meaningful, conscious, multi-dimensional cognitive, emotional, rational, creative, mental process influenced by external milieu (Bano et al., 2018; Khatib & Mehrgan, 2012; Amin, 2019; Kamalova & Koletvinova, 2016; Ogunrombi & Adio, 1995; Hopper, 2005; Celik, 2019 or Saltmarsh & Saltmarsh, 2016).

To reach mentioned benefits and effects of reading it is important quality of reading materials (Mol et al., 2009; Hopper, 2005) and also recognition of interests and preferences of children or students, especially in young age, adjust style and content of education, building reading culture, finally it is important to match reading interests of children and requirements of educational system or parents (Doiron & Asselin, 2011; Hopper, 2005). These determinant factors could be managed effectively by realizing relevant research and explorations. These must provide relevant information and should be customized toward objects of research (in this case children and students).

Questionnaire surveys seem to be useful and suitable instrument of research of opinions and attitudes toward reading between children; Malhotra (2006) sees questionnaires to

be main mean of collecting quantitative primary data. Nevertheless, it should follow particular guidelines (nevertheless Ross, 2005 points that there are no one-size-fits-all rules). According to Krosnick & Presser (2010), results of research depend on questionnaire design (see Ross, 2005; Sanchez, 1992 points that importance of its design is often overlooked) and thus, it should be based on best practise to eliminate mistakes or inaccuracy (these are also results of low motivation and engagement of respondents). Answering questionnaires is relatively demanding process (Drennen, 2003), while respondents must understand and interpret questions, then sort their ideas, integrate them into answers and finally chose most suitable answer option. The process is determined by complexity of questions, ability to answer and willingness to answer (see e. g. Krosnick & Presser, 2010; Malhotra, 2006).

Basic principles for avoiding confusions, biases, inaccuracy, or lack of comprehension could be summarized as follows (Ross, 2005; Krosnick & Presser, 2010; Drennan, 2003), nevertheless Malhotra (2006) alerts that no scientific guidelines themselves do not guarantee ideal results:

- keep used vocabulary as much simple as possible,
- keep questions short,
- avoid question ambiguity, redundancy or overlapping,
- avoid hypothesising,
- avoid overestimation of respondents.

Ross (2005) accordingly highlights that the first step in designing the questionnaire should be respondents character consideration (also Malhotra, 2006). This helps questions and offered answers adaptation according to maturity of respondents, especially in case of specific respondents groups like children. Malhotra (2006) advices to clear basic questions during designing of questionnaire – who, what, when and where.

Questionnaire surveys between children respondent groups are not rare, on the other hand, they have some specifics that should be considered. Especially the issue of customization according to age and level of maturity should be taken into account when designing questionnaire instrument (Malhotra, 2006; Kapci et al., 2010; Kaščelan et al., 2022 for discussions about questionnaire surveys between children). Drennan (2003) highlights the possibility to use cognitive interviewing to identify potentially problematic (less understandable) questions and customize their design (this method was, ex post, utilized also in presented survey). The method could be useful especially in case of age specific groups (like Drennan, 2003 himself mentions, e. g. children), which could perceive words differently than adults or professionals.

Importance of questionnaire design, layout, graphics etc. for quality of results stresses also Sanchez (1992). She surveyed two differently designed questionnaire with the same content (between adult respondents) and found out that the design has impact on collected information, as well as that experience of interviewers plays its role (however the design of questionnaire seems to have higher impact).

### 3. Methodology

The empirical research is based on questionnaire survey between several groups of children – early readers from first to third grade of elementary schools that are specified in table 1; agreement of parents was obtained for all participants. Average size of the class

was 17 children. It managed to reach the absolute consistency in groups composition. The time interval between the two surveys was two weeks. All groups were asked to fulfil the two questionnaires with different design (see figure 1). The first questionnaire (labelled “A”) was designed as “traditional” with plain text and closed questions included. The second questionnaire (labelled “B”) was designed as “customized” to the age and maturity of respondents, texts of closed questions were supplemented by or substituted by pictures, graphics respectively. Three groups were instructed to fulfil questionnaire labelled “A” in the first week and questionnaire labelled “B” in the second week; the other three groups were instructed to fulfil the questionnaires in opposite sequence.

**Table 1: Specification of research sample**

	<b>Grade</b>	<b>Elementary school</b>	<b>Sequence of questionnaire instruments</b>	<b>Gender distribution (% of boys)</b>
<b>Group 1</b>	First	School 1	A→B	35 %
<b>Group 2</b>	Second	School 1	B→A	54 %
<b>Group 3</b>	Third	School 1	A→B	42 %
<b>Group 4</b>	First	School 2	B→A	48 %
<b>Group 5</b>	Second	School 2	A→B	58 %
<b>Group 6</b>	Third	School 2	B→A	53 %

Source: own elaboration

In the next step, results of both questionnaire surveys were compared. Tools of basic descriptive and comparative analysis were employed in this regard. Particular differences were recorded by two evaluators into structured forms.

Accordingly, results and identified differences were discussed either with teachers of all the respondents groups (these who lead the reading lessons) as well as with respondents themselves. The former were asked about the consistency and relevance of results and identified differences as well as their perceptions about both designs of questionnaire instruments; the later were asked about their feelings during fulfilling both designs of questionnaire instruments. The method of cognitive interviewing, based on thinking aloud and utilization of record-protocols was employed.

After these discussions, they were formulated recommendations regarding the importance and aim of suitable questionnaire instrument design utilization when exploring attitudes about reading between specific groups of respondents. The main employed methodological approach lies in synthesis, induction, and deduction, respectively in expert inspection.

They were hypothesised following theses:

H1: Children are more involved into questionnaire survey when the instrument is more attractive and supplemented by graphics.

H2: It is easier for children respondents to understand questions and formulate adequate answers when they are supplemented by graphics.

H3: Questionnaire instruments customized to age and level of maturity of respondents provide better and more relevant information.

<p>Do your parents read with you at home? Do they like it?</p> <ul style="list-style-type: none"> <li><input type="radio"/> Yes, and they like it</li> <li><input type="radio"/> Yes, but they don't like it much</li> <li><input type="radio"/> No, but they would like to do so</li> <li><input type="radio"/> No and they don't want to</li> </ul> <p>Is reading your hobby?</p> <ul style="list-style-type: none"> <li><input type="radio"/> Yes</li> <li><input type="radio"/> No</li> </ul> <p>Do you have your own library at home?</p> <ul style="list-style-type: none"> <li><input type="radio"/> Yes</li> <li><input type="radio"/> No</li> </ul> <p>Where do you usually read at home?</p> <ul style="list-style-type: none"> <li><input type="radio"/> I have my reading corner</li> <li><input type="radio"/> In my bed, in my room</li> <li><input type="radio"/> At my table, in my room</li> <li><input type="radio"/> At the sofa, in living room</li> <li><input type="radio"/> Elsewhere at our home</li> </ul>	<p>How do you like reading lessons at school?</p> <ul style="list-style-type: none"> <li><input type="radio"/> Very much</li> <li><input type="radio"/> I like them</li> <li><input type="radio"/> I don't care</li> <li><input type="radio"/> I don't like them</li> </ul> <p>Do you discuss you reading with friends?</p> <ul style="list-style-type: none"> <li><input type="radio"/> Yes, and we are enjoying it</li> <li><input type="radio"/> I talk to them, but they don't care much</li> <li><input type="radio"/> No, we are not interested</li> </ul>
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<p>Do you have reading time with your parents at home? How your parents look like during it?</p> <ul style="list-style-type: none"> <li><input type="radio"/> We have reading time together, parents look like: </li> <li><input type="radio"/> We don't have reading time together, parents look like: </li> </ul> <p>How do you feel when you can read?</p> <p> </p> <p>Do you have your own library at home?</p> <ul style="list-style-type: none"> <li><input type="radio"/> Yes</li> <li><input type="radio"/> No</li> </ul>	<p>Where do you usually read at home?</p> <ul style="list-style-type: none"> <li><input type="radio"/> I have my reading corner </li> <li><input type="radio"/> In my bed, in my room </li> <li><input type="radio"/> At my table, in my room </li> <li><input type="radio"/> At the sofa, in living room </li> <li><input type="radio"/> Elsewhere at our home </li> </ul> <p>How do you feel during reading lessons at school?</p> <p> </p> <p>Are you talking about reading with your friend?</p> <ul style="list-style-type: none"> <li><input type="radio"/> Yes, and we are enjoying it </li> <li><input type="radio"/> I talk to them, but they don't care much </li> <li><input type="radio"/> No, we are not interested </li> </ul>
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**Figure 1: Design of questionnaire “A” and “B”**

Source: own elaboration

#### 4. Empirical research results

Answers of respondents were recorded by two evaluators. The findings of both expert evaluators were consistent and indicated following ideas regarding comparison of results: It was indicated significant difference between rates of completeness of both questionnaire instruments. Meanwhile in case of instrument “A” reached the 68 % rate of completeness, in case of instrument “B” it was 90 % rate of completeness. Especially in case of first-grade children, it was indicated higher incidence of missing answers when instrument “A” was used. Higher rate of missing values was indicated between boys, compared to girls in case of both instruments (instrument “B” indicated better results).

When evaluating consistency of results (rate of compliance between answers to related questions), it could be concluded that the results are consistent and thus, the comparability of instruments’ appropriation is ensured.

Consistent results indicated that the overall attitude to reading between early readers is relatively positive, slightly but not significantly more positive is attitude of girls – 72 % of girls said that reading is their hobby, compared to 65 % of boys. Most of parents (almost 80 %) of early readers are involved in home reading time of their children. Almost three quarters of children have relatively calm space for reading in their rooms and have the home library. Neutral or relatively positive attitude to school reading lessons indicated approximately 80 % of children. Accordingly, the discussion about reading is not really common between children themselves (approximately 35 % of children enjoy reading discussion with friends).

Provided by the initial findings from two series of questionnaire survey (using instrument “A” and “B”), evaluators interviewed both, teachers of all groups, and respondents themselves. The main findings could be summarized as follows:

The teachers think that children in the first grades of elementary schools have usually relatively positive attitude to reading and are enthusiastic in mastering their reading (especially technical) skill. The reading interest is decreasing with age and differs between boys and girls (boys are more often about losing the reading interest).

Regarding the measurement instruments for evaluating reading attitudes, teachers think that the more visually engaging and graphically attractive instrument is, the better and more precise information could be obtained. They also positively assessed substitution of text by graphics illustrating answers. This would positively influence either attention of young children and their interest to complete the survey, as well as their better understanding of questions and answers.

Interviewing of children was realized in groups during the reading lessons, teachers were present. Interviewing was designed in cooperation with teachers to fit the age and level of maturity of children as well as actual class atmosphere. Children positively assessed especially the design of instrument "B", they enjoyed fulfilling it better than in case of instrument "A" that was boring for them. Accordingly, children stated that they had more difficulties with proper understanding of texts, they were not certain about what is meant by particular questions or answers. Pictures and graphics were clearer and more understandable for them.

## 5. Recommendations for research and praxis

In this part of article, they are synthetised several recommendations for designing of research and questionnaire instruments suitable for children groups of respondents. As far as presented empirical research revealed, it is obvious that for obtaining the most relevant information researchers should customize questionnaire instruments toward level of maturity of respondents. Recommendations could be formulated as follows:

- Questionnaire seems to be suitable instrument for exploring attitudes toward reading between early readers. Authors highly recommend using pictures and graphics to supplement or fully substitute text. The pictures and graphics should be simple and clear. It is possible to use pictures of popular children heroes or creatures (they can be used as guides through particular research).
- Teachers are persuaded, that reading skills and reading competencies are essential for future development, success and satisfaction of children for their whole life. Assuming this, the effective measurement of children's reading attitudes is the first step to reading education system development. The suitable measurement instruments are in this regard essential, their design is a key to gaining relevant and appropriate information base. This finding should be considered in case of research preparation.

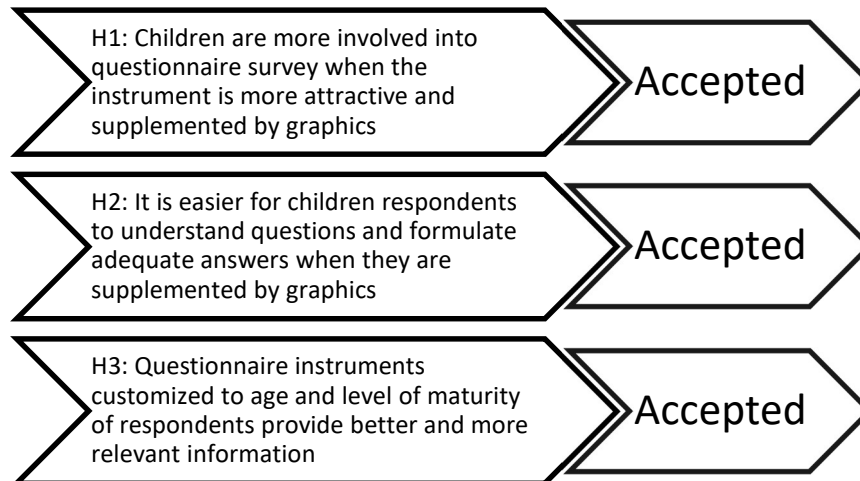
It seems to be highly desirable to design the research, particularly questionnaire, instruments in cooperation with teachers, psychologists as well as children themselves. Pretesting and teasing could be realized in this regard.

Based on findings of other research (see e. g. Drennan, 2003 for further discussion), it could be desirable to realize pre-testing as well as employ cognitive interviewing to clear either questions and answers design, either perceptions about them from respondents' viewpoint.

Figure 2 introduces reactions to hypotheses formulated in previous part of the article. Authors would like to emphasize that presented research and its results should be perceived as initial for further, more complex exploration, employing wider portfolio of participants, like teachers, psychologists or other experts and academics. On the other

hand, the results relatively clearly show that customization of questionnaire instruments according to age and level of maturity of respondents is desirable.

**Figure 2: Reaction to hypotheses**



Source: own elaboration

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