



Herzen State Pedagogical University of Russia



Categorial abilities as a preconditions of schoolchildren's queries during online search for educational information*

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* The study was funded by the Russian Foundation for Basic Research (RFBR), project no. 19-29-14005.



Key concepts:

Online information search* is the search for information on the Internet in order to meet an information need, which includes physical and mental actions (such as finding, selecting and evaluating information, as well as synthesizing information from different web pages to solve an information problem) aimed at assimilating the information found into the existing knowledge system.

Categorical abilities** are mental properties related to the productivity of categorization processes and ensuring that the corresponding object is assigned to a certain category.

* T. D. Wilson, Information seeking behaviour and the digital information world, *European Science Editing*, 30 (2004) 77–81.

E. Argelagos, M. Pifarre, Improving information problem solving skills in secondary education through embedded instruction, *Computers in Human Behavior*, 28 (2012), 515–526. doi: 10.1016/j.chb.2011.10.024

Y. Kammerer, D. G. Amann, P. Gerjets, When adults without university education search the Internet for health information: The roles of Internet-specific epistemic beliefs and a source evaluation intervention, *Computers in Human Behavior*, 48 (2015) 297–309. doi:10.1016/j.chb.2015.01.045

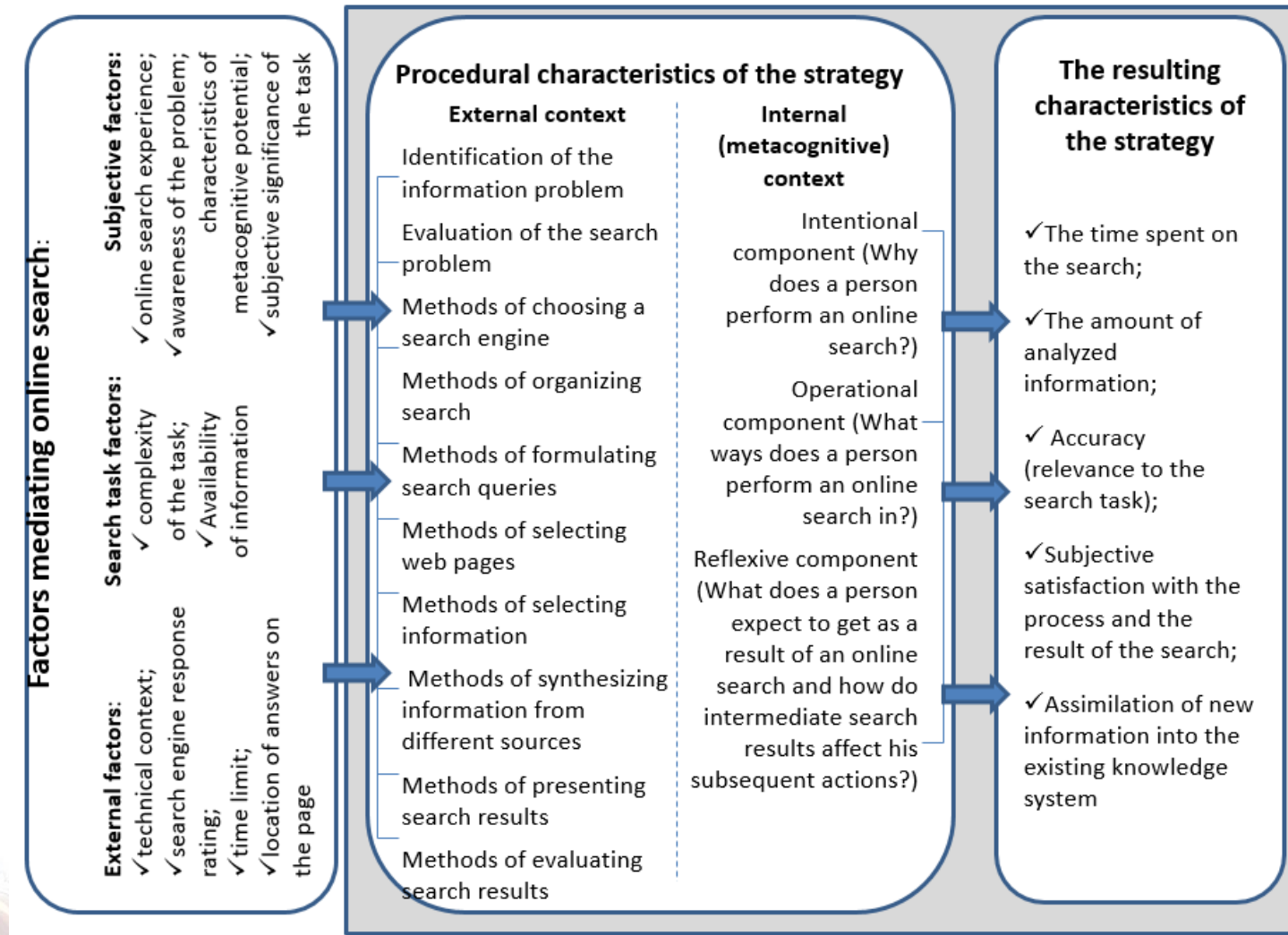
S. Monchaux, F. Amadiou, A. Chevalier, C. Marine, Query strategies during information searching: Effects of prior domain knowledge and complexity of the information problems to be solved. *Information, Processing and Management*, 51 (2015) 557–569. doi: 10.1016/j.ipm.2015.05.004

R. D. Roscoe, C. Grebitus, J. O’Brian, A. C. Johnson, I. Kula, Online information search and decision making: Effects of web search stance, *Computers in Human Behavior*, 56 (2016) 103–118. doi: 10.1016/j.chb.2015.11.028

** Kholodnaya M.A., Trifonova A.V., Volkova N.E., Sipovskaya Ya.I. Methods of diagnosing conceptual abilities. *Ekspierimental’naya psikhologiya = Experimental psychology (Russia)*, 2019, vol. 12, no. 3, pp. 105—118. doi:10.17759/exppsy.2019120308



The strategy of online search: theoretical model*:



* Bezgodova S. A., Miklyaeva A.V. Strategies of online information search as a subject of psychological research: a theoretical model // Izvestia: Herzen University Journal of Humanities & Sciences. 2020. No. 197. Pp. 96-112. DOI: 10.33910/1992-6464-2020-197-96-112

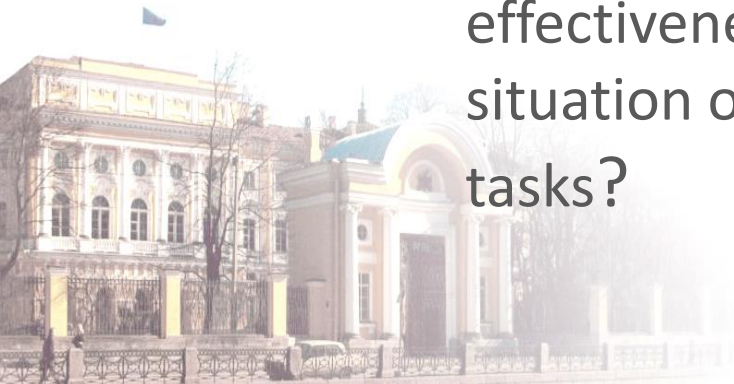
Current study:



The study was aimed at analyzing the contribution the categorical abilities to the characteristics of search query formulations used by school students for educational online search.

Research question:

What contribution do categorical abilities make to the formulation of such search queries that provide the effectiveness of educational online search in the situation of performing simple and complex search tasks?



Participants and Procedure:



Sample:

287 schoolchildren of 5th-9th grades aged 11-16 (53,2 % females).

Procedure:

- ✓ lab experiment;
- ✓ the participants performed tasks separately from each other.

Compliance with ethical standards:

The research program and protocol were approved by the Ethics Committee of the Herzen State Pedagogical University of Russia, decision No. 17 of 29.10.2020.



Method:

Simple search task: “Prepare a short message (up to 5 minutes) about the planet Mars”

Complicated search task:

“Humanity has long dreamed of living on other planets. Mars is a planet adjacent to Earth in the Solar System, so its development, along with the development of Venus, looks most likely. Prepare a short (up to 5 minutes) message about what humanity needs to do to make Mars habitable”

Stage of experiment	Indicators
Pre-experimental stage	✓ Categorical abilities ("Categorization" technique)
Experimental stage	✓ number of search queries ✓ the amount of information reproduced (30 minutes after the end of the task completing) ✓ the method of reproduction (factual/synthetic)



Results:

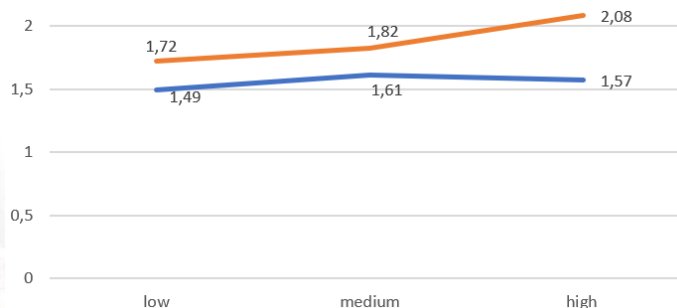
- ✓ There are two strategies for the formulation of search queries: direct formulations and clarifying formulations:

Task type	Direct formulations	Clarifying formulations
Simple	72,3 %	27,7 %
Complex	24,4%	75,6 %

- ✓ Clarifying formulations are more likely to lead to assimilation of information, in comparison with direct formulations.

Formulations	Amount of information	Factual/Synthetic method
Direct	8,07	77,2 / 22,8 %
Clarifying	10,12	42,3% / 57,7 %

- ✓ The categorial abilities make a more significant contribution to the productivity of performing complex tasks, in comparison with simple ones.

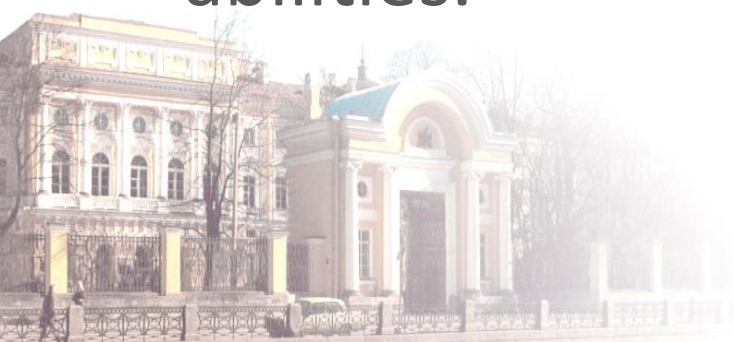


The number of search queries for performing simple and complex search tasks

— simple task — complex task

Conclusions:

- ✓ The results of the study should be used for teaching school students the skills of effective online search.
- ✓ Teaching school students the skills of effective online search could be a tool for developing their cognitive (conceptual) abilities.





Thank you!

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