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Applying Easy-to-Understand Communication Guidelines in Practical Training Textbooks for 11th–12th-Grade Students with Intellectual Disabilities

PhD-thesis

Topic leader:

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Content

INTRODUCTION

The history of skills development schools dates back a long time; however, the scholarly background related to practical training has only recently been established. The content of the training programs was primarily shaped by framework curricula and the professional experiences of the educators themselves. These conditions led to uneven training quality and methodological differences within skills development institutions. This study aims to explore how the principles of easy-to-understand communication are implemented in the textbooks for practical training of students with moderate intellectual disabilities in the 11th and 12th grades, and how the authors of these textbooks have addressed the issue of increasing comprehensibility.

The importance of easily understandable communication in education has increased in recent decades, especially for students with intellectual disabilities (Horváth, 2017). Easy-to-understand communication is not only a linguistic issue; it requires the combined use of typographical, structural, and visual elements. The goal of this research is not merely to assess compliance but to reveal whether and how the various rules and recommendations of easy-to-understand communication appear in the examined textbooks, and in what ways they manifest.

1. BRIEF OVERVIEW OF THE RESEARCH

The title of the doctoral research is: "Applying Easy to Understand Communication Guidelines in Practical Training Textbooks for 11th–12th Grade Students with Intellectual Disabilities" The study was conducted using a multidimensional, three-level methodological approach: deductive content analysis with MAXQDA, inductive evaluation of researcher memos, and thematic analysis of semi-structured interviews with textbook authors (n = 15). The content analysis was based on three international and domestic guidelines: the IFLA 120 guidelines for easily readable texts, Inclusion Europe's "Information for All" recommendations, and "The Indicator of Easy-to-Understand Language 2.0." The textbooks were systematically examined based on deductive codes derived from these rule systems. To ensure coding reliability, I conducted intra-coder reliability testing (Km = 0.97), and for uncovering quantitative relationships, I used MAXQDA's Code Coverage and Code Matrix/Relations Browser functions.

2. OBJECTIVES AND RESEARCH QUESTIONS

The overall aim of the research is to explore the application and effectiveness of the principles of easy-to-understand communication in the examined textbooks. To this end, three main research questions were formulated:

(1) Which EUC elements appear in the textbooks, and how frequently (linguistic, typographical, multimodal dimensions)?

(2) What patterns and interactions can be observed among the EUC elements, and how might these affect the comprehensibility of the texts?

(3) What unique or innovative solutions are found in the textbooks, and how do they relate to international guidelines?

According to the hypotheses, visual elements and the use of short sentences are expected to be more prevalent in the textbooks, while consistent application of formal and linguistic elements is lacking. Additionally, interactions and contrasts between easy-to-understand communication elements may both occur, and authors might employ innovative solutions rooted in special education.

3. SAMPLE AND MATERIAL

The study covered 15 textbooks aligned with the practical training framework curricula, developed between December 2023 and summer 2024. Out of the 18 curricula, textbooks were prepared for 15, so the sample can be considered comprehensive for the available publications. Involving the authors, I identified and contacted 22 textbook authors, of whom 15 responded to my questions, representing a participation rate of 68.18%. Interviews were received for 13 textbooks.

One limitation observed during the sampling process is that there was no author participation for two textbooks during the interview phase, which reduced the availability of author experience for certain publications.

4. METHODOLOGICAL APPROACH

The research was conducted on three levels. The first level involved deductive content analysis, during which I coded the texts of the textbooks in MAXQDA using a code system developed based on the three guidelines. The codes covered various features, including indentation, multiple sentences in one line, special punctuation marks, abbreviations, shortened words, different forms of lists, explanations of complex words, and sentence length. The coding allowed for quantifying the occurrence of codes and visualizing their distribution across the documents.

The second level consisted of a systematic evaluation of researcher memos. In these memos, I recorded observed unique solutions and practical problems encountered in the textbooks, which often could not be directly incorporated into the deductive code system but provided valuable insights for a nuanced understanding of ease of comprehension (for example, issues with letter color and contrast, content alignment of visual and textual elements).

The third level was a thematic analysis of interviews conducted with the textbook authors. The interviews provided information about the authors' methodological decisions, the textbook writing process, testing, and development limitations. The combination of a structured online questionnaire and in-depth, unstructured interviews enabled a multidirectional exploration of the authors' perspectives.

5. RESULTS

5.1. Results of Content Analysis

A total of 12,487 codes were recorded across the entire corpus of 15 textbooks. Based on the distribution of codes, clear patterns emerged: sentence structure problems were the most prominent. The combination of the "Long sentences" and "Multiple sentences in one line" codes accounted for over 60% of all codes, indicating that textbook texts often contain structural difficulties that may reduce comprehensibility for students with moderate intellectual disabilities.

Additionally, a high frequency of the "Explanation of complex words" code was observed (1,345 codes), which indicates that authors aimed to explain technical terms, though these explanations often appeared within long, complex sentence structures.

Analysis of lists revealed that comma-separated lists (63%) were more common than bullet-point lists (37%), even though the principles of easily understandable communication guidelines favor clear and segmented lists with bullet points. Among typographical issues, the low but present incidence of indentation (31 codes across 3 textbooks) also influences readability.

According to the results from MAXQDA's Code Coverage function, 44.6% of all textual content in the textbooks was covered by the codes developed, with the "Long sentences" code accounting for 24.4%. Based on this, approximately 75.6% of the corpus meets the simplification criteria related to this feature, while the code "Multiple sentences in one line" accounted for 13.5% of the characters.

5.2. Connections and Interactions Between Codes

The analysis of code relationships (Code Relations/Co-occurrence) revealed that the "Long sentences" code shows strong associations with almost all other important codes, especially with "Multiple sentences in one line," "Comma-separated lists," and "Explanation of complex words." This pattern suggests that authors often try to condense a lot of information into a single conceptual unit, leading to longer, more complex structures that make comprehension more difficult.

A particularly noteworthy strong relationship exists between "Explanation of complex words" and "Long sentences," which is somewhat concerning, as straightforward explanations of concepts would generally serve to improve understandability. However, the context of these explanations can sometimes be overly extensive.

Interactions between codes also appeared: the combined use of simple sentence structures and relevant visual elements—where present—can enhance accessibility. Nevertheless, there were also combinations that could neutralize or reduce clarity, such as complex explanations written in lengthy sentences even alongside well-chosen images.

5.3. Results of Interviews and Memos

The analysis of interviews and memos with textbook authors complemented and contextualized the quantitative findings of the content analysis. The interviews highlighted practical conditions that influenced the textbook writing process: short deadlines, urgency due to the periodicity of state funding, resource shortages for authentic visual content creation, and the heterogeneous professional backgrounds of authors (differing levels of involvement of special educators and practitioners).

Authors often had to balance between professional accuracy and linguistic simplicity, and the coordination of special education and professional competencies often involved compromises (Lindholm and Vanhatalo, eds., 2021).

The memos provided more detailed insights into the textbook features for each subject area: for example, the lack of explanations for specialized terms in the clay modeling textbook ("moulding tray," "contour color"), issues with inadequate contrast and questionable use of footnotes in the household management book, the presence of italicized sections and complex tasks in the kitchen assistant textbook, and font and style variations in the paper product creation textbook that could pose interpretive difficulties.

These observations reinforced that the implementation of easy-to-understand communication is not reducible to a single dimension but requires a complex combination of typographical, multimodal, and content-related decisions.

6. GENERAL FINDINGS

The main findings of the research include the observation that, although textbook authors consciously aimed to enhance clarity, the implementation was often partial or inconsistent. While their efforts reflected a prioritization of visual support and the use of simpler language, in practice, demands for professional accuracy and short deadlines frequently led to compromises that hindered the full realization of easy-to-understand communication principles. The results clearly reveal a duality characteristic of skills development school textbooks: on the one hand, the authors' intentions and pedagogical goals align with the principles of easy-to-understand communication, but on the other hand, editorial, typographical, and structural shortcomings during implementation may hinder the accessibility of the content. The coding results—particularly the dominance of codes such as "Long sentences" and "Multiple sentences

in one line"—suggest that the prevalent strategy in text editing was linear information compression, which paradoxically may impair understanding for the target group. This finding aligns with the consideration that balancing professional accuracy (e.g., using technical terms) with language simplicity is a challenging task.

Analysis of the interactions between codes also indicated that visual elements alone do not guarantee comprehensibility; they are effective only if supported by the text's structure and language. In many cases, explanations of complex concepts accompanying images would have enhanced understanding, but long, complex sentences and inconsistent list structures could diminish the benefits of multimodal support. This supports the hypotheses that the interactions of easy-to-understand communication elements are crucial for accessibility (H2).

The analysis of interviews and memos with authors provided important explanatory factors: short deadlines, use of stock photos as sources, and the heterogeneity of author teams all contributed to the variable quality of textbooks and the inconsistent application of easy-to-understand communication rules. Although most authors aimed to base their work on pedagogical practice and consider students' needs, time and resource constraints often prevented thorough testing and refinement.

7. PRACTICAL IMPLICATIONS AND RECOMMENDATIONS

The practical conclusions of this research primarily address those involved in textbook development, curriculum design, and education policy. First, it is advisable to secure longer planning and testing periods for textbook writing so that authors can implement principles related to comprehensibility without sacrificing professional accuracy. The inflexibility of funding mechanisms has posed a significant obstacle during this study; therefore, review of resource allocation and scheduling is essential.

Second, interdisciplinary supplementation of textbook development teams—including special educators, practitioners, graphic designers, linguists, and communication experts—could improve both visual and linguistic solutions. The responses from authors indicated a lack of graphic capacity or resources needed for producing local, authentic illustrations. Developing and applying a unified pictogram system across textbooks could also reduce difficulties for students in navigating the material.

Third, systematic application of testing protocols is necessary: testing parts of textbooks with the target group, incorporating feedback gained from collaboration with educators, and consistently documenting user tests are crucial steps for quality assurance. The research highlighted that some textbooks underwent partial or inadequate testing, which limits the assessment of their actual effectiveness.

Fourth, it would be beneficial to develop standardized guidelines and checklists related to easy-to-understand communication, including not only linguistic but also typographical and multimodal criteria (e.g., font type and size, contrast ratios, list formats, placement of image descriptions). The coding system used in this research can serve as a solid foundation for developing such checklists.

Finally, digital adaptations and the development of adaptive learning materials offer opportunities for content to dynamically suit individual student abilities. When implementing future digital solutions, attention should be paid to contrast and sizing of visual elements, as well as the simplicity of user interfaces, to ensure that easy-to-understand communication principles are also applied in digital environments.

8. RESEARCH LIMITATIONS

The study incorporated several strong methodological elements (three-level triangulation, high intra-coder consistency), but several limitations also affect the generalizability of the results. First, the research was conducted by a single researcher, so inter-coder reliability was not established; to compensate, intra-coder consistency was used at different times, and the Km = 0.97 indicates good reliability, but the absence of inter-coder checks remains a methodological limitation.

Second, although the examination of 15 textbooks provided a comprehensive overview of the available publications, data for two textbooks were not supplemented with author interviews, reducing the completeness of the authors' perspectives across the entire sample. Third, some functions of MAXQDA (such as automatic sentiment or emotion analysis) are not suitable for Hungarian-language texts, so certain additional analytical options could not be exploited. Fourth, the research relied solely on the content of textbooks and the authors' reports; empirical measures of student outcomes, longitudinal studies, and eye-tracking research were absent, which could offer more objective evidence regarding the impact of easy-to-understand communication on student understanding.

9. CONCLUSIONS

The research highlighted that, in the practical textbooks of skills development schools, the principles of easy-to-understand communication are partially realized: visual support and efforts to use simpler language are characteristic, but sentence structure problems, inconsistency in lists, and lengthy explanations of complex concepts can pose significant barriers to achieving full comprehensibility.

The analysis of interactions among easy-to-understand communication elements revealed that the effectiveness of multimodal tools largely depends on the suitability of text structure and typography, as well as the provision of pedagogical context (e.g., teacher support).

The study contributes to the scholarly literature and practice by systematizing and quantifying the occurrence of different dimensions of easy-to-understand communication in textbooks for skills development schools, as well as revealing practical limitations and directions for development. The findings have direct implications for the textbook development process, educational policy, and author practices: to improve quality, it is necessary to extend planning time, strengthen interdisciplinary teamwork, implement systematic testing with target groups, and develop a unified pictogram and typographical framework.

10. RECOMMENDATIONS FOR FUTURE RESEARCH

The current study has outlined several directions worth pursuing further. Recommended additional objectives include longitudinal studies on the impact of easy-to-understand communication on student performance and independence, comparative analyses of textbooks with other educational materials and international models, and empirical testing of visual elements (e.g., eye-tracking studies). Investigating the effectiveness of digital adaptations is a particularly promising avenue, as adaptive systems could potentially tailor content and align it with different cognitive profiles.

11. FINAL REMARKS

The development of textbooks for skills development schools is an essential step towards inclusive and equal opportunity education. The consistent application of the principles of easy-to-understand communication can facilitate the creation of accessible, usable, and supportive educational materials for students with moderate intellectual disabilities. This current study identified the strengths and shortcomings of practical implementation and offered practical recommendations to enhance comprehensibility. The results encourage a future-oriented approach to textbook development—more conscious, collaborative, and targeted—so that textbooks can become more effective tools in the learning processes of students in skills development schools.

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