



Responsible Decision Making as Primary School Children Move into Adolescence

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This paper discusses a class of phenomena called a “responsible decision”, a type of decision making in which the choice between behavioural capabilities is determined by the alternative values that lie behind them. Using Vygotsky’s theory of cultural and historical development, this paper posits that the process of a child’s internalization of interpersonal dialogue is used as a means of making a responsible decision. The participants in the study included 137 Russian children and adolescents, aged 6-17 years old. The procedure used in the study showed an increase in the level of maturity of responsible decisions in children aged 6-11-year-old. The study revealed that the primary school age is the crucial time and area of proximal development for making responsible decisions. This has implications for some of the methods which adults can use to support a child’s ability to make responsible decisions.

Keywords: responsible decision-making, zone of proximal development, primary school children, adolescence.

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Introduction

Responsible decision making is a key competence in children and young people. There are two complementary types of issues related to decision making in children. The first is scientific and fundamental, namely difficulties in the way of understanding mental processes that ensure the child’s mastery of social tools that

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allows him or her to make decisions which are subsequently considered successful. The second is practical and real-life, that is, the difficulties of adults associated with the need to constructively support the development of independence and personal maturity of children and adolescents. The goal of this paper is to propose a framework of the means by which a child or adolescent masters the process of responsible decision making and show the possibilities of controlling the process of this mastery within the zone of proximal development of a child (Vygotsky, 1978). The theoretical basis of the study includes the cultural and historical theory of Vygotsky (Vygotsky, 1978) and his concept of scaffolding which refers to a process in which the teacher models or demonstrates how to solve a problem, and then steps back, offering support as needed (Qayyum & Hussain, 2019). Children's development is seen as being co-constructed and scaffolded through interactions with others, and proximal processes with others are the "engines of development" (Divecha & Brackett, 2020). This paper also refers to theories related to the decision-making process (Kahneman, 2011; Landsbergen & Raadschelders, 2018; Simon, 1957; Tversky & Kahneman, 1974); internal dialogue (Astretsov & Leontiev 2016; Hermans, 2001) and behaviour as a special form of a decision in a personally valuable situation (Dotsenko, 2009; Leontiev, 2011).

"Responsible decision" – between "decision making" and "moral dilemma"

"Decision making is a process of, hopefully, careful consideration of the issues, resources, and feasibilities in the (re)olution of a problem" (Landsbergen & Raadschelders, 2018, p. 1). The individual as an administrative man is a decision maker, "who assesses alternatives on the basis of his own and/or group objectives, with as complete information as possible". The individual as an economic man is a decision maker, who "assesses alternatives on the basis of utility and/or profit maximization". The 'economic man' theory assumes that:

decisions are made on the basis of complete information about the nature of the problem that needs to be solved and the costs and benefits of all possible alternative solutions. This leads automatically to the one, best decision. That is, there can be only one, best decision, irrespective of who the decision maker is (ibid., p. 4).

However, many authors do not agree with the idea of complete rationality in decision making. Simon (1957) believes that a person does not want to achieve the best alternative when making a decision, but wants to feel satisfied, and therefore, they do not make the optimal decision, but one that they are satisfied with. Tversky and Kahneman (1974) point out that rather a rational process, decision making is a process more grounded in heuristics and biases, i.e. in mental shortcuts. Later, Kahneman (2011) described two different ways in which the brain forms thoughts, namely fast, automatic, frequent, emotional, stereotypic, unconscious system, and slow, effortful, infrequent, logical, calculating, conscious system.

Decision making is a generic category, whereas making a "responsible decision" refers to a specific type of decision making. Rather than a moral choice as in Kohlberg's dilemmas (Kohlberg, 1981), a "responsible decision" is a choice that removes the conflict between values that are important to the child, for example: between friendship and social success, with the purpose of that decision being to form one's behaviour. As a result, the person acts as the subject of activity to vindicate his or her own individuality

(Dotsenko, 2009). In the social and emotional framework, “responsible decision making” refers to pro-social choice “based on ethical standards, safety concerns, and social norms” (CASEL, 2000).

A cultural and historical view on mastering the decision-making competence

Children and adolescents do not master mature, responsible decision making immediately. The concept of the zone of proximal development (Vygotsky, 1978) helps to explain the formation and maturation of higher mental functions. The process takes place through three main stages. First, the child experiences the behavioural controls used by adults such as motivation, persuasion, coercion, pressure, and direction. If these tools are effective and liked by the child, they become a subjective norm or an attractive pattern of behaviour. Secondly, the child uses the same means in his or her behaviour, directing them to other creatures (real or imaginary) – peers, adults, minors, animals, or dolls. This is a process of mastering these tools, of testing them for effectiveness and accessibility to solve his or her own problems, and most importantly, for their acceptability in relation to people in his or her environment. Thirdly, the child uses the same source of motivation and directs it in relation to him/herself-as-the-other. In a transformed (internalized) form, they are subjectively experienced as doubts, that, is the struggle of internal motives with the pros and cons of each of the alternatives considered.

Vygotsky defined the zone of proximal development as a gap between the independent solution (or non-solution) of certain social problems and their better solution with the help of an adult. “The distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem-solving under adult guidance, or in collaboration with more capable peers” (Vygotsky, 1978, p. 86). The process of a child's development, from the point of view of Vygotsky (1978), occurs through joint activities between a child and an adult.

The place of internal dialogue in the ontogenesis of decision-making

The synthesis of the concepts of internal dialogue and how it is understood in various schools of psychological research, was proposed by Astretsov & Leontiev (2016). The authors investigated how internal dialogue was understood by various theorists such as Bakhtin, Vygotsky, Kuchinskii, and Hermans. Some authors consider internal dialogue in the broadest sense as constituting a characteristic feature of human existence that is inherent in most psychological processes. Others, however, understand it in a narrower sense as a mechanism to achieve self-awareness and to relate to oneself, as the way in which a person can relate to the external world through dreams and fantasies and to engage in creative thinking. We relate to the idea of internal dialogue proposed by Hermans (2001), who defines it as “a multiplicity of positions among which dialogical relationships can be established” (p. 243).

A cultural tool that a child masters during ontogenesis is discussion, that is, a set of techniques to debate with communication partners. The child discovers these in an accessible social environment by immersing in various kinds of interactions. According to Divecha and Brackett (2020), children’s development

is co-constructed and scaffolded through interactions with others, and the proximal processes with others serve the “engines of development”. Children can learn social and emotional skills in a didactic, de-contextualized format, but they also need to have the lived experience of emotional and social skill building through real-time relationships. During these interactions, the child is “torn” between different motivators, often struggling with the motives of the parents. Accordingly, interpersonal dialogue takes on the features of confrontation: it involves means of strengthening or weakening the motives that impact the strength of arguments in a dispute (for or against). The process of internalization is carried out according to the law of cultural and historical development. At first, adults direct the child, accompanying their actions with verbal comments and arguments. Then the child begins to direct his or her communication partners with the help of words or with the verbal accompaniment of gestures. These means of direction are gradually internalized, turning into internal dialogue. Thus, a special process of confrontation arises between various directions already in the inner world of the child, with inner dialogue becoming a part of the decision-making process.

The personal maturity of decisions

The personal maturity in decision making is the parameter for assessing the quality of decisions. The criteria for judging which decision is more “mature” from a research perspective include activity, namely, from refusing to act, waiting for new information, and help from others to look for a solution; creativity, namely the ability to go beyond obvious solutions; complete satisfaction of values, namely, from dissatisfaction to complete satisfaction of all significant values; and finally the degree of solution to the problem, from non-solution to complete solution of the problem. In the framework of this paper, an indicator of a personally mature decision will be a high degree of satisfaction in relation to one's own values. The child masters these tools in dialogue with adults, learning their arguments. The more precisely and complete an adult's ability to reason, the higher the likelihood that a child will master the ability to make personally mature decisions.

In the light of this review, we formulated two hypotheses for the study as follows:

1. The zone of proximal development in the formation of internal dialogue as a means of making vital decisions takes place during the 6-11 years' period
2. The child's use of a cultural tool (dialogue with an adult) enhances the personal maturity of responsible decisions.

Methodology

The study involved 137 participants aged 6-17 years, divided into the following age groups: 39 participants aged 6-7 years (20 girls, 19 boys), 31 participants aged 8-11 years (20 girls, 11 boys), 31 participants aged 12-14 years (16 girls, 15 boys) and 36 participants aged 15-17 years (19 girls, 17 boys).

This study was developed in accordance with the theory of cultural and historical development (Vygotsky, 1978) and the methodology used in his studies. The addition in this study is about the nature of the decision-making process.

A common feature during responsible decision making is that some stages proceed beyond one's awareness. Consequently, as a result of not having mastered internal dialogue, the child has the risk of confining himself or herself to superficial considerations and committing an imbalanced act. Earlier, it was shown that responsible decisions retrospectively assessed by people turn out to be the best if "they thought everything over well enough, then put it aside/forgot, and suddenly the decision came by itself" (Pchelina & Dotsenko, 2017, p. 188). Similar results were obtained in decision making studies, where subjects who were distracted for several minutes generated more non-standard ideas than those who constantly thought only about the task: "Unconscious thought is more 'liberal' than conscious thought and leads to the generation of items or ideas that are less obvious, less accessible and more creative" (Dijksterhuis & Meurs, 2006, p. 145).

Implicit processes that duplicate the main (conscious) dialogue-dispute-hesitations can thus also be involved in order to ensure the quality of the decisions. These two levels of decision making are referred to as conscious and unconscious processes, with decision making taking place with more or less input from both levels. Therefore, the experimental design and data collection procedures in this study are designed to capture the effects of each of these two processes.

The stimulus material developed for the experimental study was based on theoretical ideas about responsible decision making. Five life situations were selected, each of which contained some value alternative that needed resolution (a task for a responsible decision). Two sets of life situations were prepared, the content of which corresponded to the realities of life in two age groups. Plots were selected with the help of focus groups with 30 participants. The situations are balanced by the values embedded in them and by the plot content by means of RSQ-8 (DIAMONDS) technique. This technique made it possible to align situations by the following parameters: Duty, Intellect, Adversity, Mating, Positivity, Negativity, Deception and Sociality (Rauthmann et al., 2014). Six experts evaluated the correctness of alignment using the specified tool. The consistency of expert judgments was assessed using the Friedman criterion to examine the shift in the values of the trait under study with 3 or more measurements in the same sample. A high degree of consistency of expert assessments on DIAMONDS scales was iteratively achieved. For each situation, six ready-made variants of answer-solutions were proposed (2 alternatives \times 3 levels of personal maturity of decision) and an open answer as an individual decision of the subject (requiring expert judgments from researchers on the degree of personal maturity of the proposed solution).

The authors' procedure in collecting data on the individual inclinations when making decisions was through a "structured interview" to identify the maturity level of the decision. The data collection procedure was carried out individually with each participant and consisted of four consecutive steps:

1. *Initial decision.* The subject was asked to make decisions in each of the five problem situations (stimulus). The solution could be chosen from the proposed list of behavioural alternatives or the participant's own solution could be offered.
2. *Accepting assistance.* The subjects were asked to find again solutions for the same five problem situations. Six imaginary dialogue partners were offered to help: 1) a real hero – one who acts

heroically; 2) a wise man – one who has important knowledge; 3) a magician – one with almost unlimited possibilities; 4) an ideal man/ woman – an ideal role model for the subject; 5) the opposite – one who acts in the exact opposite of what the subject himself/herself usually does; 6) a non-standard person – a person who does not obey the general rules of behaviour. For each stimulus situation, only one assistant could be chosen. The task of the child or adolescent was to discuss each situation aloud with an imaginary partner in order to choose the best possible solution than what was already suggested by the subjects. In this way, the externalization of the conscious internal dialogue was elicited.

3. *Productive pause.* The subjects were encouraged to switch to the new stimulus material, namely five pictures containing a complex pattern and no plot (mandala). They were asked to come up with a name for each image. Responses were not registered. Presumably, at this time, the internal discussion regarding the tasks for the decision continued, but at a subliminal level. The dialogue initiated with imaginary assistants has now transformed into an implicit inner dialogue. The duration of the pause ranged from 5 to 8 minutes, depending on how fast the children worked.
4. *Final decision.* The subjects were asked to once again think over the five problem situations and make their ultimate decision, so as to enable the researchers to identify changes in the quality of decisions caused by implicit intrapersonal dialogue.

Children in the 6 to 11-year-old age category participated in the study in the presence of a parent. According to the instructions, the adult helped the child to discuss the problem situation, and the child made the decision independently. This matches the conditions for the zone of proximal development and "scaffolding".

Measures

The subjects' responses were recorded according to the choice from the proposed options or the individual decision of the subjects. The study made use of the following procedures:

1. The level of personal maturity of the decisions made at each step of the research procedure: (a) in the form of initial decisions; (b) decisions proposed after a simulated dialogue with imaginary dialogue partners; and (c) final decisions proposed after the productive pause phase.
2. Differences in levels of personal maturity between the decisions proposed at different steps of the research procedure according to three shifts, namely the difference between initial decisions and decisions after "conversations" with assistants to examine the effect of virtual dialogue partners (a cultural tool at the stage of its internalization); the difference between the second series of decisions ("accepting assistance") and the final one (after a productive pause), reflecting the effect of the innermost dialogue; and the difference between initial and final decisions; which is an assessment of the psychotechnical aspect of the whole procedure.

Primary analysis of data description

To convert semantic data into digital data, the authors used standard coding and, in controversial cases, five expert judgments. The coding the answers according to the choice in the situation which corresponded to different types of decisions included the following levels of personal maturity in responsible decisions: 0 – refusal to make one’s own decision and or any decision; 1 – refusal to make one’s own decision, shifting responsibility to another person; or choosing the action according to a decision made by another person; 2 – temporary refusal to make a decision in order to accumulate resources (productive waiting); 3 – action influenced by the circumstances’ effect; 4 – responsible independent choice of one of the alternatives (stiff decision); 5 – decision, when none of the alternatives is rejected, the values are sustained sequentially one after another; and 6 – decision that supports two or more values simultaneously. Below is an example of situation 3 presented to children 6-11 years old:

You participated in a children's painting contest and won. Your prize is a visit to the workshop of an artist who will show you his secrets of painting and answer all your questions. You can paint a picture together, and he will also give you a professional artist's kit. A day in the workshop is a dream! However, if you spend the day with the artist, you will not be able to finish the wall-newspaper that you are preparing with your classmate. She doesn't draw very well, therefore she will be very upset and will stop talking to you. You really do not want to argue with her because you have become best friends. But you really want to visit the artist's workshop. In this situation, you...

You will be very worried, because nothing can be done (0)

You will postpone the decision until the last moment, suddenly you will add arguments for the choice (2)

Circumstances have changed so that it is necessary to go to the workshop (3)

Circumstances have changed so that it is necessary to draw a wall newspaper (3)

You go to the artist, a day in the Studio is more valuable – it's a dream (4)

You will draw a wall newspaper, because friendship is most important (4)

For example, the answer “*I will draw a wall-newspaper and then I will go to the artist*” (girl, 11 years old) was encoded as 5; the answer “*I will combine everything, I will draw not only a picture, but also a wall-newspaper together with the artist*” (boy, 7 years old) – as 6. For each subject, the average score maturity of the responsible decisions was calculated on the basis of 5 situations in each measurement. The average score for each age group was then computed. Shifts were counted between the average scores of each measurement, for each age group.

Data Analysis Procedures

Encoded results were recorded in Microsoft Excel (non-standard answers were encoded by 5 experts). To determine the statistical significance of differences in the levels of maturity of a decision in different age

groups, one-way analysis of variance was used. In order to identify the direction of the shift in the maturity level of the decision, the Wilcoxon T-test and the sign test (G-test) were chosen. According to the results of both tests, the change in the level of maturity of the test subjects due to the formative procedure could be worked out. The reliability of the data collection was ensured by using two methods of shifting and comparing results.

Results

Table I presents the values of the level of maturity of the responsible decision in the three dimensions (initial, intermediate and final), disaggregated by age group. In addition, the values of each of the three shifts in the maturity level of the decision are presented. Tables II and III present the results of the three shifts in the values of the level of maturity of decision, disaggregated by age groups, by Wilcoxon T-test (W) and sign (G) tests respectively. The results of the calculation of the tests support each other.

Table I. Values of the level of maturity of the decision by age group and values of the shift in the levels of maturity of the decision between measurements

Age	Average level of the responsible decision maturity			Shifts between measurements		
	Measurement 1	Measurement 2	Measurement 3	First 1 and 2	Second 2 and 3	Third (total) 1 and 3
6-7	3.313	3.749	3.964	0.436	0.215	0.651
8-11	3.606	3.832	4.200	0.226	0.368	0.594
12-14	3.155	3.103	3.032	-0.052	-0.071	-0.123
15-17	3.144	3.067	3.300	-0.077	0.233	0.156

Table II. Wilcoxon T-test (W)' results for three measurements of the level of maturity of a decision by age groups

Age	W for the first shift, between measurements 1 and 2			W for the second shift, between measurements 2 and 3			W for the third shift (final), between measurements 1 and 3		
	T	Z	p-value	T	Z	p-value	T	Z	p-value
6-7	98.500	3.095	$p < .01$	58.500	2.798	$p < .01$	38.000	4.226	$p < .001$
8-11	9.000	3.051	$p < .01$	28.000	3.346	$p = .001$	0.000	4.286	$p < .001$
12-14	44.000	0.105	$p = \text{n.s.}$	149.500	0.014	$p = \text{n.s.}$	90.000	0.201	$p = \text{n.s.}$
15-17	73.000	0.885	$p = \text{n.s.}$	83.500	1.900	$p = \text{n.s.}$	104.500	1.561	$p = \text{n.s.}$

Table III. Sign test (G)'s results for three measurements of the level of maturity of a decision by age groups

Age	G for the first shift, between measurements 1 and 2			G for the second shift, between measurements 2 and 3			G for the third shift (final), between measurements 1 and 3		
	$v < V$	Z	p -value	$v < V$	Z	p -value	$v < V$	Z	p -value
6-7	71.875	2.298	$p < .05$	84.000	3.200	$p = .001$	81.250	3.359	$p = .001$
8-11	81.250	2.250	$p < .05$	82.609	2.919	$p < .01$	100.000	4.695	$p < .001$
12-14	46.154	-0.000	$p = \text{n.s.}$	54.167	0.204	$p = \text{n.s.}$	63.158	0.918	$p = \text{n.s.}$
15-17	36.842	0.918	$p = \text{n.s.}$	66.667	1.429	$p = \text{n.s.}$	64.000	1.200	$p = \text{n.s.}$

In children aged 6-7 years old, the final shift after the procedure is not random: [W ($T=38.000$, $Z=4.226$, $p < .001$), G ($v < V=81.250$, $Z=3.359$, $p = .001$)]. At the same time, an increase in the level of a responsible decision is caused by a conversation with imaginary dialogue partners [W ($T=98.500$, $Z=3.095$, $p < .01$), G ($v < V=71.875$, $Z=2.298$, $p < .05$)], and a period of useful pause [W ($T=58.500$, $Z=2.798$, $p < .01$), G ($v < V=84.000$, $Z=3.200$, $p = .001$)].

In children aged 8-11 years old, the final shift towards an increase in the level of the responsible decision after the procedure is also not random [W ($T=0.000$, $Z=44.286$, $p < .001$), G ($v < V=100.000$, $Z=4.695$, $p < .001$)]. The increase follows both a conversation with an imaginary dialogue partner [W ($T=9.000$, $Z=3.051$, $p < .01$), G ($v < V=81.250$, $Z=2.250$, $p < .05$)] and a period of useful pause [W ($T=28.000$, $Z=3.346$, $p = .001$), G ($v < V=82.609$, $Z=2.919$, $p < .01$)].

Amongst those aged 12-14 years old, the formative procedure does not cause shifts towards an increase in the responsible decision level ($p = \text{n.s.}$). The conversation with an imaginary dialogue partner ($p = \text{n.s.}$) and a period of useful pause ($p = \text{n.s.}$) also do not result in statistically significant shifts. In adolescents aged 15-17 years, the formative procedure does not cause shifts towards an increase in the responsible decision level ($p = \text{n.s.}$). The conversation with an imaginary dialogue partner ($p = \text{n.s.}$) and a period of useful pause ($p = \text{n.s.}$) also do not result in statistically significant shifts.

Figure 1 presents a visual comparison of the shifts in the responsible decision level resulting from the procedure in all situations on average.

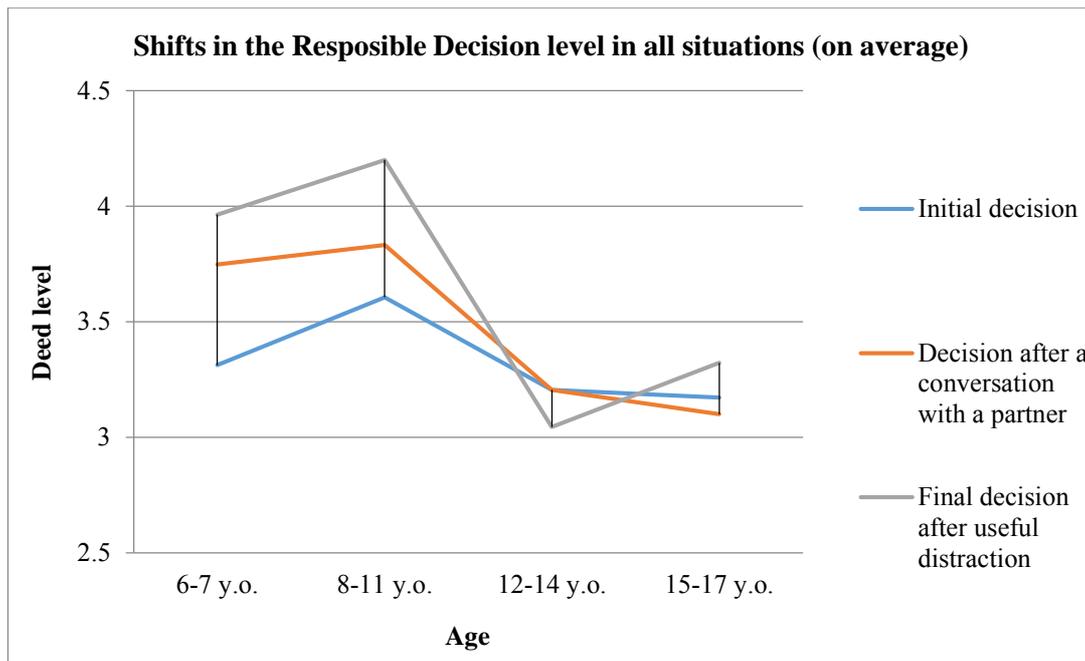


Figure 1. Shifts in the responsible decision level resulting from the procedure in all situations on average

One-way analysis of variance was used to determine the difference in the levels of a responsible decision. Statistically significant differences [$F = 17.523, p < .001$] were found between groups of subjects throughout the sample as a whole in the final decision. Statistically significant differences ($p = 0.000$) were found between groups of subjects throughout the sample as a whole and are included in the final decision. There are also differences in the level of responsible decisions within different age groups. In the two age groups 6-7 and 8-11 years old together, there is a statistically significant increase in the level of a responsible decision ($W p = 0.000; G p = 0.000$). 8-11-year-old participants demonstrated the highest final values of the level of maturity and responsible decision making (4.200) after the procedure; 6-7 years olds showed the largest shift after the stage of dialogue with imaginary partners (shift + 0.436). 8-11 year olds demonstrate the largest values after a useful pause (shift + 0.368). The largest final shift was amongst 6-7 years old (+ 0.651) and 8-11 years old (+ 0.594) respectively.

Discussion

Hypothesis 1 (the zone of proximal development for the formation of internal dialogue as a means of making vital decisions occurs in the 6-11 age group) was confirmed. Indeed, the highest impact of the procedure was amongst primary school participants (6-11 years old). The maturity level of their actions increased much more than any other age group. In children aged 6-7 years old, a greater shift was caused by a “conversation with imaginary dialogue partners” (explicit dialogue), and in children 8-11 years old, by a useful pause (implicit dialogue). These results are consistent with the theoretical concepts of the study, namely that the shift was the result of internalization of interpersonal reasoning, discussion during the action within the intrapersonal

structure of consciousness, and then the transition of dialogue from an explicit form to an implicit one. However, in adolescents, this effect is interrupted.

A striking result is that starting from the age of 12 years old, neither the entire procedure, nor any of its components, are associated with an increase in the personal maturity of responsible decisions. Moreover, from 12 years old onwards, a marked decrease in the maturity level is observed. The difference in the level of responsible decisions between children and adolescents can be explained by the fact that 6-11 years olds underwent the procedure in the presence of a parent (a supporting adult), whilst those aged 12-17 years old did so on their own (without a significant adult nearby). This fits the concept of the zone of proximal development, namely the 'distance' between the independent solution of various social problems and their better solution with the help of an adult. In their quest for self-assertion and independence, adolescents often reject adults' help, preferring to rely on their own effort in solving problems. However, as the results of the study show, they still do not have the required competence to choose the best solutions for life's problems. Overall, the results support the social embeddedness of decision-making skills, in particular the creation of an atmosphere of emotional security (Strahan & Poteat, 2020) and supportive relationships (Jones et al., 2019). But for adolescents, a direct offer of help is expected to be less effective than a Socratic maieutic question.

Hypothesis 2 (the child's use of cultural tools (dialogue with an adult) enhances the personal maturity of the responsible decision) was confirmed for the younger students (6-7 and 8-11-year-old). An increase in the level of maturity in making responsible decisions when using dialogue with imaginary interlocutors, showed maximum shifts (+0.436) for 6-7 year olds and (+ 0.226) for 8-11 year olds respectively. This confirms the concept of dialogue as a cultural tool through which children can master the process of decision making. In a transformed form, interpersonal dialogue is fully internalized, turning into a fully-fledged tool for independent choice, the formation of one's position, and overcoming and using the complex process of internal conflict.

This study showed that primary school age is the optimal age for the formation of internal dialogue as a cultural means of searching for, selecting and making vital decisions. This finding has enhanced the understanding of the method of conducting internal dialogue; ideally, through dialogue with an adult taking into account different positions and views, or fantastic scenarios to solve difficult life situations. The findings suggest that in order to support the child's mastery of decision making, adults should discuss hesitations (until the decision is made) such as awareness of the fact of choice, possible consequences of behavioural alternatives, and discussing arguments; let the children make the decision by themselves; encourage the participation of different adults in the discussion of hesitations using different ways of making decisions so as to reduce the risk of directly copying the position of one adult; and finally find ways to get around or overcome adolescents' resistance to adult participation.

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