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DIAGNOSTICS OF CHILDREN'S CONCEPTIONS IN A LOW-THRESHOLD FACILITIES FOR CHILDREN AND YOUTH

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Abstract: This study serves as an investigation into a current and marginally addressed problematic of children's conceptions of illegal drugs. The initial section discusses a theoretical framework of conceptions held by children, in respect to terminology's outline, factors influencing those conceptions and their potential diagnostics. The empirical section is represented by qualitative research that was conducted in a specific environment of the Low-threshold Facility for Children and Young People. An interview and a concept mapping provided the basis for the analysis of conceptions of illegal drugs in a 12-year-old client. The findings reveal the client's understanding is inaccurate and reflects many misconceptions. The study proposes an educational strategy that utilises a peer potential in order to eliminate the existence of misconceptions.

Keywords: children's conceptions, illegal drugs, low-threshold facility for children and youth, diagnostics, qualitative research

1 Introduction to the problematic of children's conceptions

Children's conceptions hold a distinctive understanding of various phenomena, processes, rules, situations, items etc. They are saturated with complex notions and fairly robust and different interpretations of the surrounding world. However, a child's conception may not necessarily be expressed with adequate concepts and may be difficult to verbalise (e.g. in a very small child, or a person with impaired communication ability). Gradual acquisition of speech serves as a tool to express conceptions using concepts that substitute iconic notions or symbols previously used for interpretation.

Conceptions held by children present an important element within an educational setting. In the context of formal education, however, we find that the psychogenesis of an individual's learning, which carries his/her conceptions, continues to be ignored. A teacher or social educator significantly influences the formation of a child's conceptions related to various phenomena. They are all involved in a daily process of mutual interaction with young people in wide-ranging settings such as after-school clubs, homes for young people, specialised schools, institutes of diagnostics, establishments for institutional and protective care and education, and, of course, the low-threshold facilities for children and young people. Social educators' competencies have a broad character. They involve educational as well as socio-educational and preventative competencies, resocialisation skills, counselling, diagnostics, and methodology. Social educators, who are not limited by lesson time as opposed to teachers at school settings, have more opportunities to affect children's conceptions in a spontaneous way. Additionally, they may contribute to the development of affective dimension that is only marginally addressed at school settings.

A wide range of research studies (Doulík, 2005; Thompson, Logue, 2006; Vosniadou, 2007) published internationally (Smith, Di Sessa, Roschelle, 1993) and in the Czech Republic (Kubiátko, Vaculová, Pecušová, 2010) clearly demonstrate a focal point on diagnostics and research of children's conceptions in areas of natural science education. The studies conducted by researchers from faculties of science also target young cohorts aged 15 to 18 years. The research explicitly outlines the psychogenesis of pupils' conceptions relating to social science and has not been sufficiently conducted in the context of Czech and foreign research activity. There are only some inquiries in peer-reviewed journals such as a study by Miovský and Urbánek

(2002), or a rare monographic work by Pivarč et al. (2012) and Brophy & Alleman (2006).

1.1 Terminology outline

Analysis conducted by Mareš and Ouhřabka (1992) reveals the existence of ambiguous terminology when outlining children's understanding of the world and its components. This problem occurs in the Czech literature as well as international resources. Widely approved and scientifically accepted definitions of children's conceptions do not exist; hence the terminology used in research varies. Even a theoretical study that would be representative and approved by the research scientists is absent. One predominantly used term, especially in Czech and Slovak literature, is 'pupil's conception of subject matter'. In foreign literature (especially English) word 'preconception' is frequently used. This study adopted 'children's conceptions' as it was found more suitable than 'pupil's conception of subject matter' that tends to relate more to formal education.

1.2 Factors influencing children's conceptions

Children's conceptions are formed and determined by many factors. It is very difficult to clearly identify the level of impact of individual factors on the formation of conceptions held by children. Moreover, these conceptions interact, so it is practically impossible to provide an exhaustive list of all the factors contributing to genesis of children's conceptions. At a particular age of a child's life and his/her socialisation there are some factors prevailing (such as family setting, teachers or caregivers, and peers). For example, pre-school children have their conceptions of phenomena formed by *spontaneous* influences, and later on, the aspects of *intentional influence* of school institution are more prevalent. The quantitative research by Pivarč et al. (2012) that included more than 1200 grammar school students in the Czech Republic and Slovakia found the media to be significantly influential (such as internet, TV, radio, etc.). Their own practical experience related to a particular phenomenon is regarded as one of the most potent determinants that greatly influence child's conception.

1.3 Child's conception as a multidimensional entity

Conceptions gradually develop over time, transform, and within its form and structure there is a presence of various factors mentioned above. A child's conception is not just one 'cognitive' dimension as it may appear. It is a multidimensional entity constructed of three categories that create a cohesive and original unit. Similar to the terminology of children's conceptions, there is diversity when characterising the individual sections (dimensions) of those conceptions. This qualitatively directed research recognises the following three dimensions:

1. *Cognitive dimension* may be described as child's diverse learning and understanding of a particular item, process, rule, phenomenon, etc.
2. *Affective dimension* reflects an individual approach or attitude to a particular item, process, rule, or phenomenon. It closely links to emotional reaction. Depending on its character and relevance, it affects the attitude toward phenomenon that can be positive, neutral or negative. Emotional reaction also determines whether a subject will continue to investigate the phenomenon any further. If emotional reaction is negative, it is possible the child will search for information that is congruent with his/her attitude and will ignore those that are opposed to it (Hewstone, Stroebe, 2006).
3. *Conative dimension* (sometimes referred to as structural) describes the interaction among individual concepts in the mind of an individual, his/her ability to use them in particular context, and also the way he/she can (or cannot) apply them. Concepts represent phenomena in the mind. With various

techniques (e.g. concept mapping) it is possible to understand the individual's cognitive concept and its structure.

It is possible to identify the dimensions of children's conceptions separately within an educational (or research) setting. However, they should be considered as a whole unit (multidimensional entity), because a child uses all dimensions simultaneously (e.g. when interpreting a particular rule or life situation). It is also a case that a particular dimension overshadows others at a certain moment of understanding (e.g. cognitive when writing a test at school).

1.4 Diagnostics and research of children's conceptions

A variety of diagnostic and research tools may be utilised when identifying conceptions held by children. Those may be standardised or have own design. The quantitative and qualitative research intends to combine the required tools in order to reach a level of accuracy in the process of diagnostics and research. The purpose of this study is not to list and outline individual tools. A reader may follow specialised publications that focus on tools in a greater detail (such as Hendl, 2008). The chart below presents an overview of diagnostic tools commonly used in the pedagogical and psychological practice and as part of the qualitative research.

Research (diagnostic) method	Suitability in terms of age	Demand on	Complexity
Phenomenographic interview	Universal	Time, performance, evaluation	Multidimensional
Clinical interview	Universal	Preparation, performance, interpretation	Multidimensional
Phenomenographic text analysis	Older probands	Evaluation	Multidimensional
Phenomenographic analysis of drawing	Younger probands	Evaluation	Multidimensional
Concept mapping	Older probands	Preparation, performance, evaluation	Multidimensional
Biographic methods	Universal	Time, interpretation	Multidimensional
Analysis of practical activities	Universal	Interpretation	Cognitive dimension preferably
Observation	Universal	Time, evaluation	Cognitive and affective dimension preferably

Table I. Diagnostic and research tools suitable for identification of children's conceptions: type of research – *qualitative approach* (modified in compliance with Škoda, Doulik, 2009)

2 Research objectives and educational activities in the low-threshold facility in Mělník

The Low-threshold Facility for Children and Youth (LFCY) provides services for children aged 6 to 26 who are experiencing social problems. Its objective is to improve the quality of their lives by means of prevention and reduction of social and health risks related to their life style. They get information about available social services, and receive help in finding solution for their unfavourable social situation (Act No. 108/2006 Coll., on Social Services).

Based on the grant project called “*Preconceptions and misconceptions to selected social pathology phenomena in primary school pupils*” some educational activities took place in the LFCY in Mělník. The facility is situated in Central Bohemia and was established in June 2012 in response to the needs of local community. In the last two to three years an increasing number of children and young people aged 14 to 20 committed or were involved in the anti-social behaviour (such as recreational/ illegal drug distribution, bullying and vandalism). The centre in Mělník offers day services as well as community services to its clients and puts a great emphasis on various

educational activities based on demands and wishes of its clients (i.e. children and young people), as well as the current social situation within relevant town locations.

Due to client fluctuation in the first months since its opening the LFCY was unable to provide educational activities in an adequate way. Continuous client-orientated work, educational activities, and research were conducted several months later. *The main focus of educational activities and research in the LFCY was directed at a problematic of selected social pathology phenomena* for the following reasons:

1. Social pathology phenomena such as internet addiction, gambling, pathological religiosity and addictive and psychotropic substance misuse (especially class B drugs) are perceived as anti-social behaviour and adverse social phenomena. Goal-oriented educational activities addressed all the social phenomena mentioned above, but the qualitative research targeted the problematic of illegal drug use. Its primary objective was to outline children's conceptions related to ‘illegal drugs’ phenomenon.
2. The need for education and the research implementation emerged due to the fact that these social phenomena did not exist in the Czech Republic (former Czechoslovakia) prior to the Velvet Revolution (1989) to such extent as they do today. They are omnipresent in today's society but fail to be understood. Undoubtedly, addictions pose a threat to the society and therefore to lives and development of the young population. Children should be able to understand the phenomenon in order to take an adequate approach.
3. It has already been postulated that the problematic of children's conceptions to the phenomena involves teachers at schools as well as other authorities. In order to identify children's conceptions to illegal drugs, the LFCY in Mělník offered its premises as well as its qualified professional staff. Advantage of performing diagnostics in the LFCY as opposed to a school setting are as follows: *specific area; more relaxed atmosphere; generally more acceptable environment; more time availability to investigate children's conceptions; client-orientated approach; potential of non-classification; avoidance of labelling; use of ICT and other resources to modify misconceptions (e.g. exercising forms of experiential education); opportunity of preventative and resocialisation activities etc.*
4. The LFCY is characteristic by the so-called ‘low-threshold’ quality. The term refers to a service that is maximally accessible to all clients aged 6 to 26 years. The centre became frequented by children and young people from socially excluded locations of town who were experiencing issues with illegal drug abuse and distribution (most frequently cannabis).

2.1 Primary characteristics of research

The main objective of this research was to outline children's conceptions to ‘illegal drugs’ phenomenon that was accentuated by individual understanding and interpretation. A qualitative approach was applied as research methodology. It enabled one to identify, analyse and compare individual conceptions more in-depth. Research question was established on basis of the social needs specific to the town location and for reasons already stated above (in chapter 2.1). Its formulation is as follows: *What opinions and attitudes to illegal drugs are held by the clients of the Low-threshold Facility for Children and Youth in Mělník?*

The qualitative study was conducted over a month period in 2013. The participants were 6 children (2 boys and 4 girls). Their age range was 12 to 14 years. For the purpose of research it was necessary to obtain the written consent of their legal representatives, which was an uneasy task. This was the reason for recruitment of only 6 children. Ethical aspects of research were adhered to. Participants were informed that their involvement was voluntary and that they could withdraw anytime without giving a reason. Anonymity of the clients and their identity protection was also ensured.

Selection of the research sample was accessible and participants had no preparation prior to their participation in the research. Investigation took place every afternoon during educational activities on a one-to-one basis. The aim was to prevent clients to respond in a desirable way and to limit any influence from other research participants. This would bias research findings and its conclusion.

Applied research methods were as follows:

- *Concept mapping* enables to identify whether a child understands (cognitive dimension) the term 'illegal drug', what other concepts he/she associates with it and in what context he/she uses it (conative dimension). This method provides a graphic illustration of correlations between concepts (rims and knots), and therefore helps to visualise the thought process of an individual. The term 'illegal drug' became a key element in the arrangement of concept map that took a slightly unconventional approach. The researcher presented a blank sheet of A4 paper with a word 'illegal drug' written in the centre. Participants had to associate their ideas and put other concepts related to the keyword. Respondents had sufficient time and space to design their unique thought process network. They were given no limits to the structure or design of their concept map. This activity was performed prior to the phenomenographic interview.
- *Phenomenographic interview* is a method that investigates participant's life experiences related to their concept formation of illegal drugs. Its aim was to review their understanding and interpretation of the illegal drug phenomenon. This method enabled to identify different ways of understanding, to qualitatively address the differences, and identify analogies in the children's conceptions to illegal drugs. Interviews were performed on one-to-one basis and lasted 30 to 60 minutes.

Evaluation and interpretation of the findings were conducted separately for each participant due to the nature of qualitative research and for pragmatic reasons. The research findings of children's conceptions formed a basis for the educational strategy employed with the LFCY clients (e.g. interventional, supportive, promoting activity and so on). In one case the research activity led to liaison with other professionals and institutions specialised in the drug addictions problematic. For purpose of this research we selected just one case to demonstrate the diagnostics related to children's conceptions of illegal drugs. It was an interesting example from the LFCY which revealed a client's range of misconceptions.

2.2 Interpretation of selected research findings

We present an extract from the authentic interview with a client Michal and his concept map. The following paragraph also shows Michal's family and social history.

Case history of a client attending the LFCY – a research participant: *Michal (12 years old) comes from a family that encounters some financial insecurity problems. They live in a socially excluded location. Michal attends a practical primary school nearby his home due to his poor school results as he stated. His grades are dramatically better at the practical school than the mainstream primary school. Even though he feels slightly uncomfortable at the practical school, he shows no behavioural problems. According to him their family ties are good. His parents are divorced and separated and his mother has a new boyfriend. Michal has three siblings: two brothers (Petr, 5; Radek, 23) and a sister Jana (10). Their relationship is apparently good, he sometimes argues with his younger sister. The older brother Radek who is currently unemployed personifies Michal's ideal self Radek has finished practical primary school and has some history of conflicts with authorities and criminal offence. Michal has not much space and time for study, because he is often distracted by family members of three large families living nearby. He lacks privacy and enjoys going*

to the LFCY. He usually spends his free time with his friends outdoors.

The concept map was interestingly structured in respect to Michal's age and cognitive ability; however, his concept of 'illegal drug' demonstrated some erroneous notions (misconceptions). There were some structural misconceptions that were noted in his concept network and that influenced his cognitive dimension of conception. For instance, the concept of 'dance drugs' which was associated with the keyword 'illegal drug' was linked to 'Paralen'. This was a structural misconception, because Paralen is not considered a dance drug (see Diagram 1). Another misconception was identified in relation to 'Paralen' and a concept of 'injecting'. Client's concept map is depicted in the following diagram:



Fig. 1 Concept map of the LFCY client Michal (red arrows highlight structural misconceptions) - Author's note: research was conducted in the Czech Republic and its participants were children whose native language was Czech. For purpose of this study we had to modify the form of this concept map in order to depict it in English (its meaning was maintained).

Transcription of a part of an interview with the client Michal and interpretation of its findings – *Researcher ('R'); Michal ('M')*:

- R12: What do you imagine under the word illegal drug?
M12: It's crap. I hate it, it can kill you, ... for example the way you sniff it, marijuana, or you can inject Paralen.
R13: Have you ever come across an illegal drug? If yes, what drug?
M13: Yes, I came across to marijuana, I saw the guys smoking it. I don't like the smell of it (*he laughs*).
R14: Could you describe marijuana?
M14: Yeah, it's a weed, rolled like a cigarette, you know? You can sniff it too, if you know how to prepare it. I saw it on YouTube.
R15: Where have you found out about marijuana?
M15: Well, from mates mainly, and my brother knows something about it. Sometimes he uses it too, but then my mum complains! So he hides away from her to smoke it, with mates ... outside. He tells me if he sees me with it, he'll beat me up ... So I'm afraid to try it (*he laughs*).
R16: And would you want to try it if you knew your brother wouldn't beat you?
M16: I feel embarrassed sometimes, when I see the guys smoking it – they egg me on, but so far I haven't done it.
R17: Is smoking of marijuana allowed?
M17: I don't know, some guys say it is, some say no. I really don't know, sorry...
R18: Can anyone smoke marijuana without being put into prison?
M18: ...hmmm ... policemen? They can smoke it to find out if it's a cigarette, when they stop and search somebody...
R19: What is your attitude to illegal drugs?
M19: Well, I don't like them, they tell us at school not to take them, otherwise we'll end up being losers. But I know people who say opposite, like, that you're like in heaven. Or when you do it, you have great feeling.

R20: Have you ever met anyone saying that you get great feeling after using illegal drugs?

M20: Sure, my friends who smoke say that, and also Honza next door – he's Radek's mate.

This part of transcript clearly shows Michal's misconceptions about illegal drugs. Structural misconceptions were identified in the concept map illustrating his structure of incorrect conceptions that he held. Some of Michal's interpretations are interesting. For example, to the question asking whether anybody can smoke marijuana without being put into prison, he responded: "...sometimes policemen, to find out if it's a cigarette, when they stop and search somebody..." (M18). Other incorrect notions were demonstrated in relation to a drug called Paralen. This medication is according to him used intravenously. Clearly, Michal's conceptions of illegal drugs also include medications such as Paralen (M12) even though it is a well-known medication it belongs to Michal's concept of illegal drugs. During the interview with Michal we could identify his affective dimension related to an illegal drug - marijuana. He condemns use of marijuana, but the temptation to try it is high. Despite the tendency of the public to trivialise the use of marijuana, it must be emphasised that in children and young people its effect can be detrimental to their psychological and social development.

This interview demonstrated that Michal's conception was heavily influenced by his surrounding world, especially *peers* and, to some extent, his *brother* Radek. Michal's experience of peer pressure may consequently result in a drug abuse. This is an initial phase of ostracism that may lead to Michal's exclusion from the social group or bullying. Peer groups represent a natural form of belonging. They comprise of similarly aged and opinionated individuals and propose unified course of action. Their primary characteristic is a system of particular values, norms and social control (i.e. features that form its identity). Differentiation of one peer group from another is described by concepts 'we' and 'them' (Kraus, 2008). It is very likely that Michal will identify with the group (will accept its behaviour, attitudes and values), because his parents – who often play a role of a regulator – do not dedicate enough time and space to spend their free time with him. He is in contact with his peer group on a day-to-day basis, and its members are recruited mainly from the socially excluded community that Michal belongs to. At this point, our research findings on the peer pressure issue correspond with those by Michell and West (1996). Their study reviewed peer pressure and its connection to smoking tobacco in children aged 12 to 14. Authors found that bullying and persecution are significant mechanisms that influence attitudes within the group and promote pressure on a group member.

3 Conclusion

Michal's conception of illegal drugs reflects his experiences with chemical substances. His concept map represents pejorative concepts that relate to the negative impact of drug use. Michal is also aware of the social implications and dangers of illegal drug use and this may be regarded as a positive research finding. Despite this, Michal's conceptions included the so-called cognitive and structural misconceptions. In addition and similarly to most research participants, the findings revealed Michal's negative attitude toward drugs (for space reasons we were unable to present the conceptions held by all the participants). The findings also indicated the impact of Michal's peer group and its pressure that influenced his attitude to and the conceptions of illegal drugs.

Based on the research findings there were adequate educational interventions and strategies designed as part of educational activities provided in the Low-threshold Facility for Children and Youth in Mělník. Their aim was to modify clients' misconceptions (including Michal's) and to utilise the peer group potential in the process of learning. For example, a so-called *socio-cognitive conflict* was used. Clients' social group had a deliberately evoked dialogue situation relating to drugs in the presence of a specialist in the field. Formulating of own thoughts and their justification took place, and outlining of

theories, conceptions and problematic issues related to drugs were also part of the process. Some authors describe it as a battle of child's conceptions, or preconceptions (e.g. Bertrand, 1998, Vosniadou, 2013). Similar activities promote conceptual changes in each individual. They are successfully applied in formal education as well as various talk shows and discussions.

Investigation of children's non-substance addictions may be a stimulus for further studies. Future research may review modern phenomena that have been ignored in the context of the Czech society (e.g. religious sects, internet addiction, or gambling). Other studies may focus on a quantitative comparison of children's conceptions to selected social pathology phenomena, especially in respect to wider young population (e.g. at primary schools).

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