



# 東京学芸大学リポジトリ

Tokyo Gakugei University Repository

## 児童における口頭数詞からアラビア数字表記への変換処理に対する数字の属性およびワーキングメモリ機能の影響

メタデータ	<p>言語: ja</p> <p>出版者: 東京学芸大学大学院連合学校教育学研究科</p> <p>公開日: 2024-05-22</p> <p>キーワード (Ja): 数の変換, 児童, 数の属性, ワーキングメモリ, ETYP: 教育関連論文</p> <p>キーワード (En): number transcoding, school children, properties of numbers, working memory</p> <p>作成者: 河野, 武志, 葉石, 光一</p> <p>メールアドレス:</p> <p>所属: 東京学芸大学, 埼玉県ふじみ野市立鶴ヶ丘小学校, 埼玉大学</p>
URL	<p><a href="https://doi.org/10.50889/0002000453">https://doi.org/10.50889/0002000453</a></p>

# Impact of the properties in numbers and working memory capacity on transcoding from verbal to Arabic numerals in school children

TAKESHI Kono\*, KOICHI Haishi\*\*

The purpose of the current research was to determine the properties of number transcoding from verbal to Arabic form in school children in relation to the number of digits, the number of procedures for transcoding, and working memory capacity. Eighty-six elementary school students in grades 2 through 4 with no known developmental problems participated in this study. In the transcoding task, participants were required to write down a total of 78 one- to four-digit numbers dictated. The results were as follows. 1) The impact of grade level on error rate in transcoding was not statistically significant. 2) No effect of transcoding regularity on error rates was found at any grade level. 3) The influence of the number of procedures for transcoding on the error rate was found in all grades, whereas that of the number of digits was not found for all grade children. 4) Error rates were significantly associated with visuo-spatial working memory capacity, but

not with phonological working memory capacity. These results suggest that the ability to process visuospatial information for understanding of the base-10 place-value structure of the Arabic number system is crucial for the development of number transcoding in school children.

---

## Key words

number transcoding, school children, properties of numbers, working memory

---

\*Division on Education and Development Science for Individuals with Special Needs, the United Graduate School of Education, Tokyo Gakugei University/Tsurugaoka Elementary School, Fujimino, Saitama

\*\*Faculty of Education, Saitama University