

**ADOLESCENT INFORMATION  
BEHAVIOUR IN EVERYDAY LIFE DECISION  
MAKING: A LITERATURE REVIEW**

INFORMACIJSKO PONAŠANJE ADOLESCENATA  
PRI DONOŠENJU ODLUKA U SVAKODNEVNOM ŽIVOTU:  
PREGLED LITERATURE

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***Abstract***

**Purpose.** Within the field of information science, adolescent information behaviour as a part of the general decision making process is a relatively under-examined area. The way adolescents interact with information when making decisions influences decision outcomes and consequently affects their lives. Therefore, the study of information be-

haviour in the decision making process is an important area for research development. The goal of this paper is to take a step to advance research in this direction by reviewing what has been learnt and offering directions for future work.

**Methodology.** The existing publications reporting the research on adolescent information behaviour related to making everyday life decisions within the information science field were investigated using content analysis methodology. Twenty articles were selected and analysed in the following aspects: information behaviour, including information seeking, passive information acquisition and information avoidance, information sources, barriers to information seeking, information use and affective experiences.

**Findings.** It was found that the research on the topic of decision making within the information science field is scarce. Few studies focus specifically on adolescent information behaviour for making everyday life decisions and they consider only one specific decision situation. The existing work reveals that adolescents employ a wide range of information behaviour when making decisions in everyday life, both active and passive: information seeking, passive information acquisition which encompasses passive search and passive attention, community approach, deferring information seeking and information avoidance. They use a variety of information sources, and source selection depends on internal and external factors. They face barriers which impede information seeking and use information to increase knowledge on decision situations and therefore help the decision making process. Adolescent information behaviour in this context proved to be accompanied with affective experiences.

**Limitations.** Some limitations of the study refer to the coverage of the literature from the information science field, to the selection of the relevant literature and to summarizing of the findings given the limitations of the form, i.e. a single chapter.

**Originality.** This study tackles one of the barely touched areas in information science and youth information behaviour research and raises some important questions which need to be addressed.

**Keywords:** adolescents, decision making, information behaviour, information behaviour studies, research

### ***Sažetak***

**Cilj.** Informacijsko ponašanje adolescenata kao dio procesa donošenja odluka razmjerno je slabo istraženo područje unutar informacijskih znanosti. Način na koji se adolescenti odnose prema informacijama pri donošenju odluka u svakodnevnom životu utječe na ishode njihovih odluka, a posljedično i na njihove živote. Zato je važno istraživati informacijsko ponašanje adolescenata pri donošenju odluka. Cilj je ovoga rada unaprijediti istraživanje u tom području donoseći pregled dosadašnjih saznanja te nudeći nove smjerove.

**Metodologija.** Rad izvještava o istraživanju objavljenih znanstvenih radova koji se bave informacijskim ponašanjem adolescenata u odnosu na donošenje odluka u svakodnevnom životu u području informacijskih znanosti. Dvadeset odabranih radova istraženo je metodom analize sadržaja s obzirom na sljedeće aspekte: informacijsko ponašanje, uključujući traženje informacija, pasivno stjecanje informacija te izbjegavanje informacija, informacijske izvore, prepreke traženju informacija, korištenje informacija i afektivna iskustva.

**Rezultati.** Tek nekoliko radova bavi se tom temom, i to u odnosu na jednu određenu odluku. Postojeća istraživanja otkrivaju da adolescenti pokazuju širok raspon informacijskih ponašanja pri donošenju odluka u svakodnevnom životu, i to aktivnih i pasivnih: traženje informacija, pasivno stjecanje informacija koje obuhvaća pasivno traženje i pasivnu pažnju, suportivnost u zajednici, odgađanje traženja informacija i izbjegavanje informacija. Adolescenti se koriste različitim informacijskim izvorima, a njihov odabir ovisi o izvanjskim i unutarnjim čimbenicima. Nadalje, nailaze na prepreke koje ometaju traženje informacija, a informacije koriste za proširivanje znanja o situaciji odluke te za olakšavanje procesa donošenja odluke. Također, pokazalo se da je informacijsko ponašanje adolescenata u tom kontekstu praćeno određenim afektivnim iskustvima.

**Ograničenja.** Rad ima određena ograničenja u pogledu obuhvata literature iz područja informacijskih znanosti, u pogledu odabira literature te u pogledu sažimanja dosadašnjih saznanja iz literature zbog ograničenja duljine teksta.

**Originalnost.** Ovaj rad bavi se slabo istraženim područjem informacijskog ponašanja djece i mladeži i informacijskih znanosti te otvara neka pitanja na koja je potrebno tražiti odgovore.

**Ključne riječi:** adolescenti, donošenje odluka, informacijsko ponašanje, istraživanje, studije informacijskog ponašanja

## 1. Introduction

It is widely known that information can make a difference in people's knowledge, and it is also believed that it has a potential to help people deal with challenges which occur in their everyday lives. This belief is embodied in the concept of informed decision making, the one which is based on relevant knowledge, consistent with people's values and implemented in their actions.<sup>1</sup> It is also known that during adolescence young people go through a transition process from childhood to adulthood which poses various challenges and decisions before them. According to the World Health Organization, adolescence refers to the life stage between 10 to 19 years of age, in line with current children's earlier puberty and rapid physical maturation, and is a time of rapid cognitive, affective, and social develop-

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<sup>1</sup> Cf. Marteau, T.M.; E. Dormandy; S. Michie. A measure of informed choice. // *Health Expectations* 4, 2(2001), p. 99.

ment.<sup>2</sup> As they become more autonomous, adolescents need to carry the burden of making many decisions that influence their lives both short-term and long-term.<sup>3</sup> Besides general challenges of living in a modern society, they face some particular challenges which pose significant demands on their decision making abilities. Therefore, special attention of educational professionals and of others with an interest for the well-being of youth focuses on decision challenges, often linked with the time of adolescence. Information is often considered as support in making choices about career, health, risk-taking behaviours and other important topics.

With the underlying assumption that informed young people may be able to make better decisions and consequently become more capable of dealing with life challenges, we strive to educate them on various important topics. Recognizing the importance of being informed, many studies investigate how well adolescents are informed about certain topics related to challenging situations they may face, such as reproductive health, education and career, drug-abuse, and alike.<sup>4</sup> The lack of appropriate information that would help adolescents understand their alternative choices diminishes their potential to make informed decisions and may lead to unsatisfying decision outcomes, both short and long term.

Based on the assumption that people can be taught better ways to make decisions, many courses and instructions for teaching decision making skills to adolescents were developed.<sup>5</sup> It is noteworthy that the curriculum and compilation of instructional strategies for teaching decision making to early adolescents by Bergman and Rudman not only stresses the role of information gathering in the process of reaching a decision, like many other programmes do, but also include what would be called *information literacy instructions* in the information science

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<sup>2</sup> Cf. World Health Organization. [cited: 2017-7-13]. Available at: <http://www.who.int/hiv/pub/guidelines/arv2013/intro/keyterms/en/>.

<sup>3</sup> Cf. Mann, L.; R. Harmioni; C. Power. Adolescent decision-making: the development of competence. // *Journal of Adolescence* 12, 3(1989), p. 275.

<sup>4</sup> Cf. Babarović, T.; I. Šverko. Profesionalna zrelost učenika viših razreda osnovnih škola. // *Suvremena psihologija* 14, 1(2011), 91-108. [cited: 2017-5-20]. Available at: <http://hrcak.srce.hr/83110> ; Clark, L.R.; M. Jackson; L. Allen-Taylor. Adolescent knowledge about sexually transmitted diseases. // *Sexually Transmitted Diseases* 29, 8(2002), 436-443. [cited: 2017-11-5]. Available at: [https://www.researchgate.net/profile/Liana\\_Clark/publication/11213658\\_Adolescent\\_Knowledge\\_About\\_Sexually\\_Transmitted\\_Diseases/links/5744a3f308aea45ee8537d9d.pdf](https://www.researchgate.net/profile/Liana_Clark/publication/11213658_Adolescent_Knowledge_About_Sexually_Transmitted_Diseases/links/5744a3f308aea45ee8537d9d.pdf) ; Wynter, K.H.; H. J. Rowe; J. R. Fisher; M. Lee; J. A. Quinlivan. Are adolescents' decisions about prenatal screening for Down syndrome informed? A controlled, prospective study. // *Journal of Pediatric and Adolescent Gynecology* 24, 1 (2011), 29-34.

<sup>5</sup> Cf. Teaching decision making to adolescents. Hillsdale, N.J.: Lawrence Erlbaum Associates, 1991.; Bergmann, S.; G. J. Rudman. Decision-making skills for middle school students. Washington, D.C.: NEA Professional Library, National Education Association, 1985. [cited: 2017-11-5]. Available at: <http://files.eric.ed.gov/fulltext/ED260034.pdf>; Mann, L. Becoming a better decision maker. // *Australian Psychologist* 24, 2(1989), 141-155. Ross, J.A. Improving adolescent decision-making skills. // *Curriculum Inquiry* 11, 3(1981), 279-295.; Carradice, P. Life choices: teaching adolescents to make positive decisions about their own lives. SAGE, 2006.

field. They suggest that while seeking information for making a decision, a young decision maker needs to follow certain *steps in information gathering* which include identification of information need, determination of accurate sources, information evaluation (prioritizing from most useful to least useful information), and information use (incorporate information into decision and storage of information for future decisions).<sup>6</sup>

Aspects of decision making also appear in many social skills training programmes aimed at preventing risky behaviour.<sup>7</sup> These intervention programmes attempt to improve adolescents' ability to make sensible decisions, hoping that eventually they would make wise decisions on their own and therefore be able to protect themselves in risk-taking situations, specific for the adolescent period.

However, there has been relatively little research attention devoted to understanding adolescents' information behaviour in situations where they need to make some life decisions. Some authors investigated adolescents' information behaviour in relation to career decisions and revealed that many adolescents have little sense of how to approach career decisions, as well as an appropriate process of information seeking to help them learn more about the decision alternatives.<sup>8</sup> They argue that research in information science and human information behaviour should focus on many aspects of information seeking and use in problem solving and decision making to gain deeper understanding of the problems adolescents may encounter.<sup>9</sup>

Other information science researchers have noted that youth information seeking has been studied in the health care field and they argue that research in information science needs to further investigate youth information behaviour as an important component of personal development and growth.<sup>10</sup> In such a context,

<sup>6</sup> Cf. Bergmann, S.; G. J. Rudman. Op. cit., p. 8 and 41.

<sup>7</sup> Cf. Adolescent decision making: implications for prevention programs: summary of a workshop. Washington, D.C.: National Academies Press, 1999. p. vii [cited: 2017-11-5]. Available at: <https://www.nap.edu/catalog/9468/adolescent-decision-making-implications-for-prevention-programs-summary-of-a>

<sup>8</sup> Cf. Julien, H. E. How career information helps adolescents' decision-making: proceedings of an international conference on Information seeking in context. London: Taylor Graham, 1997. P. 380. [cited: 2017-11-8]. Available at: [http://www.informationr.net/isic/ISIC1996/96\\_Julien.pdf](http://www.informationr.net/isic/ISIC1996/96_Julien.pdf).

<sup>9</sup> Cf. Julien, H. E. Adolescent decision making for careers: an exploration of information behavior. // Youth Information-Seeking Behavior: Theories, Models, and Issues / edited by M. K. Chelton, C. Cool. Lanham: Scarecrow, 2004. P. 323.; Hultgren, F. Approaching the future: a study of Swedish school leavers' information related activities: doctoral dissertation. Department of Library and Information Science/Swedish School of Library and Information Science University College of Borås/Göteborg University, 2009. P. 243. [cited: 2017-11-5]. Available at: <http://www.diva-portal.org/smash/get/diva2:876905/FULLTEXT01.pdf>.

<sup>10</sup> Cf. Chelton, M. K. Future direction and bibliography. // Youth Information-Seeking Behavior: Theories, Models, and Issues / edited by M. K. Chelton, C. Cool. Lanham: Scarecrow, 2004. P. 390.; Lu, Y.L. Children's information seeking in coping with daily-life problems: an investigation of fifth- and sixth-grade students. // Library & Information Science Research 32, 1(2010), p. 77.

this paper reviews the research in information science related to adolescent information behaviour in the context of everyday life decision making situations to identify what we have learned on this important topic so far. It also identifies some gaps that need to be addressed in future in this important area of research in information science.

## **2. Conceptual and methodological framework**

The topic of information behaviour for making everyday life decisions is multidisciplinary and connects phenomena originally explored within the fields of information science and decision making theory. Furthermore, decision making theory itself is a truly interdisciplinary subject studied by researchers from different fields: from economists, mathematicians and statisticians, psychologists and neuroscientists, political and social scientists to philosophers.<sup>11</sup> It has been studied from many different backgrounds and research traditions how people make decisions and therefore the body of theory which deals with making decisions is wide and diverse.

This study draws from both fields, that of information science and decision making theory, by using some of their central concepts when approaching the topic. It sets a conceptual framework to investigate the existing literature on adolescent information behaviour related to making everyday life decisions within the information science field. Therefore, the following sections explain the two concepts which are essential for this work: information behaviour and decision making.

### **2.1. Information behaviour**

How people interact with information significantly impacts the outcomes of their decisions, whether they decide on less significant daily concerns or more important things which have greater impact on their lives. This is what makes information behaviour an integral part of our decision making processes. Whether we reflect about it or not, and whether we actively seek, passively acquire, or avoid information, we base our decisions on information we have at our disposal. Whether the information source is a book, a friend's advice, an opinion of a blogger or television advertisement, it forms a basis for our everyday life decisions. Consequently, what is known as *information behaviour* makes a significant aspect of decision making processes people undertake.

Broadly defined, information behaviour refers to the totality of human behaviour in relation to information, information sources and channels. It includes acti-

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<sup>11</sup> Cf. Hansson, S. O. Decision theory: a brief introduction. Stockholm: Royal Institute of Technology, 2005. P. 5. [cited: 2017-11-5]. Available at: <http://people.kth.se/~soh/decisiontheory.pdf>

ve and passive information seeking and information use, as posed by Wilson.<sup>12</sup> According to Case, it encompasses active information seeking, passive behaviours such as encountering information, and also active information avoidance.<sup>13</sup> Such a broad understanding of information behaviour serves well to this research because it may be assumed that adolescents employ a wide range of behaviours when making everyday life decisions: sometimes they actively seek information (e.g. search the Internet when choosing which smartphone to buy), and sometimes they encounter information by accident (e.g. seeing a TV advertisement or talking to a peer who just bought a new smartphone model). Also, it is possible that they avoid information which is not in accordance with their prior knowledge, beliefs and attitudes.<sup>14</sup>

Information use refers to physical and mental incorporation of the found information into one's prior knowledge.<sup>15</sup> It refers to what people do with acquired information and includes changes and outcomes on cognitive and behavioural levels.<sup>16</sup> This holistic understanding of information use includes easily observable end-states, changes and outcomes which result in behaviours of individuals or groups, but also end-states in terms of changes on cognitive levels resulting in for example new ideas or directions to move.<sup>17</sup> Moreover, information is said to be utilized in cases when it directly leads to some specific decision or a course of action.<sup>18</sup> Clearly, decision-making is considered to be one of the end-states of information utilization both in cognitive and behavioural levels.

Information sources which people consult when making decisions are an important aspect of decision making processes because selection of sources may have a significant impact on decision outcomes. Another aspect that needs to be considered concerns the barriers to information seeking. They impede information

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<sup>12</sup> Cf. Wilson, T. D. Human information behavior. // *Informing Science* 3, 2(2000), p. 49. [cited: 2017-11-5]. Available at: <https://pdfs.semanticscholar.org/f393/bbfdac03c71f567887513c0e2687df8cd412.pdf>.

<sup>13</sup> Cf. Case, D.O. *Looking for information: a survey of research on information seeking, needs, and behavior*. Amsterdam; Boston: Elsevier/Academic Press, 2007. P. 5

<sup>14</sup> *Ibid.*, p. 329

<sup>15</sup> Cf. Wilson, T. D. *Op. cit.*, p. 50.

<sup>16</sup> Cf. Todd, R.J.; S. Edwards. Adolescents' information seeking and utilization in relation to drugs. // *Youth Information-Seeking Behavior: Theories, Models, and Issues* / edited by M. K. Chelton, C. Cool. Lanham: Scarecrow, 2004. P. 354-355.

<sup>17</sup> Cf. Todd, R. J. Utilization of heroin information by adolescent girls in Australia: a cognitive analysis. // *Journal of the American Society for Information Science* 50, 1(1999), p. 11. [cited: 2017-11-6]. Available at: <http://tefkos.comminfo.rutgers.edu/Courses/612/Articles/ToddHeroin.pdf>.

<sup>18</sup> Cf. Todd, R.J.; Edwards, S. *Op. cit.*, p. 354.

seeking or information gathering, which is considered to be an important step in the decision making process, and also influence decision outcome.<sup>19</sup>

Finally, affective experiences, whose role in information seeking processes is recognized, need to be considered when exploring adolescent information behaviour in making everyday life decisions.<sup>20</sup>

The role of information seeking in managing people's lives, which includes solving problems and making decisions, is well-explained in Savolainen's everyday life information seeking (ELIS) concept. Everyday life information seeking is viewed as an activity which takes place in everyday life and is related to everyday life issues. It is an integral part of human endeavours to orient themselves in daily life and to solve problems. Savolainen introduces the concept of *way of life*, which refers to the order of things or the way individuals feel things (or everyday life activities) are organized when they are normal. *Way of life* reflects the individuals' ideas about how life should be lived, and another concept he establishes, *mastery of life*, refers to efforts which individuals make to keep their lives in order or to manage their way of life. Orienting and problem-solving activities involve information seeking and making everyday life choices, which necessarily includes making decisions.<sup>21</sup>

## 2.2. Decision making

Decision making may be defined as a process of coming to a decision after evaluating the alternatives in achieving a decision maker's goal.<sup>22</sup> Authors who deal with decision making recognize the role of information seeking in decision making processes.<sup>23</sup> They explain that when faced with a decision, people need additional information to better understand the decision making situation and the possible courses of actions to eventually make better decisions. Closely related

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<sup>19</sup> Cf. Wilson, T. D. On user studies and information needs. // *Journal of Documentation* 62, 6(2006), p. 663. [cited: 2017-11-6]. Available at: [https://www.researchgate.net/profile/Tom\\_Wilson25/publication/249364883\\_On\\_User\\_Studies\\_and\\_Information\\_Needs/links/575086fd08ae1f765f93bc30.pdf](https://www.researchgate.net/profile/Tom_Wilson25/publication/249364883_On_User_Studies_and_Information_Needs/links/575086fd08ae1f765f93bc30.pdf); Simon, H. A. A behavioral model of rational choice. // *The Quarterly Journal of Economics* 69, 1(1955) p. 106. [cited: 2017-11-6]. Available at: <https://pdfs.semanticscholar.org/d823/7600841361f7811f5fd9effaed9d2e6e34b0.pdf>

<sup>20</sup> Cf. Kuhlthau, C. C. *Seeking meaning: a process approach to library and information services*. Norwood, New Jersey: Ablex, 1993. P. 6-7.

<sup>21</sup> Cf. Savolainen, R. Everyday life information seeking: approaching information seeking in the context of "way of life". // *Library & Information Science Research* 17, 3(1995), p. 262-265. [cited: 2017-11-6]. Available at: <http://pdfs.semanticscholar.org/3d0f/75c914bc3a34ef45cb0f6a18f841fa8008f0.pdf>

<sup>22</sup> Cf. Radford, K. J. *Decision making, individuals*. // *Encyclopedia of Human Behavior*. San Diego, CA: Academic Press, cop. 1994. Vol. 2. P. 73.

<sup>23</sup> Cf. Einhorn, H. J.; R. M. Hogarth. Behavioral decision theory: processes of judgment and choice. // *Annual Review of Psychology* 32(1981), p. 62-69.



to decision making is problem solving. Case explains the relation of these two concepts stating that decision making involves evaluation and choice among alternative courses of actions in response to a perceived problem and that it is a final phase of the problem solving process.<sup>24</sup> For him, problem solving involves finding the issue worthy of attention, setting goals and appropriate alternative courses of actions. He follows the ideas of behavioural decision making theorists March, Newell and Simon and views problem solving as a precursor to decision making.<sup>25</sup> Excepting that, we may conclude that each problem solving activity inevitably includes decision making.

Simon posits seeking information on possible decision outcomes as an important part of the decision making process acknowledging the information and knowledge as important aspects that need to be considered when making decisions.<sup>26</sup> He explains that when making decisions, people may introduce *information gathering* into the decision making process with the purpose of expanding their knowledge and learning more about decision alternatives.<sup>27</sup> Furthermore, he notes that information which people have at their disposal, or in his words *the state of information*, directs their decision making processes towards a specific outcome.<sup>28</sup> The impact of one's specific state of information or state of knowledge become clear in the research which revealed differences among experts' and novices' decision making in domain-specific situations because it showed that specific domain knowledge helps in making decisions within the scope of one's expertise.<sup>29</sup>

Simon also argued that people are not completely rational decision makers. In the 1950s he made a breakthrough in decision making research arguing that humans possess limited processing capacity: they have only limited time, knowledge, and cognitive resources and cannot perform decision making calculus such as those described by rational decision making theories. Therefore, Simon introduces the concept of *bounded rationality* and develops a framework for a theory that incorporates constraints of the information-processing capacities of a decision making individual. Also, he introduces the concept of *satisficing* which refers to human tendency towards simplification of the decision making process: instead of the best or optimal decision, they accept the first satisfying or good enough

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<sup>24</sup> Cf. Case, D. O. Op. cit., p. 331.

<sup>25</sup> Cf. Ibid., p. 336.

<sup>26</sup> Cf. Simon, H. A. A behavioral. Op. cit., p. 102, 106-107.

<sup>27</sup> Ibid., p. 106.

<sup>28</sup> Ibid., p. 100.

<sup>29</sup> Cf. Simon, H. A. Decision making: rational, nonrational, and irrational. // Educational Administration Quarterly 29, 3(1993), p. 407.; Campitelli, G. H.; F. Gobet. Simon's decision-making approach: investigation of cognitive processes in experts. // Review of General Psychology 14, 4(2010), p. 359.

option.<sup>30</sup> Simon's theory of bounded rationality states that people can make good enough decisions without analysing all possible alternative courses of actions and without using all the relevant information as it is usually impossible, but by making the reasonable amount of calculation and by using incomplete information.<sup>31</sup>

In the information science field, a great deal of literature deals with decision making and problem solving and the bond between the information seeking and decision making process is well recognized.<sup>32</sup> In addition to his definition of decision making, Case explains that a decision maker gathers information which allows him to evaluate each potential choice and compare alternative courses of action.<sup>33</sup>

The use of gathered information in increasing one's knowledge is expressed by Brookes' fundamental equation of information science which explains how knowledge transforms by an input of information. The equation  $(S) + \Delta I = K (S + \Delta S)$  demonstrates how one's prior state of knowledge changes into a new state of knowledge.<sup>34</sup> Todd used Brooke's equation as a basis for the conceptualization of information use. Information used in such a way creates a new state of knowledge which helps the decision maker to better understand the decision situation and to make a decision. In accordance with that is March's statement that the decision making process presumes the use of knowledge and that the decision maker's ability of using knowledge to predict consequence and establish preference is crucial in making a decision.<sup>35</sup>

### 3. Research objectives

This study aims to explore the empirical research in the information science field focusing on adolescent information behaviour related to everyday life decision making to identify what has been learned, and what are current gaps in the literature. It is guided by the following research questions:

1. What information behaviour do adolescents engage in when they make everyday life decisions?
2. What information sources do they use when purposefully seeking information?

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<sup>30</sup> Cf. Simon, H. Theories of bounded rationality. // *Decision and Organization* / C. B. McGuire, R. Radner, K. J. Arrow. Amsterdam: North-Holland, 1972. P. 168, 170.

<sup>31</sup> Cf. Campitelli, G. H.; F. Gobet. *Op. cit.*, p. 355.

<sup>32</sup> Cf. Case, D. *Op. cit.*, p. 85.

<sup>33</sup> Cf. *Ibid.*, p. 86.

<sup>34</sup> Cf. Brookes, B. C. The foundations of information science. Part I. Philosophical aspects. // *Information Scientist* 2, 3-4(1980), p. 131.

<sup>35</sup> Cf. March, J. G. *Primer on decision making: how decisions happen*. New York; London; Toronto; Sydney: Simon and Schuster, 1994. P. 240.

3. What prevents them from active information seeking?
4. How do adolescents use acquired information when making everyday life decisions?

The results will summarize what is known, and what is yet to be found on this important topic.

#### 4. Method

This study provides a review of information science literature on adolescent information behaviour in relation to making decisions. Content analysis is employed to explore the existing publications reporting the work on adolescent information behaviour related to making everyday life decisions, using the categories based on the set conceptual framework. The review was conducted on the basis of book chapters, journal articles, conference proceedings and PhD theses. They reported research findings based on field research and one publication reported research findings from previous researches conducted by the authors. Overall, few studies dealt with the topic, compared to the research conducted on other phenomena within the wider field of human information behaviour. Therefore we sought to include as many publications as possible that deal with the same phenomena from a different viewpoint.

In order to identify the research material, the searches were conducted between March - September 2017 in databases of Academic search complete, Emerald, Library, information science & technology abstracts, Scopus and Web of science. The search string encompassed the main ideas of the topic – adolescents, information behaviour and decision making – and included related terms and synonyms: ((adolescent\* OR teen\* OR youth OR “young adult\*”) AND (“information behavior” OR “information behaviour” OR “information seeking” OR “everyday life information seeking”) AND (“decision making” OR “problem solving”). Moreover, since the concept of everyday life information seeking (ELIS, as defined by Savolainen) refers to managing one’s life, including solving problems and making decisions, the existing research on adolescent everyday life information seeking was included in the search: ((adolescent\* OR teen\* OR youth OR “young adult\*”) AND (“everyday life information seeking”). The term “millennials” was not included in the search because it does not define the age span precisely and may denote a wide age span including those born in the eighties of the twentieth century.<sup>36</sup> Because this study is interested in the research within information science,

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<sup>36</sup> Cf. Stropnik, A. *Knjižnica za nove generacije*. Zagreb: Hrvatsko knjižničarsko društvo, 2013. P. 14.; Bertoncini, G.T.; M. T. Schmalz. What’s on your mind? Understanding the influence of social media on authentic leadership dimensions and education from the millennials’ perspective. School of Business and Economics, Linnæus University, 2013. P. 26. [cited: 2018-24-5]. Available at: <http://www.diva-portal.org/smash/get/diva2:636761/FULLTEXT01.pdf>.

the results were narrowed down to get a more manageable set of results where possible. The search of Scopus was narrowed down to the area of social sciences, and of Web of Science to the areas of information science and library science. The search resulted in 83 publications out of which 6 were eligible for the study. The eligible publications were selected based on the following criteria:

- they reported on studies conducted within the field of information science;
- the studies were addressing information behaviour of adolescents as an age group, as defined by the World Health Organization;
- the studies dealt with information behaviour related to making decisions in the everyday life context;
- they reported field research findings
- it is published in English language.

The timespan of the search was not limited since the area of youth information behaviour, which includes the adolescent age group, is still young and the studies on adolescent information behaviour are not numerous.

Moreover, database searches, Google scholar searches and recommendations by other researchers interested in the topic gave more information on relevant books (by Chelton and Cool, Beheshti and Large, Bilal and Beheshti)<sup>37</sup> and other publications (for example the PhD thesis by Hultgren)<sup>38</sup>. These publications were also considered and those which met the set criteria were included in the research. Altogether, the final set of twenty eligible publications were identified and analysed in this study.

Only a few of the identified publications report research dealing particularly with adolescent information behaviour in relation to making everyday life decisions using the particular term *decision making* (e.g. Julien's work).<sup>39</sup> Some of them deal with adolescent information behaviour when making decisions, but speak about choice (e.g. Hultgren's work), dealing with life concerns (e.g. Ed-

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<sup>37</sup> Cf. Youth information-seeking behavior: theories, models, and issues. / edited by Chelton, M. K.; C. Cool. Lanham; Toronto; Oxford: Scarecrow Press, 2004.; Youth information-seeking behavior II: Context, theories, models, and issues. / edited by Chelton, M. K.; C. Cool. Lanham; Toronto; Plymouth: Scarecrow Press, 2007.; The information behavior of a new generation: children and teens in the 21st century. / edited by J. Beheshti, J. A. Large. Lanham: Scarecrow Press, 2013.; New directions in children's and adolescents' information behavior research. / edited by D. Bilal, J. Beheshti. Bingley: Emerald, 2014.

<sup>38</sup> Cf. Hultgren, F. Approaching. Op. cit.

<sup>39</sup> Cf. Julien, H. E. Barriers to adolescents' information seeking for career decision making. // Journal of American Society for Information Science 50, 1(1999), p. 38-48.; Julien, H. E. How career. Op. cit. ; Julien, H. E. Adolescent decision. Op. cit.

wards and Poston-Anderson's work) or other related concepts.<sup>40</sup> This is why this selection of the literature was quite challenging. On the other hand, much of other information behaviour research may be somehow related to making decisions. For example, in many studies on health information seeking behaviour the phenomena of decision making is not explicitly mentioned. Yet, these studies may lay on the implicit assumption that the sought information would be used to make health related decisions. Generally, the interest for health information behaviour is increasing and it is being investigated from various aspects, and not only from the perspective of information science. Within the area of the information science field, the body of health information behaviour literature has also increased over the last decade, and significant attention has been given to health-related information behaviour of young people. It is evident for example in the research conducted among college students by Basic and Erdelez.<sup>41</sup> Their work tackles the important issue of health information behaviour in the context of risky behaviours and making decisions related to students' health and well-being. Basic and Erdelez's work would be of exceptional interest for this review, but the inclusion of the publications would widen the research focus on other populations, and not only on adolescents, as defined by the WHO. On the other hand, analysis of growing body of health information behaviour literature demands special attention of some future literature review which would offer a wider approach to the topic, and not only in relation to decision making, as this one does.

To keep this research manageable, in the final set of eligible studies we include the research that specifically mentions, in larger or lesser extent, that it deals with information behaviour which is carried out with the purpose of making decisions or choices, solving problems, dealing with life concerns and challenges.

## 5. Analysis

The unit of analysis in this study was a publication. Categories used for analysis of the identified material were based on the set conceptual framework and included the following categories: information behaviour, information sources, barriers to information seeking, information use and affective experiences. Furthermore, the category of information behaviour was divided into subcategories of information seeking behaviour, passive information acquisition and information avoidance. The material was coded and analysed to reveal what has been found

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<sup>40</sup> Cf. Poston-Anderson, B.; S. Edwards. The Role of information in helping adolescent girls with their life concerns. // *School Library Media Quarterly* 22, 1(1993), p. 25-30.

<sup>41</sup> Cf. Basic, J.; S. Erdelez. Active and passive acquisition of health-related information on the Web by college students. // *Proceedings of the Association for Information Science and Technology* 51, 1(2014), 1-5.; Basic, J.; S. Erdelez. The role of risky behaviors and health education in college students' health information acquisition on the internet. // *Proceedings of the Association for Information Science and Technology* 52, 1(2015), 1-10.

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about adolescent information behaviour in the context of making everyday life decisions referring to phenomena denoted with the set concepts.

*Table 1.* presents the final set of selected studies and the topics identified.

	<b>The publication</b>	<b>Identified topics</b>
1.	Agosto, D. E. Bounded rationality and satisficing in young people's Web-based decision-making. // <i>Journal of the American society for Information Science and Technology</i> 53(2002), p. 16-27.	<ul style="list-style-type: none"> <li>– Information behaviour, information seeking behaviour</li> <li>– Information sources</li> <li>– Barriers to information seeking</li> <li>– Affective experiences</li> </ul>
2.	Agosto, D. E. A model of young people's decision-making in using the Web. // <i>Library &amp; Information Science Research</i> 24(2002), p. 311-341.	<ul style="list-style-type: none"> <li>– Information behaviour, information seeking behaviour</li> <li>– Information sources</li> <li>– Barriers to information seeking</li> <li>– Affective experiences</li> </ul>
3.	Agosto, D. E.; S. Hughes–Hassell. Toward a model of the everyday life information needs of urban teenagers, part 1: Theoretical model. // <i>Journal of the Association for Information Science and Technology</i> 57,10(2006), p. 1394-1403.	<ul style="list-style-type: none"> <li>– Information behaviour, information seeking behaviour</li> </ul>
4.	Agosto, D. E.; S. Hughes-Hassell. People, places, and questions: an investigation of the everyday life information-seeking behaviors of urban young adults. // <i>Library &amp; Information Science Research</i> , 27, 2(2005), p. 141-163. [cited: 2017-11-11]. Available at: <a href="https://pdfs.semanticscholar.org/ab84/09873710a9ae404793ee93cd353ebdfcb8a3.pdf">https://pdfs.semanticscholar.org/ab84/09873710a9ae404793ee93cd353ebdfcb8a3.pdf</a>	<ul style="list-style-type: none"> <li>– Information behaviour, information seeking behaviour</li> <li>– Information sources</li> </ul>
5.	Buchanan, S.; L. Tuckerman. The information behaviours of disadvantaged and disengaged adolescents. // <i>Journal of Documentation</i> , 72, 3(2016), p. 527-548. [cited: 2017-11-10]. Available at: <a href="https://strathprints.strath.ac.uk/55116/1/Buchanan_Tuckerman_JD_2016_The_information_behaviours_of_disadvantaged_and_disengaged.pdf">https://strathprints.strath.ac.uk/55116/1/Buchanan_Tuckerman_JD_2016_The_information_behaviours_of_disadvantaged_and_disengaged.pdf</a>	<ul style="list-style-type: none"> <li>– Information behaviour, information seeking behaviour, passive information behaviour</li> <li>– Information sources</li> <li>– Barriers to information seeking</li> </ul>

	<b>The publication</b>	<b>Identified topics</b>
6.	Edwards, S.; B. Poston-Anderson. Information, future time perspectives, and young adolescent girls: concerns about education and jobs. // <i>Library &amp; Information Science Research</i> 18, 3(1996), p. 207-223.	<ul style="list-style-type: none"> <li>– Information behaviour</li> <li>– Information behaviour, information seeking deferment</li> <li>– Information sources</li> <li>– Barriers to information seeking</li> </ul>
7.	Franklin, L. Everyday Life Information Seeking (ELIS) practices of suburban teens in a highly technological school library: a case study: doctoral dissertation. Emporia, Kansas: Emporia State University, 2013. [cited: 2017-11-10]. Available at: <a href="https://esirc.emporia.edu/bitstream/handle/123456789/3252/Franklin%20dissertation.pdf?sequence=1">https://esirc.emporia.edu/bitstream/handle/123456789/3252/Franklin%20dissertation.pdf?sequence=1</a> .	<ul style="list-style-type: none"> <li>– Information behaviour, information seeking behaviour</li> <li>– Information sources</li> <li>– Barriers to information seeking</li> </ul>
8.	Hughes-Hassell, S.; D. E. Agosto. Modeling the everyday life information needs of urban teenagers. // <i>Youth Information Seeking Behaviors: Context, Theories, Models, and Issues II</i> / edited by M. K. Chelton, C. Cool. Lanham: Scarecrow Press, 2007. P. 27-61.	<ul style="list-style-type: none"> <li>– Information behaviour, information seeking behaviour</li> <li>– Information sources</li> </ul>
9.	Hultgren, F. Approaching the future: a study of Swedish school leavers' information related activities. Doctoral dissertation. Department of Library and Information Science/Swedish School of Library and Information Science University College of Borås/Göteborg University. 2009. [cited: 2017-11-8]. Available at: <a href="http://www.diva-portal.org/smash/get/diva2:876905/FULLTEXT01.pdf">http://www.diva-portal.org/smash/get/diva2:876905/FULLTEXT01.pdf</a> .	<ul style="list-style-type: none"> <li>– Information behaviour, information seeking behaviour, information avoidance and deferring</li> <li>– Information sources</li> <li>– Barriers to information seeking</li> <li>– Affective experiences</li> </ul>
10.	Hultgren, F. The stranger's tale: information seeking as an outsider activity. // <i>Journal of Documentation</i> 69, 2(2013), p. 275-294.	<ul style="list-style-type: none"> <li>– Information behaviour, information seeking behaviour</li> <li>– Information sources</li> <li>– Barriers to information seeking</li> <li>– Affective experiences</li> </ul>

	<b>The publication</b>	<b>Identified topics</b>
11.	Julien, H. E. How does information help? The search for career-related information by adolescents. Unpublished doctoral dissertation, The University of Western Ontario London. 1997. [cited: 2017-11-9]. Available at: <a href="http://www.collectionscanada.gc.ca/obj/s4/f2/dsk2/ftp02/NQ28498.pdf">http://www.collectionscanada.gc.ca/obj/s4/f2/dsk2/ftp02/NQ28498.pdf</a> .	<ul style="list-style-type: none"> <li>– Information behaviour, information seeking behaviour, passive information acquisition, information use</li> <li>– Information sources</li> <li>– Barriers to information seeking</li> <li>– Affective experiences</li> </ul>
12.	Julien, H. E. How career information helps adolescents' decision-making. // Proceedings of an international conference on Information seeking in context. London: Taylor Graham, 1997. P. 371 – 385. [cited: 2017-11-8]. Available at: <a href="http://www.informationr.net/isic/ISIC1996/96_Julien.pdf">http://www.informationr.net/isic/ISIC1996/96_Julien.pdf</a> .	<ul style="list-style-type: none"> <li>– Information behaviour, information seeking behaviour, information use</li> <li>– Information sources</li> <li>– Barriers to information seeking</li> <li>– Affective experiences</li> </ul>
13.	Julien, H. E. Adolescent career decision making and the potential role of the public library. // Public Libraries 37, 6(1998), p. 376-381.	<ul style="list-style-type: none"> <li>– Information behaviour, information seeking behaviour, passive information acquisition</li> <li>– Information sources</li> <li>– Barriers to information seeking</li> <li>– Affective experiences</li> </ul>
14.	Julien, H. E. Barriers to adolescents' information seeking for career decision making. // Journal of American Society for Information Science 50, 1(1999), p. 38-48.	<ul style="list-style-type: none"> <li>– Information behaviour, information seeking behaviour, information use</li> <li>– Barriers to information seeking</li> </ul>



	<b>The publication</b>	<b>Identified topics</b>
15.	Julien, H. E. Adolescent decision making for careers: an exploration of information behavior. // <i>Youth Information-Seeking Behavior : Theories, Models, and Issues</i> / edited by M. K. Chelton, C. Cool. Lanham : Scarecrow, 2004. P. 321-352.	<ul style="list-style-type: none"> <li>– Information behaviour, information seeking behaviour</li> <li>– Information sources</li> <li>– Affective experiences</li> </ul>
16.	Koo, J. H. Recent South Korean immigrant adolescents' everyday life information seeking when isolated from peers: a pilot study. // <i>The Journal of Research on Libraries and Young Adults</i> . 2012. [cited: 2017-11-9]. Available at: <a href="http://www.yalsa.ala.org/jrlya/2012/09/recent-south-korean-immigrant-adolescents-everyday-life-information-seeking-when-isolated-from-peers-a-pilot-study/">http://www.yalsa.ala.org/jrlya/2012/09/recent-south-korean-immigrant-adolescents-everyday-life-information-seeking-when-isolated-from-peers-a-pilot-study/</a>	<ul style="list-style-type: none"> <li>– Information behaviour, information seeking behaviour, passive information acquisition</li> <li>– Information sources</li> </ul>
17.	Markwei, E., & Rasmussen, E. Everyday life information-seeking behavior of marginalized youth: A qualitative study of urban homeless youth in Ghana. // <i>International Information &amp; Library Review</i> , 47, 1-2(2015), p. 11-29. [cited: 2017-11-10]. Available at: <a href="http://www.stretchchildrenresources.org/wp-content/uploads/2015/12/Everyday-Life-Information-Seeking-Behavior-of.pdf">http://www.stretchchildrenresources.org/wp-content/uploads/2015/12/Everyday-Life-Information-Seeking-Behavior-of.pdf</a>	<ul style="list-style-type: none"> <li>– Information behaviour (information seeking: active search, passive attention, passive search and a community approach), information use</li> <li>– Information sources</li> </ul>
18.	Poston-Anderson, B.; Edwards, S. The Role of Information in Helping Adolescent Girls with Their Life Concerns. // <i>School Library Media Quarterly</i> , 22, 1(1993), p. 25-30.	<ul style="list-style-type: none"> <li>– Information behaviour, information seeking behaviour</li> <li>– Information sources</li> </ul>
19.	Todd, R. J. Utilization of heroin information by adolescent girls in Australia: a cognitive analysis. // <i>Journal of the American Society for Information Science</i> 50, 1(1999), 10-23. [cited: 2017-11-6]. Available at: <a href="http://tefkos.comminfo.rutgers.edu/Courses/612/Articles/ToddHeroin.pdf">http://tefkos.comminfo.rutgers.edu/Courses/612/Articles/ToddHeroin.pdf</a>	<ul style="list-style-type: none"> <li>– Information behaviour, information use</li> </ul>
20.	Todd, R.J.; S. Edwards. Adolescents' information seeking and utilization in relation to drugs. // <i>Youth Information-Seeking Behavior: Theories, Models, and Issues</i> / edited by M. K. Chelton, C. Cool. Lanham: Scarecrow, 2004. P. 354-355.	<ul style="list-style-type: none"> <li>– Information behaviour, information seeking behaviour, information use</li> <li>– Information sources</li> <li>– Barriers to information seeking</li> </ul>

### ***5.1. Information behaviour: information seeking, incidental information acquisition, information avoidance and information use***

Poston-Anderson and Edwards explored the role of information in helping adolescents with their life concerns and related information behaviour. They revealed that their concerns are mostly about relationships with other people, education and work. Generally, the adolescent girls were able to identify their information needs and believed that information which would help was available to them. Many of them actively sought information to meet their needs, and the needed information was not only factual, but often referred to opinions, judgements and interpretations from an expert.<sup>42</sup> They found that time perspective influences adolescent information behaviour and may inhibit and defer them from active information seeking if the moment of decision is beyond their time horizon and perceived to be too far away.<sup>43</sup>

Julien's work has the strongest connection to the study topic. Her research is developed in her PhD thesis, and published in several separate publications. Therefore, her findings were analysed and reported together, as a part of one integral work. Julien investigated adolescent information behaviour related to career decision making.<sup>44</sup> She was interested in how information is used to help with career decision making and found that information helps in gaining ideas or understandings and in planning, preparing and deciding. It was also shown that information gives support, reassurance, confirmation and motivation.<sup>45</sup> Her work revealed that many adolescents understand the importance of appropriate information in career decision making and therefore they purposefully seek the needed information.<sup>46</sup> The adolescents who employed a rational decision making style, according to Harren's categorization which Julien employed, reported they based their career decisions on the information they had found.<sup>47</sup> Many of Julien's respondents showed a rational decision making style, characterized by systematic information seeking and logical and objective decision making. They reported seeking for specific factual career information, guidance and advice, but also wanted emotional

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<sup>42</sup> Cf. Poston-Anderson, B.; S. Edwards. Op. cit. p. 26-30.

<sup>43</sup> Cf. Edwards, S.; B. Poston-Anderson. Information, future time perspectives, and young adolescent girls: concerns about education and jobs. // *Library & Information Science Research* 18, 3(1996), p. 216-217.

<sup>44</sup> Cf. Julien, H. E. How does information help? The search for career-related information by adolescents. Unpublished doctoral dissertation, The University of Western Ontario London. 1997a. [cited: 2017-11-9]. Available at: <http://www.collectionscanada.gc.ca/obj/s4/f2/dsk2/ftp02/NQ28498.pdf>

<sup>45</sup> Cf. Julien, H. E. How career. Op. cit., p. 375-378; Julien, H. E. How does. Op. cit., p. 103-118; Julien, H. E. Barriers. Op. cit., p. 38

<sup>46</sup> Julien, H. E. How career. Op. cit., p. 373-378, 383; Julien, H. E. Adolescent decision. Op. cit., p. 377-378.

<sup>47</sup> Cf. Julien, H. E. Adolescent decision. Op. cit., p. 333.

support.<sup>48</sup> However, there were also those who did not show a rational decision making style and were not keen to actively seek information. They employed an intuitive and dependent decision making style with little or no purposive information seeking.<sup>49</sup> Julien's work also showed that while some of the adolescents sought information about future careers, others found information accidentally in their environment. Therefore she differentiates between purposeful information seeking as a goal directed activity which occurs when a person sets out to obtain assistance with a decision, and incidental information seeking which happens when helpful information is found coincidentally, in the course of everyday life (e.g. through interaction with peers, career counsellors, parents or teachers).<sup>50</sup>

Examining adolescents' cognitive information utilization of information on heroin, Todd revealed five types of changes in knowledge structure caused by new information (named *get a complete picture*; *get a changed picture*; *get a verified picture*; *get a clearer picture*; and *get a position in a picture*).<sup>51</sup> Through these five effects of exposure to information, new knowledge is constructed by using information to remove some doubts, and/or to confirm, to change and to expand the existing knowledge and to understand the topic with greater clarity. The fifth type of effect named *get a position in the picture* enabled the study participants to take their ideas to an end point, to derive and state conclusions and to form and express an opinion on the topic. The identified changes in state of knowledge were not static, but a part of an ongoing movement through all five types of effects. We can argue that the described process explains what happens on a cognitive level when a person seeks for or is provided with information with the purpose of making a decision. It explains how information is cognitively utilized to increase understanding of specific decision making situations a person is faced with. Therefore, we may consider such a process to be a precondition for making an informed decision. Todd also found that during the process of cognitive information utilization adolescents' knowledge became personalized and that study participants with different initial knowledge reacted differently to information they were exposed to and had built different new knowledge. That means that the same information given to different adolescent individuals will not result in the same new knowledge (as it depends on the existing knowledge and experience). It also tells us that we cannot consider adolescents to be informed by simply making the information available. When we want to inform adolescents hoping that they will make some informed decisions, we need to match the information to adolescents' personal and social experiences as well as to their psychological development.

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<sup>48</sup> Cf. Julien, H. E. How career. Op. cit., p. 373, 378.

<sup>49</sup> Cf. Julien, H. E. Adolescent decision. Op. cit., p. 333-336.

<sup>50</sup> Cf. Julien, H. E. Adolescent career decision making and the potential role of the public library. // Public Libraries 37, 6(1998), p. 378.; Julien, H. E. How does. Op. cit., p. 175-176.

<sup>51</sup> Cf. Todd, R. J. Op. cit., p. 14-21.

Todd and Edwards further explored the concept of information utilization in the context of life concerns, particularly those related to drugs.<sup>52</sup> They found that the respondents barely sought information on drugs and did not turn to other sources but themselves. Although they had deep information needs, the perceived risk of negative consequences (for example being excluded from their peer group or misunderstood by parents) prevented those adolescents from seeking information on drugs. This very interesting finding shows us how social norms define and shape information behaviour.<sup>53</sup>

Agosto investigated adolescent information behaviour in the World Wide Web environment exploring how they evaluate websites. Choosing among different websites was viewed as a process which involves numerous decisions and adolescent decision making was investigated as a part of the information seeking process. Agosto developed the theoretical model of young people's decision-making which sets criteria that young people use to evaluate decision alternatives. According to the model, the determinants which influence and predict young people's decision making are: personal preferences, object engagement characteristics, human processing constraints, and contextual constraints. The model is developed within the research in the World Wide Web environment, but is posited to be applicable to young people's decision making in general, including everyday life environment decision making.<sup>54</sup> Her accompanying empirical model of young persons' decision making posits various decision making criteria, but adolescents do not apply each of the criterion because of limited time, cognitive and physical capacities and instead use the criteria which he or she finds the most helpful. This shows that young people operate within limits of bounded rationality employing simplification mechanism of satisficing, as posited by Simon, when making decisions in the World Wide Web environment. For example, it was found that the study participants used reduction methods to decrease the enormous number of sites on the Web and considered only a small subset of sites until they found a satisficing outcome. Agosto found that adolescents also operate within limits of physical constraints, along with time and cognitive constraints posited by Simon. This refers to physical discomfort associated with excessive Web use which may cause termination of decision making activity before finding a satisficing option.<sup>55</sup>

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<sup>52</sup> Cf. Todd, R.J.; S. Edwards. Op. cit.

<sup>53</sup> Ibid., p. 382.

<sup>54</sup> Cf. Agosto, D. E. A model of young people's decision-making in using the Web. // *Library & Information Science Research* 24(2002), 324-325, 335-336.

<sup>55</sup> Cf. Agosto, D. E. Bounded rationality and satisficing in young people's Web-based decision-making. // *Journal of the American society for Information Science and Technology* 53(2002), p. 21-25.

Together with Hughes-Hassell, Agosto investigated everyday life information seeking (ELIS) of urban adolescents.<sup>56</sup> The study of reasons why urban teens need everyday life information resulted in a theoretical model which encompassed seven areas of urban teen development. They established the model that depicts how urban adolescent ELIS behaviour supports the development of the emotional, social, sexual, cognitive, creative, physical and reflective side of an adolescent person.<sup>57</sup> It showed that adolescents gather and process information for exploring themselves and the world around them to better understand themselves and the social and physical worlds in which they live. Therefore, Hughes-Hassell and Agosto conclude that adolescents engage in everyday life information seeking to facilitate the maturation process and transition from childhood into adulthood.<sup>58</sup>

Hultgren investigated information behaviour of adolescents making choices about study and career.<sup>59</sup> Like Julien, Hultgren also found that some adolescents are fully aware of the process of making decisions which they need to undertake. She found that those adolescents approach career decision making in quite a rational way and that they actively seek for information striving to make sense of the information found in order to make as wise a career decision as possible.<sup>60</sup> Although they were aware of appropriate decision making and information seeking procedures they were supposed to undertake, according to many instructions on career decisions they were exposed to, none of the participants fully showed such a systematic and objective information seeking process in practice.<sup>61</sup> Furthermore Hultgren's work suggests that adolescents approaching decisions about post-graduation do not reflect on information seeking as a discrete activity in itself, but speak about it as activity embedded in other activities with the purpose beyond itself. In their narratives they related their information seeking activities to the types of persons they claimed to be and depicted themselves as being embedded in their social and cultural context.<sup>62</sup> Hultgren's work revealed that adolescents approach

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<sup>56</sup> Cf. Agosto, D. E.; S. Hughes-Hassell. Toward a model of the everyday life information needs of urban teenagers, part 1: Theoretical model. // *Journal of the Association for Information Science and Technology*, 57,10(2006), 1394-1403.; Hughes-Hassell, S.; Agosto, D. E. Modeling the everyday life information needs of urban teenagers. // *Youth Information Seeking Behaviors: Context, Theories, Models, and Issues II* / edited by M. K. Chelton, C. Cool. Lanham; Toronto; Plymouth: Scarecrow Press, 2007. p. 27-61.; Agosto, D. E.; S. Hughes-Hassell. People, places, and questions: An investigation of the everyday life information-seeking behaviors of urban young adults. // *Library & information science research*, 27, 2(2005), p. 141-163. [cited: 2017-11-11]. Available at: <https://pdfs.semanticscholar.org/ab84/09873710a9ae404793ee93cd353ebdfcb8a3.pdf>

<sup>57</sup> Cf. Agosto, D. E.; Hughes-Hassell, S. Toward. Part 1. Op. cit., p. 1398-1401.

<sup>58</sup> Cf. Hughes-Hassell, S.; D. E. Agosto. Modeling. p. 53.

<sup>59</sup> Cf. Hultgren, F. Approaching. Op. cit.

<sup>60</sup> Ibid., p. 135, 146.

<sup>61</sup> Ibid., p. 135.

<sup>62</sup> Ibid., p. 131.

study and career information in four main ways. Some of them (1) wanted to be well-informed and actively sought information aiming at negotiating risk and making sense of the future labour market in relation to their interests and alternative educational programs. Others (2) actively sought for information on occupations to learn about pathways into occupations and on aspects of the work. Furthermore, some of the adolescents (3) sought information for broadening education as a means of further defining their own interest. They were aiming at extending the transition period and deferring career decisions to get an opportunity to get to know themselves better, to enjoy their own youth, to see more of the world, and to find a life direction they could commit to. Finally, some of the adolescents (4) deferred information seeking, avoided dealing with information on study and career or decided to bear it in mind until they felt it was an appropriate time to deal with it. Hultgren also investigated information seeking as embedded in sociocultural and historical frameworks from the highly individual perspective of the adolescent emigrant or a *stranger*. She found that the outsider's effort needed for gaining knowledge goes beyond technical information seeking skills and that affective and physical dimensions are crucial in an outsider's endeavours to learn about future education and career possibilities.<sup>63</sup>

Koo investigated information behaviours of South Korean immigrant adolescents in the United States in the period before they established new peer groups.<sup>64</sup> Since peers are important to adolescents, these young people are in a position atypical for their life-stage. Results showed that the adolescent immigrants who were isolated from their peers in their new environment did not seek for information to meet their socio-affective needs, but instead showed passive behaviour. For meeting their cognitive needs related to academic success, they actively sought help from teachers and parents, especially mothers.

Franklin studied the everyday life information behaviour (ELIS) of suburban adolescents in a highly technological school library setting.<sup>65</sup> She set her study against the work of Agosto and Hughes-Hassell on urban teens' everyday life information seeking arguing that rapid ICT technology development changed behaviours of young people since the time Agosto and Hughes-Hassell conducted

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<sup>63</sup> Cf. Hultgren, F. The stranger's tale: information seeking as an outsider activity. // *Journal of Documentation*, 69, 2(2013), p. 291.

<sup>64</sup> Cf. Koo, J. H. Recent South Korean immigrant adolescents' everyday life information seeking when isolated from peers: a pilot study. // *The Journal of Research on Libraries and Young Adults*. 2012. [cited: 2017-11-9]. Available at: <http://www.yalsa.ala.org/jrlya/2012/09/recent-south-korean-immigrant-adolescents-everyday-life-information-seeking-when-isolated-from-peers-a-pilot-study/>

<sup>65</sup> Cf. Franklin, L. Everyday Life Information Seeking (ELIS) practices of suburban teens in a highly technological school library: A case study. Doctoral dissertation. 2013. [cited: 2017-11-10]. Available at: <https://esirc.emporia.edu/bitstream/handle/123456789/3252/Franklin%20dissertation.pdf?sequence=1>

their study, including their everyday life information seeking behaviour.<sup>66</sup> Franklin compared ELIS of Agosto and Hughes-Hassell's urban adolescents, and that of suburban adolescents from her study and found significant differences. She found that the suburban adolescents who had access to the newest information and communication technology developed specific everyday life information seeking practices. They tend to blend work and play: while working on their academic assignments in the school library, they use their mobile devices for play (e.g. playing an online Monopoly game). Moreover, these adolescents simultaneously satisfy the needs arising from school tasks and their personal information needs (e.g. consulting YouTube 'How-to' video to find some help with an encountered everyday life problem or searching information for comparison shopping purposes), and their multitasking nature enables them to behave in such a way. Franklin concludes that seeking information of a personal nature occurred as a natural extension of their mobile digital device ownership.<sup>67</sup>

Markwei and Rasmussen investigated the everyday life information seeking behaviour of homeless youth in Accra, Ghana, and found that those homeless adolescents need and use information in solving everyday life problems.<sup>68</sup> They show four modes of information seeking, that is: active search, passive attention, passive search and a community approach. *Active search* refers to active information seeking behaviour, *passive search* denotes the acquisition of information while an individual is engaged in some other activity, *passive attention* denotes the acquisition of information with no intention of seeking for it, and *community approach* denotes free and voluntary information sharing among members of community to promote their well-being.<sup>69</sup> The most common mode of their everyday life information seeking behaviour turned out to be a new mode of information seeking, a community approach: the Ghanaian urban homeless adolescents' from the study were able to meet the majority of their everyday life needs by relying on sharing information among their social network of friends. Markwei and Rasmussen point out that their information sharing practice differs from those of their peers in developed countries. Adolescents from developed countries share via the Internet on social networking sites information such as personal photos, videos, music and information on books with the purpose of socializing and entertainment, while the homeless adolescents in Ghana share in face-to-face communication information such as advice on work ethics and appropriate social behaviour with the purpose of skills acquisition.

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<sup>66</sup> Cf. Agosto, D. E.; S. Hughes-Hassell. Toward. Part 1. Op. cit.

<sup>67</sup> Cf. Franklin. L. Op. cit., p. 140.

<sup>68</sup> Cf. Markwei, E.; E. Rasmussen. Everyday life information-seeking behavior of marginalized youth: a qualitative study of urban homeless youth in Ghana. // *International Information & Library Review*, 47, 1-2(2015), p. 23. [cited: 2017-11-10]. Available at: <http://www.streetchildrenresources.org/wp-content/uploads/2015/12/Everyday-Life-Information-Seeking-Behavior-of.pdf>

<sup>69</sup> *Ibid*, p. 25.

Buchanan and Tuckerman studied adolescent information behaviour in disadvantaged and disengaged circumstances.<sup>70</sup> They investigated information seeking behaviour of adolescents who were not in education, employment or training (NEET) for education and employment purposes, and the extent to which information poverty manifests. Results revealed that the majority of NEET youth exhibited non-motivated and passive information behaviours and dependency upon support workers when seeking and processing information. Moreover, the NEET adolescent information behaviour indicated deception, risk-taking and secrecy, was often self-protective and showed a reliance on bonding social capital which was exclusive and inward facing. These findings indicate that they live in an impoverished information world.<sup>71</sup>

## **5.2. Sources of information**

Poston-Anderson and Edwards' study showed that many of the adolescents who participated in their study did not believe that the information which they needed is available in school libraries or in public libraries. They reported that they were successful in finding answers on factual questions by asking family, especially mothers, friends and teachers. When asked what they would ask an expert who dealt with issues of their daily concerns, if they had an opportunity, the adolescents answered they would ask for opinions, judgments and interpretations, such as questions about getting along with others, because this is the type of information they need.<sup>72</sup> When it comes to questions on future career and education concerns, it showed that adolescents avoid approaching their friends, and that mothers are an important source of this type of information.<sup>73</sup>

Julien found that the adolescents who seek information for help in making career decisions turn to familiar and accessible sources: themselves, books and pamphlets available in schools, guidance counsellors, friends, people in career of interest, their families. The least used source was the public library. Those adolescents tend to use interpersonal sources of information and consider human sources to be the most effective in providing helpful information. Also, they appreciate feelings expressed by the person who provides information which makes a knowledgeable and caring person an ideal source. Moreover, it was found that when making career decisions, adolescents need two types of help: instrumental

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<sup>70</sup> Cf. Buchanan, S.; L. Tuckerman. The information behaviours of disadvantaged and disengaged adolescents. // *Journal of Documentation* 72, 3(2016), p. 527-548. [cited: 2017-11-10]. Available at: [https://strathprints.strath.ac.uk/55116/1/Buchanan\\_Tuckerman\\_JD\\_2016\\_The\\_information\\_behaviours\\_of\\_disadvantaged\\_and\\_disengaged.pdf](https://strathprints.strath.ac.uk/55116/1/Buchanan_Tuckerman_JD_2016_The_information_behaviours_of_disadvantaged_and_disengaged.pdf)

<sup>71</sup> Ibid, p. 527, 541-543.

<sup>72</sup> Cf. Poston-Anderson, B.; S. Edwards. Op. cit., p. 26-30.

<sup>73</sup> Cf. Edwards, S.; B. Poston-Anderson. Op. cit., p. 215, 218, 221



help, which helps them to gain ideas, to plan and prepare, and emotional help, which makes the process easier, motivates them, gives support, reassurance or confirmation. Sources which according to adolescents provide helpful information provide both types of help.<sup>74</sup> The respondents reported that trustworthiness of information sources is critical to the ultimate usefulness of the help received.<sup>75</sup> When asked what their perfect source of help would be, a majority of the respondents answered that a person would be superior to other types of information sources because a person can be asked questions, give feedback responses and expresses own ideas and feelings. Also, they reported that the formal sources which provided help in trusting and friendly relationships would be the most useful.<sup>76</sup> Moreover, a person who has experience in a career or college of interest were judged as most helpful, followed by themselves, books and pamphlets, guidance counsellors, work experience, and other personal experience. It was also shown that the types of selected information sources depend on the specific task faced, or a part of the career decision process: different sources of help are at disposal for information needed for conducting self-assessment from those who provide information needed for investigating specific careers or selecting an educational institution (in terms of formal and informal sources of information).<sup>77</sup>

Using an analytical framework based on the Chatman's Theory of Information Poverty, Todd and Edwards show that although adolescents' information world is rich in potential sources, in reality it is devoid of sources of information which would meet their information needs about drugs.<sup>78</sup> The respondents' perception was that easily accessible sources of information, such as books in school libraries and interpersonal sources which include friends and significant others, cannot provide information which would answer their deep questions related to drugs.<sup>79</sup> The adolescents who participated in their study perceived that the negative consequences of attempts to seek information outweigh the benefits of getting information, regardless of whether they would turn to friends, siblings, school acquaintances, parents or teachers. Interpersonal sources which adolescents would approach for this kind of information, e.g. uncles or girlfriends of their older brothers, need to be trustworthy, and perceived as someone who would respect the adolescent's confidentiality.<sup>80</sup> Considering that social norms, friend group dynamics and other relationships to significant others influence and hinder adolescents' information

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<sup>74</sup> Cf. Julien, H. E. *How career*. Op. cit., 376-380; Julien, H. E. *Adolescent career*. Op. cit., p. 377-379; Julien, H. E. *How does*. Op. cit. p. 174-175.

<sup>75</sup> Cf. Julien, H. E. *Barriers*. Op. cit., p. 48.

<sup>76</sup> Cf. Julien, H. E. *How career*. Op. cit., p. 375-378.

<sup>77</sup> Cf. Julien, H. E. *How career*. Op. cit., p. 375-378

<sup>78</sup> Cf. Todd, R.J.; S. Edwards. Op. cit., p. 379.

<sup>79</sup> *Ibid.*, p. 369.

<sup>80</sup> *Ibid.*, p. 376-377.

seeking on delicate topics such as drugs, Todd and Edwards posit that the World Wide Web as a virtual space which provides anonymity and confidentiality can be the place where drug related information for adolescents may be provided.<sup>81</sup>

Agosto and Hughes-Hassell explored everyday life information seeking (ELIS) of urban adolescents and developed a typology of urban adolescents' preferred ELIS sources, media types and topics.<sup>82</sup> They found their heavy preference for people as information sources, friends and family being the most preferred sources. School employees were also consulted to meet ELIS needs.<sup>83</sup> The respondents reported they were guided by *it depends* principle, explaining that who they consult depends on established relationships, question topics and the location of information seeking. However, they were reluctant to visit libraries to find the needed information.<sup>84</sup> The adolescents who participated in the study also relied heavily upon a variety of media sources. Cell phones were reported to be the most preferred and the most convenient method way of mediated communication. The adolescents also reported turning to telephones, televisions, computers, and radios before turning to print resources such as newspapers, books, and magazine to satisfy their information needs.<sup>85</sup> Furthermore, Agosto found that adolescents valued the Web as an information source because it reduces physical effort otherwise needed for traditional information gathering methods, such as using the school library. However, it was also found that decision making in the Web environment, as a part of the information search process which includes the selection of websites, can often be a frustrating and unsatisfactory experience and result in selection of disappointingly inferior outcomes because of prevalence of low-quality and *boring* websites.<sup>86</sup>

Hultgren's work suggests that the number of sources used varies among adolescents since some of the participants in her study used considerably more sources than others. In line with other authors, she finds that the most significant source adolescent school leavers use are other people.<sup>87</sup> As it was already mentioned, Hultgren identified four different approaches to information seeking which adolescents take depending on their self-perceived identities. The different approaches to information seeking also result in specific selection of information sources. The adolescents who took the first approach actively sought information to make sense of future labour markets in relation to their interests. They wanted to be well-informed and used a number of information sources: university brochures

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<sup>81</sup> Ibid., p. 380-382.

<sup>82</sup> Cf. Agosto, D. E.; S. Hughes-Hassell. People. Op. cit., p. 141, 158-159.

<sup>83</sup> Cf. Ibid. p. 141, 153-159.; Hughes-Hassell, S.; Agosto, D. E. Modeling. Op. cit. p. 34.

<sup>84</sup> Cf. Agosto, D. E.; S. Hughes-Hassell. People. Op. cit., p. 155, 158.

<sup>85</sup> Cf. Agosto, D. E.; & Hughes-Hassell, S. People. Op. cit., p. 141, 150, 159, 161.; Hughes-Hassell, S.; Agosto, D. E. Modeling. Op. cit., p. 34.

<sup>86</sup> Cf. Agosto, D. E. Bounded. Op. cit., p. 22, 25; Agosto, D. E. A model. Op. cit., p. 332-333.

<sup>87</sup> Cf. Hultgren, F. Approaching. Op. cit., p. 106.

and websites, labour market statistics and other people (e.g. career counsellors and teachers, insiders at universities, family members). The second approach to information seeking aimed at informing on pathways into occupations and on aspects of the work. It included the usage of a number of information sources, and the most important sources were the practitioners. They also used information produced by universities and other further education institutions, experts or practitioners in specific occupations, career counsellors, teachers and mentors, insiders such as friends at workplaces and in higher education, family members, particularly those in careers of participant's interest. The third approach to information seeking was taken by adolescents who wanted to extend the transition period from the point of leaving school to selecting a career. They wanted to take some time off and get an opportunity to define the life direction they could commit to. Their information sources included: direct experiences, family, friends and peers, internet sources on traveling or studying abroad, insiders such as friends or family members at universities or traveling and working abroad, information on short courses and overviews of careers and studies. The adolescent school leavers who took the fourth approach and deferred or avoided information seeking used a small number of locally relevant information sources and did not use formal information sources. For these students it was sufficient to know what formal sources existed and that they could be found if needed. Furthermore, a significant finding of Hultgren's work is the recognition of the significance of social capital in access to information. While some of the school leaving adolescents came from family backgrounds which provided them with rich information resources accessible to them in everyday life, others did not and instead they relied heavily on formal sources of information on study and career. Also, the degree of trust they attached to specific sources was found to depend on differences in their social and cultural capital.<sup>88</sup>

In Koo's study, South Korean immigrant adolescents were in a position which is atypical for their life-stage.<sup>89</sup> They were isolated from peers who are normally an important source of information for adolescents. These adolescents turn to their parents for information, and especially to mothers, considering them to be the most reliable sources. They turned to parents and teachers to meet their cognitive needs, but for issues which are considered not to be suitable for sharing with them (such as girlfriends and puberty), they did not seek advice from anyone. They did not seek help to meet their socio-affective needs but rather engaged in hobbies to overcome their stress and loneliness. For various questions which arise daily they turned to the Internet (e.g. websites like Google), and did not perceive the library as a place where they could find information which could help them make deci-

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<sup>88</sup> Cf. Hultgren, F. *Approaching*. Op. cit., p. 134, 146; Hultgren, F. *The stranger's*. Op. cit., p. 279-285.

<sup>89</sup> Cf. Koo, J. H. Op. cit.

ons or with school-related activities. Librarians were seen simply as those people who keep and deliver books.

Franklin notes that the upper-income students who have access to the newest ICT technology live in information environments rich in information sources and channels.<sup>90</sup> Referring to the work of Agosto and Hughes-Hassell conducted six years earlier, she compares behaviours of two different groups of informants and posits a new typology which includes people sources, mobile devices sources, ICT sources, other media sources, and ELIS topics.<sup>91</sup> Her work shows that for managing personal information needs, suburban adolescents prefer to use their mobile devices over school library computers. Furthermore, it showed that while spending time in highly technological school libraries, they first rely on themselves for information by using their personally-owned mobile devices as information sources, and then approach friends and adults to ask for help with their everyday life information needs. This finding is novel because previous studies overwhelmingly show that for ELIS information adolescents turn to other people (such as parents or friends). The reason for that may lay in filtering and monitoring of the school library computer usage which stimulated the use of mobile digital devices to satisfy their personal information needs. School librarians were the lowest ranked category for people sources.<sup>92</sup>

Markwei and Rasmussen found that the range of sources available to homeless youth in Accra, Ghana were limited in comparison to those reported in other studies conducted among adolescents.<sup>93</sup> Nevertheless, they were able to satisfy their information needs by relying on the social network of their friends. It was also found that the homeless adolescents primarily relied on interpersonal sources of information, which is consistent with findings of a majority of adolescent behaviour studies. These sources were, for example, family members such as siblings or parents, friends or school seniors, teachers, business people such as microfinance agent or employers, opinion leaders such as hometown association leaders and others. The study suggests that the factors which determine adolescents' choice of information sources are accessibility, credibility and convenience of source. Libraries do not play a major role in the everyday life information seeking of the homeless adolescents from the study.

Buchanan and Tucherman found that adolescents who are not in education, employment or training (NEET) prefer people as information sources, in accordance with previous studies of adolescent information behaviour.<sup>94</sup> However, unlike urban adolescents from the study of Agosto and Hughes-Hassell who prefer

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<sup>90</sup> Cf. Franklin, L. *Op. cit.*, p. 138.

<sup>91</sup> Cf. *Ibid.*, p. 18.

<sup>92</sup> *Ibid.*, p. 140

<sup>93</sup> Cf. Markwei, E.; E. Rasmussen. *Op. cit.*, p. 24

<sup>94</sup> Cf. Buchanan, S.; L. Tuckerman. *Op. cit.*, p. 541.

to approach family and friends over teachers, career advisors and librarians for information, NEET adolescents turn to support workers with the same frequency as they turn to family and friends.<sup>95</sup> Moreover, the NEET adolescents consider support workers to be a more credible source of information than family and friends. It was also found that television and news are considered to be credible information sources, whereas the Internet, which was found to be a frequently used source, is considered to be of medium credibility. Other sources are characterized by the respondents as follows: newspapers are used with medium frequency and are considered to be of low credibility, the website SDS World of Work careers is used with low frequency and is considered to be of high credibility, while public libraries are used with low frequency and are considered to be medium credible sources of information.

### 5.3. Barriers

Edwards and Poston-Anderson found that the time perspective influences adolescent information behaviour and may inhibit them from actively seeking for information on future career or jobs if the moment of decision is beyond the adolescent's time horizon, or perceived to be *too far away* to make plans.<sup>96</sup>

The results of Julien's study show that many adolescents face various difficulties in accessing helpful information for career decision making. They reported facing various barriers that hinder their information seeking, such as not knowing where to go for information that would help them with making decisions, feeling there are too many places to go to for information because information is scattered, feeling overwhelmed by the volume of material, lack of confidence to actively seek helpful information and lack of sufficient time to adequately seek for information.<sup>97</sup>

Todd & Edwards revealed that although adolescents who participated in their study had deep information needs and questions about drugs, the perceived risk of negative consequences (for example being excluded from their group or misunderstood by parents) prevented them from seeking information on drugs. They did not seek for information on drugs at all and did not turn to other sources but themselves primarily because of the barriers and costs of getting the information which they perceived. This illustrates how social relations and perceived power relations may function as barriers and inhibit information seeking.<sup>98</sup>

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<sup>95</sup> Cf. Ibid.; Agosto, D. E.; S. Hughes-Hassell. People. Op. cit. p. 141, 153-159.

<sup>96</sup> Cf. Edwards, S.; B. Poston-Anderson. Op. cit., p. 217-218.

<sup>97</sup> Cf. Julien, H. E. Adolescent career. Op. cit., p. 379-380.; Julien, H. E. How does. Op. cit., p. 176-177.; Julien, H. E. Barriers. Op. cit., p. 47-48.; Julien, H. E. How career. Op. cit., p. 380-383.

<sup>98</sup> Cf. Todd, R.J.; S. Edwards. Op. cit., p. 377-380.

Investigating adolescent information behaviour in the World Wide Web environment, Agosto found some significant barriers that impede their information seeking. The participants reported that time was a constant problem when using the Web. They considered time limitations particularly restrictive in Web use for homework purposes, causing them to examine only a few possible websites before selecting one. Two types of time constraints showed – those imposed by teachers in the form of assignment due dates and self-imposed. Moreover, they reported that information overload and textual overload (meaning too much textual material on websites) impede their searches. Also, they reported difficulties in making decisions on which website to choose because of the vast number of available websites. Overall, it showed that information seeking activity is limited by cognitive constraints or constraints of human cognitive capacities. Furthermore, it showed that some physical constraints may also impede information seeking activity, for example the appearance of sore bones, headaches, wrist pain, and eye strain which resulted from excessive computer use, and cause termination of the information seeking process.<sup>99</sup>

Franklin found that when seeking for information by using school library computers, adolescents viewed school-mandated filtering and monitoring as constraints. However, students bypass the filtering system by owning their own mobile devices to access the internet, and search for ELIS topics at the same time when working on school assignments in the school library. The use of mobile devices (cell phones and smartphones in particular) informs their practice allowing them to meet their ELIS needs despite the constraints.<sup>100</sup>

Although two-thirds of Buchanan and Tuckerman's adolescent respondents who were not in education, employment or training stated that they experienced no difficulties when seeking information, the study revealed that a majority of them experienced difficulties with information-processing tasks and exhibited a wide range of unmet information needs. It was revealed that they faced many barriers to information seeking which included home life, isolation and institutional problems. Moreover, significant literacy and technology issues (including reading, computer and information) showed, along with issues related to access, motivation, social skills and internalised behavioural barriers. Overall, it showed that NEET adolescents face some difficulties beyond those common to the general adolescent population.<sup>101</sup>

Hultgren depicted adolescent information seeking about a future career as embedded in sociocultural environment and these factors proved to both facilitate and hinder information seeking activity, depending on the characteristics of the

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<sup>99</sup> Cf. Agosto, D. E. Bounded. Op. cit., p. 21-22.; Agosto, D. E. A model. Op. cit., p. 332.

<sup>100</sup> Cf. Franklin, L. Op. cit., p. 174

<sup>101</sup> Cf. Buchanan, S.; L. Tuckerman. Op. cit., p. 542-543.

environment, such as having or not having family ties that would provide access to information sources. Some other barriers to information seeking recognized by the students are the perceived time-consuming nature of information seeking, and belief that information irrelevant or untimely in general.<sup>102</sup>

#### 5.4. *Affective experiences*

Julien found that adolescents appreciate emotional help and believe that human sources would be perfect information sources because they can be asked questions, provide feedback and expresses emotions.<sup>103</sup> Moreover, it was shown that besides instrumental help, emotional help in form of motivation, support, reassurance and confirmation is of great importance to adolescents.<sup>104</sup> Her work showed that the respondents who are conducting self-assessment and have not yet selected a career experience feelings of uncertainty and anxiety about the future, while those who are investigating specific careers or educational institutions experience more confidence and optimism. Also, the respondents showed general shifts in feelings across the tasks of career decision, which corresponds with Kuhlthau's information seeking process theory (ISP).<sup>105</sup>

Agosto found that personal preferences play a strong role in adolescent evaluation of individual websites. The two main areas which guide evaluation showed to be graphic or multimedia content and subject content, and special attention was given to the perceived attractiveness of site colours and design preferences. Specific websites were described as not appealing, too formal, dull, ugly and boring, lacking animation and bright colours, and it was stressed that the home page needs to be *catchy*.<sup>106</sup>

Finally, Hultgren found that outsiders such as emigrants need to make efforts which go beyond technical information seeking skills for gaining knowledge and that affective and physical dimensions are crucial in their endeavours to learn about future education and career.<sup>107</sup> Likewise, the choice about future and accompanying information behaviour are connected to feelings of stress and anxiety and related to the feeling of self-efficacy.<sup>108</sup>

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<sup>102</sup> Cf. Hultgren, F. The stranger's. Op. cit., p. 275, 287- 291; Hultgren, F. Approaching. Op. cit., p. 134, 146, 178, 219.

<sup>103</sup> Cf. Julien, H. E. How career. Op. cit., p. 375-378.; Julien, H. E. How does. Op. cit., p. 174-180.

<sup>104</sup> Cf. Julien, H. E. How career. Op. cit., p. 375-378. ; Julien, H. E. Adolescent career. Op. cit., p. 377-378., 380

<sup>105</sup> Cf. Julien, H. E. Adolescent decision. Op. cit., p. 344-346.

<sup>106</sup> Cf. Agosto, D. E. Bounded. Op. cit., p. 24.; Agosto, D. E. A model. Op. cit., p. 313, 327, 337.

<sup>107</sup> Cf. Hultgren, F. The stranger's. Op. cit., p. 291.

<sup>108</sup> Cf. Hultgren, F. Approaching. Op. cit., e.g. 140, 166, 179, 160, 220, 224, 239.

## 6. Discussion

Within information science and the study of human information behaviour, there has not been much attention given to the study of adolescent information behaviour in the context of making everyday life decisions. Some attention has been given to the wider area of adolescent information behaviour in relation to adolescents' concerns, problems, and situations related to risk behaviour and related decisions. This study therefore includes not only studies that specifically address adolescent information behaviour in relation to decision making, but also those which deal with issues that are related to making decisions and whose findings may be truly valuable for the investigation of the topic.

Firstly, the cited studies reveal that adolescents show various modes of information behaviour. Although the terminology varies, the authors together report the range of purposeful or active and unintentional or passive behaviours: information seeking, passive information acquisition which encompasses passive search and passive attention, community approach, deferring information seeking and information avoidance.<sup>109</sup> Furthermore, some adolescents understand their information needs and the importance of appropriate information for making wiser decisions, solving problems and dealing with life concerns.<sup>110</sup> With that purpose they actively seek information. Those adolescents who approach their decisions rationally showed higher tendency towards active information seeking with the purpose of decision making. Yet, they do not show a fully systematic and objective information seeking process which is taught in many decision making instructions they are exposed to and neither do they reflect on information seeking as a discrete activity, but rather see it embedded in other activities with the purpose beyond itself.<sup>111</sup> From the cited studies we learned that adolescents need factual information, and also opinions, judgements and interpretations, guidance and advice, and emotional support.<sup>112</sup> However, it also showed that there are adolescents who are not keen to actively seek information when making decisions, solving problems and dealing with life concerns. Some of them accidentally acquire appropriate information in the course of everyday life or while searching for some other information, and others defer information seeking or avoid information.<sup>113</sup>

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<sup>109</sup> Cf. Poston-Anderson, B.; S. Edwards, S. *Op. cit.*, p. 26-30; Julien, H. E. *Adolescent career. Op. cit.*, p. 378; Hultgren, F. *Approaching. Op. cit.*, p. 135, 178, 220, 230; Koo, J. H. *Op. cit.*; Franklin, L. *Op. cit.*, p. 140; Markwei, E.; E. Rasmussen, E. *Op. cit.*, p. 25.

<sup>110</sup> Cf. Poston-Anderson, B.; S. Edwards. *Op. cit.*, p. 26-30; Julien, H. E. *Adolescent decision. Op. cit.*, p. 333; Hultgren, F. *Approaching. Op. cit.*, p. 135; Koo, J. H. *Op. cit.*; Franklin, L. *Op. cit.*, p. 175; Markwei, E.; E. Rasmussen, E. *Op. cit.*, p. 25.

<sup>111</sup> Cf. Hultgren, F. *Approaching. Op. cit.*, p. 135.

<sup>112</sup> Cf. Poston-Anderson, B.; S. Edwards. *Op. cit.*, p. 26-27; Julien, H. *How career. Op. cit.*, p. 375-378.

<sup>113</sup> Cf. Julien, H. E. *How career. Op. cit.*, p. 375-378; Todd, R. J.; Edwards, S. *Op. cit.*, p. 380; Hultgren, F. *Approaching. Op. cit.*, p. 178, 220, 230; Koo, J. H., *Op. cit.*; Markwei, E.; Rasmus-



Next, we have learned that information is used to help in making decisions: it helps adolescents to gain ideas or understandings, in planning, preparing and deciding. It also gives support, reassurance, confirmation and motivation.<sup>114</sup> Information is sought and used to support adolescents' social, emotional, reflective, physical, creative, cognitive and sexual development and to facilitate the maturation process and transition from childhood to adulthood<sup>115</sup> and generally to support solving problems.<sup>116</sup> On a cognitive level, information was found to be used to increase knowledge about the topic related to a specific life concern or a decision.<sup>117</sup> Through ongoing movement of the five types of information utilization effects, information is used to remove doubts, to confirm, change and expand the existing knowledge and to understand the topic with greater clarity. Such information utilization enables a person to derive and state conclusions, which is needed to make well-informed decisions. This explains how information is cognitively utilized to increase understanding of specific decision situations and therefore we may consider such a process to be a precondition for making an informed decision. Moreover, cognitive utilization of information showed to be highly personalized - individuals with different initial knowledge react differently to information they were exposed to and build different new knowledge. That means that the same information given to different individuals will not result in different new knowledge (as it depends on the existing knowledge and experience). That tells us that we cannot consider adolescents to be informed by simply making the information available. When we want to inform adolescents hoping that they will make well-informed decisions, we need to match the information to adolescents' personal and social experiences as well as to their psychological development.

Furthermore, it showed that information behaviour is influenced by many internal and external factors. The way they understand their personal identity showed to shape adolescent information behaviour.<sup>118</sup> Like the adolescents themselves, their information behaviour is embedded in their social and cultural context.<sup>119</sup> Moreover, it is shaped and defined by social norms and power relations, perceived consequences and costs of getting the information.<sup>120</sup> Furthermore, decision making as a part of the information seeking process, but also in other contexts such as

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sen, E. Op. cit., p. 25.

<sup>114</sup> Julien, H. E. How career. Op. cit., p. 375-378 ; Julien, H. E. How does. Op. cit., 103-118, 175.

<sup>115</sup> Agosto, D. E.; S. Hughes-Hassell. Toward. Part 1. Op. cit., p. 1398-1401; Hughes-Hassell, S.; D. E. Agosto. Modeling. Op. cit., p. 53.

<sup>116</sup> Cf. Markwei, E.; E. Rasmussen. Op. cit., p. 23.

<sup>117</sup> Cf. Todd, R. J. Op. cit., p. 20-21.

<sup>118</sup> Cf. Hultgren, F. Approaching. Op. cit., p. 131.

<sup>119</sup> Cf. Hultgren, F. The stranger's. Op. cit., p. 278-281, 291; Hultgren, F. Approaching. Op. cit., p. 146.

<sup>120</sup> Cf. Todd, R. J.; S. Edwards. Op. cit., p. 382.

everyday life, is influenced and may be predicted by personal preferences, object engagement characteristics, human processing constraints, and contextual constraints. Adolescent decision making as a part of the information seeking process is characterized by bounded rationality and time, cognitive and physical constraints. Adolescents employ simplification mechanism of satisficing and accept the first satisfying decision alternative, but also may terminate the information seeking process before finding good enough solutions because of reasons such as physical discomfort or onset of boredom.<sup>121</sup> The external information environment also showed to have impact on adolescent information behaviour related to making decisions. When lacking peers as their natural information source, adolescents were found to neglect information seeking to meet their socio-affective needs and showed passive behaviour. They turned to sources they had at their disposal, such as parents and teachers, but for meeting cognitive needs only.<sup>122</sup> On the other hand, when finding themselves in highly technological information environments and having personal mobile digital devices on their disposal, adolescents showed multitasking behaviour blending work and play and meeting school-related information needs and personal information needs simultaneously.<sup>123</sup> Everyday life environments in general had an impact on information behaviour. Information sharing practices of disadvantaged groups such as homeless adolescents differed from that of their peers in developed countries. While adolescents from developed countries share information via the Internet with the purpose of socializing and entertainment, the homeless adolescents share information face-to-face and with the purpose of gaining work related skills and knowledge.<sup>124</sup>

Moreover, the cited studies found that adolescents show a high preference for interpersonal sources of information, naming friends, family, school employees and many others as sources they consult.<sup>125</sup> They believe that a helpful source would be a knowledgeable and caring person who expresses his or her own ideas and feelings.<sup>126</sup> However, development of information and communication technology made mobile digital devices, especially personally owned smartphones, quite popular and in some occasions adolescents may prefer them over human sources of information.<sup>127</sup> Furthermore, across the reviewed studies adolescents

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<sup>121</sup> Cf. Agosto, D. E. Bounded. *Op. cit.*, p. 21-26; Agosto, D. E. A model. *Op. cit.*, p. 335-336.

<sup>122</sup> Cf. Koo, J. H. *Op. cit.*

<sup>123</sup> Cf. Franklin, L. *Op. cit.*, p. 141, 167, 174-175.

<sup>124</sup> Cf. Markwei, E.; E. Rasmussen. *Op. cit.*, p. 25-26.

<sup>125</sup> Cf. Poston-Anderson, B.; S. Edwards, S. *Op. cit.*, p. 26-30; Julien, H. E. How does. *Op. cit.*, 174-175.; Agosto, D. E.; S. Hughes-Hassell. *People. Op. cit.*, p. 141, 153-159; Hultgren, F. Approaching. *Op. cit.*, p. 106 ; Markwei, E.; E. Rasmussen. *Op. cit.*, p. 24 ; Buchanan, S.; L. Tuckerman. *Op. cit.*, p. 541.

<sup>126</sup> Cf. Julien, H. E. How career. *Op. cit.*, p. 375-378.; Julien, H. E. Adolescent career. *Op. cit.*, p. 377-378.

<sup>127</sup> Cf. Franklin, L. *Op. cit.*

showed a tendency toward sources which are familiar, accessible, credible, convenient, confidential and trustworthy.<sup>128</sup> Their source selection depends on established relationships, question topics and the location of information seeking.<sup>129</sup> Internet was reported to be a convenient source of information which reduces physical effort of information gathering. However, the Internet searches often result with unsatisfactory results and may be a frustrating experience because of inferior outcomes and prevalence of low-quality websites.<sup>130</sup> The number of information sources used varies among adolescents and depends on their approach to information seeking and their self-perceived identities.<sup>131</sup> Also, social capital proved to be significant in accessing information.<sup>132</sup> The range of sources available to underprivileged adolescents showed to be limited in comparison to those available to the general adolescent population.<sup>133</sup> Finally, many of the studies found that adolescents generally do not perceive a library as a helpful information source.<sup>134</sup>

When they seek information, adolescents face many difficulties. Time is seen as a barrier to information seeking in different ways: as a time horizon when adolescents do not seek for information if the moment of decision is too far away to engage in information seeking, but also in terms of lack of sufficient time to seek information.<sup>135</sup> Moreover, information scatter, meaning there are too many places to look for information, and lack of confidence are recognized as impediments to information seeking.<sup>136</sup> Social relations and perceived costs of information seeking may also prevent adolescents from seeking information about sensitive topics such as drug use because they believe they may face negative consequences.<sup>137</sup> Furthermore, information seeking activity is limited by constraints of human cognitive capacities and physical constraints such as the appearance of eye strain which resulted from excessive computer use, and may cause cessation of the information seeking process.<sup>138</sup> When using library computers, adolescents perceive

<sup>128</sup> Cf. Julien, H. E. *Barriers*. Op. cit., p. 48.; Todd, R. J.; S. Edwards. Op. cit., p. 380 ; Markwei, E.; E. Rasmussen. Op. cit., p. 24-25.

<sup>129</sup> Cf. Agosto, D. E.; S. Hughes-Hassell. *People*. Op. cit., p. 155, 158; Koo, J. H. Op. cit.

<sup>130</sup> Cf. Agosto, D. E. *Bounded*. Op. cit., p. 22, 25; Agosto, D. E. *A model*. Op. cit., p. 332-333.

<sup>131</sup> Cf. Hultgren, F. *Approaching*. Op. cit., p. 106, 131

<sup>132</sup> Cf. Hultgren, *Approaching*. Op. cit., p. 134.; Hultgren. *A stranger's*. Op. cit., p. 291; Cf. Buchanan, S.; L. Tuckerman. Op. cit., 527, 541-543.

<sup>133</sup> Cf. Markwei, E.; E. Rasmussen. Op. cit., p. 24

<sup>134</sup> Cf. Poston-Anderson, B.; S. Edwards. Op. cit. p. 28-30 ; Julien, H. E. *Adolescent career*. Op. cit., p. 378-379.; Agosto, D. E.; S. Hughes-Hassell. *People*. Op. cit., p. 161-162 ; Koo, J. H. Op. cit.; Markwei, E.; E. Rasmussen. Op. cit., p. 24

<sup>135</sup> Cf. Edwards, S.; B. Poston-Anderson. Op. cit., p. 217-218; Julien, H. E. *Barriers*. Op. cit., p. 48.; Agosto, D. E. *Bounded*. Op. cit., p. 21-22.; Hultgren, F. *Approaching*. Op. cit., p. 178.

<sup>136</sup> Cf. Julien, H. E. *Barriers*. Op. cit., p. 45-47.

<sup>137</sup> Cf. Todd, R. J.; S. Edwards. Op. cit., p. 377-380.

<sup>138</sup> Cf. Agosto, D. E. *Bounded*. Op. cit., p. 22.

filtering and monitoring as a constraint to seek information freely.<sup>139</sup> It showed that underprivileged adolescents face some significant barriers to information access which originate from their home life, isolation and institutional problems, but also from significant literacy and technology issues, along with issues related to access, motivation, social skills and internalised behavioural barriers.<sup>140</sup> Overall, there are indications that they face greater barriers to information access than their general population peers.<sup>141</sup>

Not many of the cited studies tackle the issue of adolescents' affective experiences related to information behaviour for decision making purposes. However, those that do, report that adolescent information behaviour is characterized by affective experiences which consequently impact their decision making process. Firstly, it was shown that the affective dimension plays an important role in gaining knowledge about education and career choices<sup>142</sup> and that the emotional component of provided help, i.e. information, is crucial in the perception of usefulness of the provided information.<sup>143</sup> Moreover, it was shown that beside instrumental help, adolescents need emotional help in form of motivation, support, reassurance and confirmation.<sup>144</sup> It was also shown that different stages in the decision making process are characterized by a range of emotions from uncertainty and anxiety to confidence and optimism.<sup>145</sup> Lastly, personal preferences showed to play a significant role in evaluation and making decisions on content on the World Wide Web.<sup>146</sup>

The broad topic of adolescent behaviour when dealing with life concerns, solving problems and making decisions together with the role which information itself plays in these situations has become an important research area. Information behaviour was explored with the underlying assumption that information helps the young in dealing with challenging life situations. So far, in information science there have been some endeavours taken to understand adolescent information behaviour related to making everyday life decisions. However, information behaviour for decision making purposes was directly addressed only in the context of education and career decision making, by Julien and Hultgren. Other authors deal with wider concepts such as dealing with life concerns and solving problems, which nevertheless inevitably include making decisions. More general un-

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<sup>139</sup> Cf. Franklin, L. *Op. cit.* p. 174

<sup>140</sup> Cf. Buchanan, S.; L. Tuckerman. *Op. cit.*, p. 542-543.

<sup>141</sup> Cf. *Ibid.*; Hultgren, F. *The stranger's*. *Op. cit.*, p. 287- 291; Hultgren, F. *Approaching*. *Op. cit.*, p. 219.

<sup>142</sup> Cf. Hultgren, F. *The stranger's*. *Op. cit.*, p. 291; Hultgren, F. *Approaching*. *Op. cit.*, e.g. p. 140, 166, 179, 160, 220, 224, 235

<sup>143</sup> Cf. Julien, H. E. *How career*. *Op. cit.*, p. 375-378.

<sup>144</sup> *Ibid.*, p. 375-378.

<sup>145</sup> Cf. Julien, H. E. *Adolescent decision*. *Op. cit.*, p. 341-346.

<sup>146</sup> Cf. Agosto, D. E. *Bounded*. *Op. cit.*, p. 24; Agosto, D. E. *A model*. *Op. cit.*, p. 313, 327, 337.

derstanding of adolescent information behaviour in the context of decision making processes has yet to be developed.

## **7. Conclusion**

Information is an important component of the decision making process. The concept of informed decision suggests that people base their decisions on information, to a greater or lesser extent. In the decision making process information is used to increase knowledge about the decision situation one is faced with, and this usually results in some specific behaviour or action. The adolescence is a transition period from childhood to adulthood and as such poses various challenges before young individuals. Their everyday life concerns, problems, challenging situations and decisions may be overcome with more success if they had certain information on the topic. The way adolescents interact with information affects their decisions and consequently their lives, and this is why it is important to increase our understanding of their information behaviour related to making everyday life decisions. Yet, the research on the topic within information science is scarce and requires more attention.

Adolescents employ a wide range of information behaviour when making everyday life decisions, purposeful or active and unintentional or passive: information seeking, passive information acquisition including passive search and passive attention, community approach, deferring information seeking and information avoidance. While some adolescents understand that appropriate information may help in dealing with problematic or decision situations at hand, and therefore actively seek for information, others show less understanding and interest in such an activity. They use information for help when making decisions for the following purposes: to increase knowledge, to gain ideas, to plan, prepare and decide. In this context cognitive utilization of information, manifested in increased knowledge and greater understanding, may be considered to be a precondition for making informed decisions. Adolescents seek and use information to support their overall development and to facilitate the maturation process. There are various internal and external factors which influence their information behaviour, such as their information environment, understanding of their own personal identity, cognitive and physical constraints, social and cultural norms and overall context. The information sources adolescents consult to get some help with decisions and problems also have a significant impact on decisions and decision outcomes. Overall, they show a high preference for interpersonal sources, such as friends and family, from whom they often seek not only factual information, but also opinions, advice, guidance and emotional support. Due to rapid development and use of information and communication technology, mobile digital devices are also among favourite information sources. Adolescents tend to use sources which are familiar,

accessible, credible, convenient, confidential and trustworthy, and their source selection is influenced by the topic question, the location of information seeking and social capital. However, there are also many difficulties which impede information seeking, such as lack of confidence, constraints of human cognitive capacities and time constraints, information scatter, social norms and social context. Affective experiences also significantly affect adolescents' information behaviour for everyday life decision making. As expected, adolescents show signs of bounded rationality. Even those who are quite rational about their decision making do not conduct a completely systematic and objective information seeking process. Instead, their activities are bounded by cognitive and physical constraints.

Many of the issues relevant for the topic of adolescent information behaviour for making everyday life decisions have not been addressed yet. Although they all deserve the researchers' attention, we give priority to some of them. Primarily, we need to learn how adolescents understand the role of information in the decision making process and what importance they attach to information when making everyday life decisions. It is possible that they consider information very important in some decisions, but less important in others. Next, adolescent information behaviour needs to be explored in various everyday life decision contexts, for example decisions related to diet or sexual behaviour, but also others related to the topics which are important in the lives of the young. It can be assumed that their information behaviour varies across different decision making contexts. Furthermore, it is important that we learn more about motivation for employing different modes of information behaviour. These modes were only identified, and were not further explored. However, it would be important to gain an understanding on why adolescents employ behaviours such as information avoidance or passive modes of behaviour. Finally, we need to explore how they select information sources which they consult. The issues of source credibility and cognitive authority are very important and may have a great influence on decisions which adolescents make.

## **8. Limitations**

The review of literature on such a wide and insufficiently explored topic is quite challenging and has certain limitations. Firstly, the study is interested in the research within the information science field. The publications from other fields which deal with the topic may also include some relevant findings and perhaps some future research might deal with them. Secondly, few studies dealt specifically with adolescent information behaviour in relation to decision making. Therefore, to reach other relevant publications, the concepts related to decision making were used to formulate the search strings and to identify the set of eligible publications (these concepts are problem solving and everyday life information seeking, as explained earlier in the text). As it was already said, the set includes studies

that specifically mention, in larger or lesser extent, that they deal with information behaviour which is carried out with the purpose of making decisions or choices, solving problems, dealing with life concerns and challenges. Studies which may lay on the implicit assumption that information is sought for such purposes, but do not mention it explicitly, may be dealt with in the future. Third, in order to make the review manageable within the limitations of a single VBH chapter, certain constraints have been imposed. Reviewing of publications which are extensive and have rich findings, such as PhD theses, imposes the need for summarizing. The authors are aware that through that process some of the richness of their findings is lost. For deeper insight into their findings we recommend further reading of the original publications.

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