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DEVELOPING READING COMPREHENSION AT FUTURE NURSES

РАЗВИТИЕ ЧИТАТЕЛЬСКОЙ ГРАМОТНОСТИ У БУДУЩИХ МЕДСЕСТЕР

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Abstract

This study examined the effects of rhythm-based reading intervention for future nurses who demonstrated difficulties in the recognition of medical lexis. The intervention focused on fostering word reading via rhythm pace. The materials consisted of the 50 most well-known poems typically about anatomy of human body. The aims were to practice phonological recoding, consolidate anatomic representations of human body, and routinize reading process by rhythm paces. Compared to medical students (Pediatrics faculty) in randomly assigned to a control group, poor readers (students of Nursery faculty) in the treatment condition showed significant improvements in standardized measures of self-reading recoding, direct word recognition, and text-based reading comprehension after the one term's intervention. The future nurses in the treatment condition also showed greater improvements in development of word recognition compared to medical students of Pediatrics faculty with efficient word recognition skills. The results provide evidence that a rhythm-based reading intervention is an effective ways to improve low level of reading comprehension among medical workers, especially nurses.

Аннотация

В этом исследовании изучается эффективность чтения посредством ритмики для будущих медсестер, у которых были трудности с распознаванием медицинской лексики. Исследование было сфокусировано на развитии навыков чтения медицинской лексики с помощью ритмического темпа. Материалы составили 50 самых известных стихотворений по тематике анатомии человеческого тела согласно учебному курсу. Целью было отработать фонологическое сопровождения при чтении, закрепить знания об анатомии человеческого тела и упорядочить процесс чтения с помощью ритмического темпа. По сравнению со студентами-медиками (педиатрический факультет), случайно попавшими в контрольную группу, у плохо читающих (студентов факультета «Медсестринское дело») в условиях исследования наблюдались значительные улучшения в стандартизированных показателях самостоятельного чтения, прямого распознавания слов и понимания прочитанного на основе текста после эксперимента со сроком в целый семестр. Будущие медсестры во время эксперимента также показали большие улучшения в развитии распознавания слов по сравнению со студентами-медиками педиатрического факультета с учетом эффективностью распознавания клинической лексики. Результаты свидетельствуют о том, что внедрение темпа ритма в процесс чтения на примере чтения стихов является эффективным способом поднять низкий уровень понимания прочитанного среди медицинских работников, особенно медсестер.

Annotatsiya

Ushbu tadqiqotda tibbiy lug'atni o'zlashtirishda muammosi bo'lgan bo'lajak hamshiralarda ritmik o'qishning samarasini o'rganish yoritilgan. Tadqiqotda e'tibor ritmik tezlik yordamida tibbiyot leksikasini o'qish ko'nikmalarini rivojlantirishga qaratilgan. Tadqiqot materiallari sifatida o'quv rejasiga ko'ra, inson tanasi anatomiyasiga oid 50 ta eng mashhur she'rlar olingan. Tadqiqotning maqsadi o'qish paytida fonologik hamrohlikni mashq qilish, inson tanasining anatomiyasi bo'yicha bilimlarni mustahkamlash va ritmik tezlik yordamida o'qish jarayonini tashkil qilish edi. 1 semestr davom etgan tajriba shuni ko'rsatdiki, nazorat guruhiga tasodifiy tayinlangan Pediatriya yo'nalishi talabalari o'rganish sharoitida o'qishi qiyin bilan Hamshiralik yo'nalishi talabalari bilan solishtirganda, hamshiralik guruhlarida mustaqil o'qish, to'g'ridan-to'g'ri so'zni aniqlash va matnga asoslangan o'qishni tushunishning standartlashtirilgan ko'rsatkichlarida sezilarli o'zgarishlar kuzatildi. Shuningdek, tajriba davomida bo'lajak hamshiralalar klinik lug'atni o'zlashtirish samaradorligini hisobga olgan holda, pediatriya fakulteti talabalariga nisbatan yaxshi natijalarni namoyon qilishdi. Natijalar shuni ko'rsatadiki, she'r o'qish vaqtida ritm tempini kiritish tibbiyot xodimlari, ayniqsa hamshiralalar o'rtasida o'qilgan ma'lumotni yaxshiroq o'zlashtirib tushunishning samarali usuli hisoblanadi.

Key words: nurses, clinic vocabulary, reading competency, rhythm pace

Ключевые слова: медсестра, клинический словарный запас, навыки чтения, ритмика

Kalit so'zlar: hamshirala, klinik lug'at, o'qish ko'nikmalari, ritmik tezlik.

INTRODUCTION

The high medical education has become very common all around the world (Buranova D.D., 2021). The faculty of Nursing is defined as basic platform for future nurses which take place after of regular school hours, focus on academic subjects, e.g., biology, chemistry and foreign languages, and are provided with following learning competencies (Latipova, 2020). The future nurses receive medical education in order to review medical cases, do medical procedures or prepare to work in the polyclinics or hospitals. The study in the medical institute take place in form of group tutoring, in small groups or large classes and even online (Gordon, K. R, 2020). The term of three years to get a diploma of nurse is not a phenomenon among low-achieving students. High-achieving students also seek nursery education for enrichment in order to maintain or even further enhance their good academic performance (Young, B. J., 2005). ‘

The extent of Nursing training varies between countries, cultures and educational systems (Brown, S. & Grimes, D., 1993). The nursery training is very common especially in Western countries with highly competitive school systems and high-stake examinations. Although in Japan about 60% of the secondary and in Korea over 80% of the medical school students receive nursery tutoring lessons outside of school (Kim, S., & Lee, J. 2010). On the other hand, only around 10% of students receive nursery tutoring in Scandinavian countries (Soo-yong Byun, 2014), where supplementary lessons are mainly integrated in the regular education system (S.J. Lee, 2009). In Germany, the number of tutored nurses has risen steadily in the past years. With around 20% of the secondary school students receiving nursery tutoring, this amount is considered as moderate (Darko Vukovic, 2016).

Nursery tutoring lessons in Uzbekistan are either arranged privately or organized through medical institutions that provide group training or lessons in small groups. Most of the nurses receive private nursery training in abroad, followed by Uzbek and Russian (Sharipova F., 2012). There are no significant differences in the demand for nursing training among the students graduating secondary school tracks (Buranova D.D., 2021). Contrary to countries like countries of CIS, in Uzbekistan most of the tutored students are low-achieving students, who receive nursing training for remedial purposes and want to improve their performance in workplaces (Nabieva D.R., 2020). This leads to the question whether English lessons in nursing training is an effective measure to improve learning competency such as reading comprehension.

Generally, learning competency is considered a complex of skills to enhance professional performance. However, empirical studies find mixed results regarding the effectiveness of reading comprehension as one of skills of learning competency. Previous studies investigated whether students of medical high school perform better in standardized tests, e.g., university entrance examinations, or get higher grades than students of Nursing faculty. Some studies report positive effects, whereas others find no or nonsignificant effects of inclusion of reading comprehension on professional achievement (e.g., Eurostat, 2014; Eurostat, 2016; Soo-yong Byun, 2014; Steele, S. C., 2020). Most studies focus on the question whether the reading comprehension is effective in general by comparing the achievement of medical and nursery training students controlling for relevant covariates (e.g., Burkett, G., Parken-Harris, M., Kuhn, J., & Escovitz, G., 1978 , for medical high school students, Buranova, 2021, for medical university students and Sharipova F.I., 2019, concerning the effect of one term (or more) of English language training duration vs. no training on results of university entrance examinations). However, as findings on the overall effect of teaching English language are mixed, this research approach should contain more detailed analyses of which characteristics of inclusion of reading comprehension in English lessons contribute to the enhancement of professional achievement for future nurses. Therefore, in this paper, we not only analyze the overall effect of reading comprehension in teaching English classes (Pediatrics vs. nursing faculty) but further investigate the effect of the duration of inclusion of reading comprehension differentiated by half institute year intervals in Tashkent Pediatric Medical Institute.

METHODS AND MATERIAL

The study of English language in the medical schools for last decade has been emerged as a new concept in education and a new objective of teaching. Many well-known medical schools incorporated English language competences in their strategic documents and reshaped their

traditional knowledge-based curricula towards a competence-based approach with a view toward improving the quality and relevance of education in a rapidly changing world (Eurostat, 2014; Steele, S. C., 2020). Perrenoud (1997) defined competence as the capacity to act efficiently in a specific type of situation, a capacity based on knowledge, but not limited to it. Importantly, competences are learned performance dispositions (Weinert, 2001) and can be cultivated by school instruction if it provides relevant opportunities for their acquisition and application (Adey et al., 2007; Pellegrino & Hilton, 2012).

As one of the key competences, the ability to read has been identified as important for success in the learning foreign languages (Young, B. J., & Lee, S. K., 2005) and is widely embraced across in high schools (Millberg, L.G., Berg, L., Lindstrom, I., Petzall, K., Ohlen, J., 2011). This ability is referred to as learning competence, learning to read, or learning how to read (16. Vukovich, D., Radovanovic M., 2014). In spite of an intuitive understanding of the learning competence, it is not easy to determine its exact meaning.

The aim of this study is to compare gains in cognitive dimension of reading comprehension between two groups of Nursery faculty students based on ability to read English medical texts. The test enables us to measure precisely the kind of higher-order reading skills, which are supposed to be better developed by our researchers. We use data from a longitudinal study that included an assessment of Nursery faculty students alongside other components on the same representative sample of three group of students (total number is 45) in 1th course.

We use medical texts (elementary and intermediate level) to emphasize the importance of selection process of medical study literature in high medical school intake. We further expand the methodology of studies of reading comprehension by proposing a method to read by pace and rhythm (here denoted as PAR) in which we take advantage of the fact that the same students responded to the same set of items of the reading comprehension in all groups of the course of Nursery faculty. Detailed investigation of reading skills required by these items may enrich the more general level of analysis of total scores and subscores by a fine-grained comparison of factors responsible for differential competence gains.

This article used data from the department of Foreign Languages in Tashkent Pediatric Medical Institute (TashPMI). The study follows a sample of Nursery faculty students who took the test (more than 40 students from 3 groups) with their lower secondary level of English language. This sample was assigned a questionnaire and achievement tests in reading comprehension, reading medical texts. In Pediatrics I faculty, the same group of students (about 40 students from 3 groups) was tested on reading comprehension without pre-teaching of reading skills on medical lexis.

For this study, we used data from 90 students who completed tests of reading comprehension, both in Pediatrics I and Nursery faculties with and without a specific course of study on developing reading skills. This includes medical texts with a special focus on foreign language medical education (3), anatomy (6), or polyclinic (5). We further included some songs who had medical data: skeletal system (7.4%), muscle system (6.0%), medications (2.1%), patient's complaints (2.0%), doctor specialties (2.0%), number of poems (1.2%), academic medical articles (0.3%), and academic self-efficacy (0.1%).

To analyze track effect on gains in items, we propose two methods. The first method consists of performing analysis on students' items controlling for the baseline. The same model (table 1) with the same matching criterion was used on item-level data (student responses), from both faculties. In the second approach, we distinguished between the following four possible response patterns – (a) student responded correctly in neither Nursery nor in Pediatrics (did not improve, 00), (b) student responded correctly in Nursery but not in Pediatrics (deteriorated, 10), (c) student did not respond correctly in Nursery but responded correctly in Pediatrics (improved, 01), and (d) student responded correctly in both faculties (did not deteriorate, 11). Patterns (a) and (b) can be seen as negative, as the student did not improve or, in the latter case, even deteriorated. Patterns (c) and (d) can be seen as positive, as the student either improved or did not deteriorate.

RESULTS

The purpose of the single-case design study was to evaluate the effects of the developing reading comprehension among future nurses, with or without pace and rhythm of poems and

medical texts, on use of medical vocabulary during English reading “silence hours” supported practice for by first year students of Nursery faculty in the Tashkent Pediatric Medical Institute. Using an online calculator, data from each participant and each phase of intervention were entered. When an increasing baseline trend was present, a correction was applied to the calculation. Mean effect sizes and confidence intervals for each group and condition are provided in Table 1. High variability in baseline was observed for all participants. However, many participants had a high degree of overlap between baseline and intervention.

Table 1. Effect sizes for the single-case design study

Outcomes	Pediatric faculty	Nursery faculty	With our approach
Poems	77%	55%	79%
Medical texts	53%	41%	59%

Note: % is a percentage of efficiency on number of participants

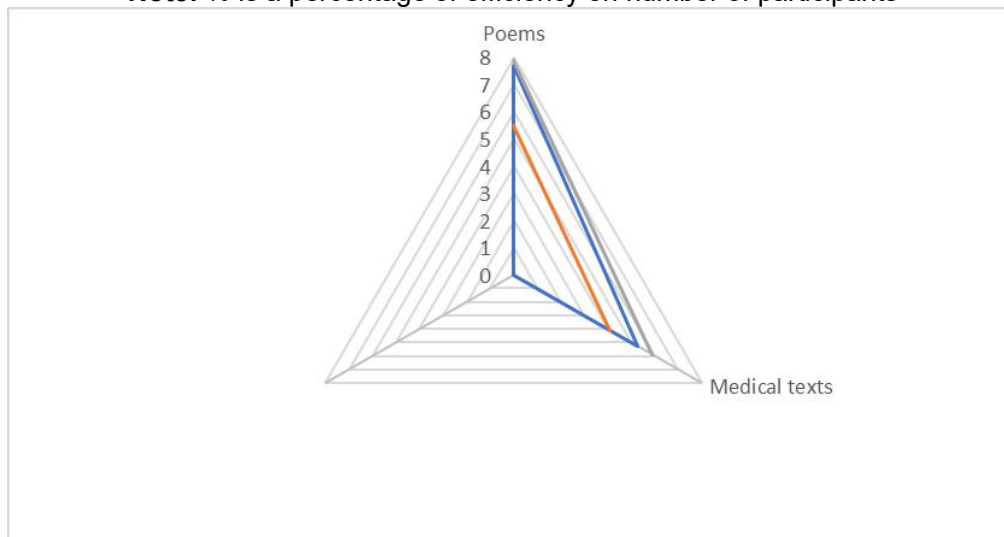


FIGURE 1 Test information functions at a given ability level θ of six equivalent test forms.

DISCUSSION

The assessment of reading comprehension in reading texts and poems with medical lexical item pool were combined into test forms (reading tests) that are equivalent in difficulty and length. As a first test specification, maximization of the test information function for a medium ability level was entered as the objective function. To minimize the administration time of each test form, a test length of 15 to 20 items was specified as constraint object. Further, constraint specifications were set to guarantee no overlapping items between participant’s outcomes; that themes’ specificity was distributed across multiple test forms. A mixed-integer programming -application was used to find an optimal solution for the given combination of constraints and the objective. Table 1 shows the remaining 79% and 59% of test scores between students and their frequency according to the form of texts distributed across experiment. . Each of these test scores consists of 17 to 18 frequency between Pediatrics and Nursery faculty students, showing improvement of last ones. Each text was covered in only one of the six test forms. Further, the diagram (fig.1) shows items of each faculty test scores covered more or less evenly the reading comprehension levels. The diagram presents an overview of the both faculties scores.

CONCLUSION

The reading comprehension in teaching English language for non-lingual students appears to be challenging for many medical students (Millberg, L.G et al, 2011). Simultaneously, the start of study English in high school in transition to secondary education appears however a critical period in the development of this skill (Latipova D.Sh., 2020). Monitoring students’ reading

comprehension in order to make effective and tailored instructional decisions is therefore required (Brown, S. et al., 1993; Burkett, G., et al., 1978). However, appropriate reading comprehension monitoring for future nurses are lacking. The present study therefore responds to the call for theoretical and empirical substantiated comprehension monitoring instruments such as pace and rhythm for future nurses. The undertaken developed process and final results of using our tool entails various strengths which can be related to the Standards for Education (Republic of Uzbekistan). First, content validity was guaranteed through a comprehensive construct analysis, alignment with the reading comprehension curriculum, structured development of medical lexical items based on a template, an expert panel review, and a pilot study. Second, internal validity of the tools was examined through experiment validation process. More specifically, both faculties test of medical texts reading and poems reading comprehension analyses were conducted. Automated test assembly was applied to compile test forms equivalent in difficulty and length of medical texts. A moderate to good internal consistency of these tests forms was found. As to the latter, it is remarkable that – to our knowledge – observations are mostly used to English language teachers' instruction and lingual students' reading comprehension. More specifically, it is recommended to compare students' scores with our suggested tools with their performance mapped via other reading comprehension tests. Further, it is recommended in future research to examine the effect of offering a time limitation, since test speediness could be a cofounding factor.

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