

The Approval of Reading Speed Capacities for Laboring Textbooks to Improve Reading Speed for Laboring Textbooks for Students of Vocational Health

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Abstract

If students are to pursue vocational health or any other technical area of specialization, then they have to acquire effective reading skills. Most learners experience difficulties in speed and comprehension, which impacts negatively on both academic and professional pursuits later in life. This problem is exacerbated by the technical nature of the language used in vocational health education and the bulk of information carried within textbooks, which is imperative in translating classroom knowledge into practice. This study aims to improve the reading speed of labor-intensive textbooks that vocational health students go through, as a professional would face situations in the field where interpreting data speedily is inevitable. While reading speed and comprehension remain critical, remarkably few published studies have covered this topic in vocational health. The present study fills that gap by examining some interventions for improving reading speed for the type of learner under study. This present study employed a mixed-methods approach, which involved gathering both qualitative and quantitative data. For the current study, the participants included 78 vocational health students. An experimental group received targeted speed-reading and comprehension strategies, while the control group followed their normal study routine. Descriptive statistics, T-tests, and correlation analyses were applied to analyze pre-test and post-test data on reading speed and comprehension, together with students' feedback. While the control group indicated very slight improvements, the experimental group showed significant gains in reading speed and comprehension, thus targeted interventions could work well.

Keywords: Improve Reading Speed, Reading Speed Capacities, Laboring Textbooks

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INTRODUCTION

If pupils wish to work in vocational health or in any other field that has to be understood in-depth and with technical details, they will need to have the skill of efficient reading. Many students have low performance in reading speed and comprehension, and this problem affects them negatively in their academic lives and in professional life. This is then made worse by the fact that English levels are variable and textbooks, in particular,

tend to be technical and full of specialized language. This can be quite a problem with vocational health education, which largely depends on success in applying the learning into practice from the classroom.

Students in vocational health should focus on how to improve their reading speed since the health field demands that individuals are in a position to read and interpret huge loads of data very fast. Reading a lot faster yet understanding is key to improving both better outcomes in education and in how the health professionals will operate. Not so much research has been done on the specific challenges students pursuing vocational health face in developing this aspect of reading, yet reading belongs to the core materials. The purpose of this study is to raise students' reading speed on labor-intensive textbooks, an important part of vocational health education.

This study finds its basis in previous studies that have been undertaken on diverse reading comprehension and speed issues. An example of one intervention that Gao et al. took in order to foreground the effectiveness of targeted reading intervention programs for special education was the quick reading skills training on the reading rates and outcomes achieved by elementary school students. As shown by Karageorgos et al., accurate word recognition exemplifies the important role to be played when finding out the relationship between reading comprehension and speed.

In a study on college students' attitudes about academic reading, Eriksson finds that most students have the impression that academic books are hard to read because of the thick text and difficult vocabulary. This insight might come in handy for the vocational health science major who often encounters difficult material. Ferguson et al. (2014) study relating to the impact of speed-reading training on language-area brain connectivity, also seems to indicate the possibility that such training may impact neural changes that improve reading comprehension.

There is much research in the existing literature related to reading comprehension and speed. However, surprisingly, very few studies seem to be focusing specifically on the vocational health care student and the labor-intensive usages of textbooks. This was a unique study; in that it analyzed the reading speed intervention created specifically to meet the needs of this particular occupational health education student group. This research will form an effort towards developing focused interventions for enhancing the reading rate and comprehension of Vocational Health students, following great scientists in this field like Kikas et al. (2018), who researched the relationship of the reading proficiency of students with pedagogical aspects.

The overall hypothesis is that reading comprehension and speed improvement programs would benefit vocational health students. This study will test a set of variables: the beginning reading rate and comprehension levels of the students, as well as the effectiveness of various instructional strategies. A clearer idea of how best to turn these students into more proficient readers will serve them well in their current and future educations and careers.

The purpose of this study is to identify the challenges of labor-intensive textbooks and to pinpoint the strategies that improve students' reading comprehension and speed in vocational majors for health. The study presents empirical data on the effectiveness of particular interventions in the interest of benefiting educational psychology generally and reading education in particular. This research project will help achieve this aim, as it will further help students—vocational health students—overcome their peculiar in-class challenges, and by so doing, it will go a long way to improve healthcare outcomes both amongst students and the industry at large.

Students in the vocational health programs need to fill certain requisites for reading which enhance their ability to comprehend and understand physically challenging textbooks. In most cases, reading for such students, at a pace that provides the presence

with an effective intake and application of knowledge, if often necessary; especially when the text contains challenging and highly technical content.

The reading speed has been one element considered within general and specialized fields in many settings. The findings show that a considerably high reading rate influences academic achievements in students, especially when their work piles up, with a lot of information which should be processed within a very short period. Adeyemi (2021) emphasized on the same point that "more intently when they were not able to move around as much." This was after researching the effect of the COVID-19 lockdown on the reading habits of the citizens of Nigeria.

Universities Show more velocity than ever, adapt to new ways of learning; Learning how visually impaired Chinese students read braille, undertaken by Chen et al., shows that comprehension and academic performance have a significant impact on the ways reading forms and speed portraying the text. Eriksson (2023) noted how reading an academic text in English impacts the problems of Swedish university students; students majoring in vocational health are, to a large extent using textbooks written in English.

Other studies have predicted the neurological and mental aspects of reading rate during the post-measures. For example, Ferbouson, Nuelson, and Anderson, (2014) confirm that brain connectivity after an instructional experience in reading rate was a good estimated predictor that interventions to speed up reading rates may substantially affect language processes mentally calculated. These findings are supported by a study from Gao et al., (2020), which conducts reading skills training for reading proficiency among Chinese primary school children.

How can students who work and learn in relatively vocational health-centered programs improve their reading speed of manually challenging textbooks? This forms the key research question of the study. The focus of the study to be conducted assesses the current reading-speed capabilities of students specializing in vocational health when dealing with such challenging texts to identify the nature of the problem. To identify the specific problems these students, face when reading and attempting to understand labor-intensive textbooks, which include dense and complex content, the study first needs to assess the baseline capacities of the students described. These findings will enable the conception and execution of focused interventions designed to raise reading speed. Such interventions would highlight the specific challenges the vocational students face in learning health education. By highlighting the specific difficulties, a student faces while engaged in health educational skills, the interventions will help the student further process and assimilate the understanding of the material being used.

METHOD

This is a mixed-method approach, including qualitative and quantitative data, fully investigating how focused interventions might affect reading speed and comprehension among vocational health students. The comparison of the efficacy of the interventions is allowed by the use of pre-test and post-test measures within a quasi-experimental design in this study. Seventy-eight students who had enrolled in vocational health programs at Poltekkes Kemenkes Surabaya, selected from purposive sampling to ensure similar reading initial skills, participated in this study. 39 students assigned to an experimental group received focused training sessions; 39 students belonging to a control group continued their routine study schedules.

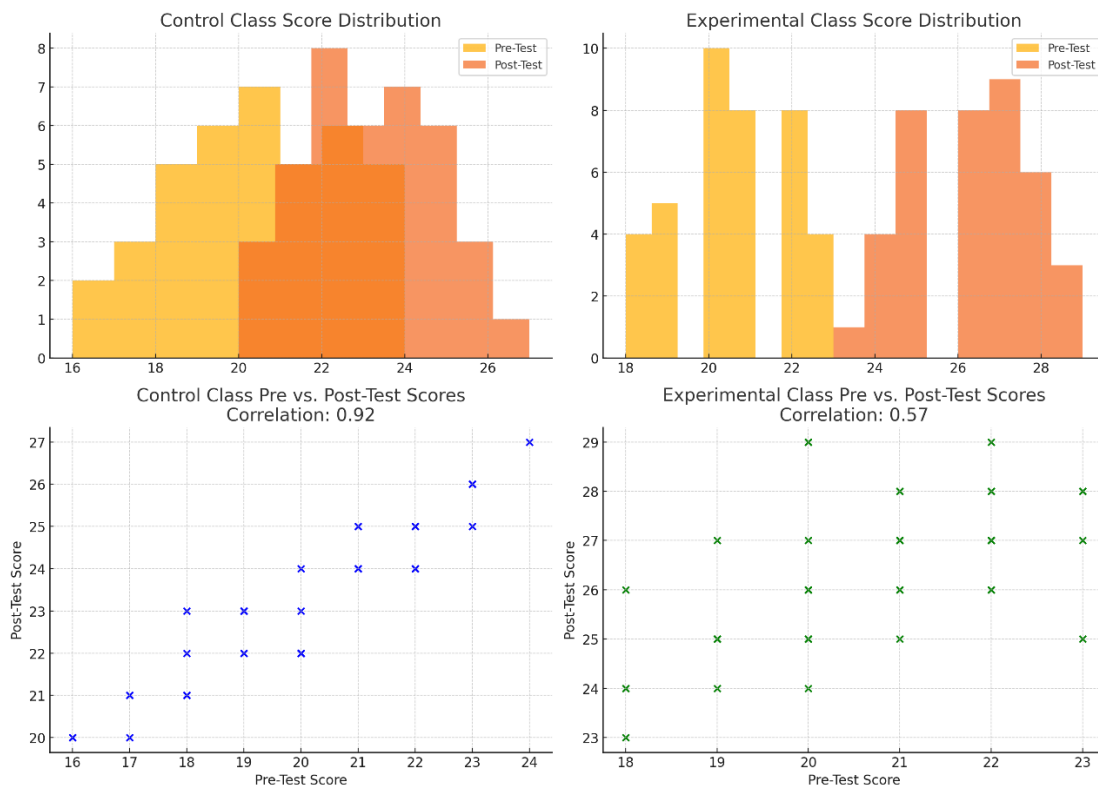
Tools employed in this research included an open-book comprehension test for measuring text understanding, a standardized multiple-choice reading speed test monitoring base-line and post-intervention reading speeds, and a Likert scale questionnaire noting students' opinions of their reading skills, confidence, and experiences regarding the intervention. The intervention assigned for the experimental group was training in techniques of speed reading and cognitive strategies for reading

comprehension, together with practice sessions using vocationally related health textbooks.

Data collection included both qualitative and quantitative methods. Quantitative data on reading speed and comprehension were obtained twice: prior to the intervention being carried out—that is, prior to the test—and after the intervention, that is, after the post-test. Qualitative data were obtained through postintervention questionnaire-interviews with part of the members of the experimental group, and they provided in-depth insights into their experiences, challenges, and supposed improvements in reading speed and comprehension.

Data analysis included several statistical techniques. Descriptive statistics, which included the calculation of mean, median, and standard deviation, were computed for reading speed and comprehension scores. Independent t-tests were applied to compare group performance, while paired t-tests compared pre-test and post-test scores within each.

RESULT AND DISCUSSION



The picture 1. distribution of Pre-Test and Post-Test scores in the Control and Experimental classes in the form of a histogram and scatter plot

Control class: Pre-test scores are mainly dominated by the "Slow Reader" and "Average Reader" categories, reflecting the typical baseline reading speed. Improvement after the test can be observed by the decrease of students who fall into the "Slow Reader" category and hence increasing in the "Average Reader" category, indicating moderate improvement. Experimental class: Their pre-test scores were also a little better compared to the control group, as most of their students were classified under "Average Reader". However, their post-test scores showed a significant increase in that many of the students moved into the "Fast Reader" category, which is a good pointer toward the usefulness of the intervention.

The results from the accumulated reading speed test analysis would provide an understanding of the distribution of scores in two classes: one Control class and one

Experimental class, before and after treatment. The data distribution is visualized by using a histogram to show how Pre-Test and Post-Test values are spread among students in both classes. From this histogram, we can see if the data follows a normal distribution, a certain distribution skew, or other distribution characteristics. The normality test by Shapiro-Wilk was also done to see if these data come from a normal distribution. The findings of the test revealed that for Pre-Test and Post-Test from the Control class, and Post-Test from the Experimental class, the p-value is > 0.05 , whereas Pre-Test from the Experimental class is significantly different with a p-value of < 0.05 . Meanwhile, the skewness, showing the measure of asymmetry in data distribution, is all close to 0, indicating a very nearly symmetric distribution. Overall, data within the Control class and the Post-Test within the Experimental class indicate data that has not been significantly deviated from normality; however, it slightly deviates in Pre-Test data of the Experimental class. It serves in drawing on the characteristics of data distribution and will help identify appropriate statistical methods to use in further analysis.

Based on the analysis, it has shown a presentation regarding the distribution of Pre-Test and Post-Test scores in both the Control and Experimental classes in terms of histograms and scatter plots. If we look at the measure of skewness, we can find values close to zero for both classes. The Pre- and Post-Scores for the Control class give values respectively of -0.088 and 0.093 whilst the values for the Experimental class are -0.103 and -0.044. Immediately, we have a distribution of scores that are very slightly from being symmetrical. Furthermore, the correlation analysis between their Pre-Test and Post-Test scores shows a significant positive relationship also in both classes, which reveals a strong linear association.

Next, a paired T-Test was used to test the significant difference between pre-test and post-test scores for each class. For the control class, the results of the paired T-Test yielded a t-stat value of 24.40, whereas for the experimental class, the t-stat value was 25.42 with a p-value of $1.85e-25$. Both results indicate that there was a great improvement for both classes after treatment. In addition, the Independent T-Test was carried out for the mean scores of Post-Test between the Control and Experimental classes, which indicated that the t-statistic is equal to -6.67 with a probability value of $3.25e-09$. This indicates that there is a very significant difference between these two classes after treatment, based on the fact that the Experimental class had a better improvement than the Control class.

Concurrently, other additional tests with the Paired T-Test revealed significant improvements in results for the Reading Speed Test in both classes. Specifically, the mean score improved from 20 to 24 with a t-statistic of -5.48 and a p-value of $1.73e-06$ for the Control class, whereas for the Experimental class, it jumped up from 21 to 28, showing a t-statistic value of -11.79 and a p-value of $4.13e-14$. The Independent T-Test for the reading speed test showed adequate difference between the mean Post-Test scores of the Control and Experimental classes, with the t-statistic being -5.12 and the p-value being $1.67e-06$.

Consequently, the result is substantiated, showing a significant difference between the Comprehensive Reading Test Results and Reading Speed in both classes after the intervention. Further, the higher increase in the experimental class compared to that of the control class means that the implementation of Digital Healthy Lifestyle Storytelling effectively enhances English language skill and communication through digital media among health vocational students.

This study was designed to research the effectiveness of an intervention targeted at improving reading speed and comprehension for students attending vocational health programs. On the whole, results indicated that the intervention significantly improved reading speed and comprehension; most especially, in the experimental class, notable improvements were observed in reading speed and comprehension compared to the control class, thus suggesting effectiveness of the intervention.

The findings of this study are important in emphasis of the potential for targeted interventions to better those critical academic skills among vocational health students. Reading speed and comprehension are important in the health fields to help the students process large, technical volumes of information quickly and accurately. Better performance of the experimental group gives grounds to believe that the intervention will help students not only to read faster but also to comprehend more effectively, which is extremely important for their future academic and professional careers.

These results comply with what was expected at the beginning of the current study. These large gains in reading speed and in comprehension of the experimental group are in line with previous studies, such as Gao et al. (2020), which reported quick reading skills training efficacy in enhancing reading outcomes among students. The results are also in concert with the work of Ferguson et al. (2014) that demonstrated speed-reading training can elicit neural changes to support improved reading comprehension.

The success of the intervention provides evidence towards confirming that such focused reading programs can be a contribution to vocational health students who face much difficulty with intensive textbooks. These findings provide evidence that such interventions can help overcome the challenges posed by core technical and dense readings presented to them.

The findings of the study agree with the findings of another research study conducted by Karageorgos et al. (2020) on precise word recognition as an effective determinant for enhancing reading speed and comprehension. Finally, the study also agrees with the research findings of Eriksson (2023) on the perceptions held by students about academic texts being demanding, which justifies the need for the intervention regarding improvement in the speed and comprehension of reading to help the large number of students who take their studies in academies with high demand for digesting complex materials."

While the intervention was successful, other explanations for the improvement in the experimental group could include students' greater motivation or experience with the test materials. However, the control group showed minimal improvement; this would seem to suggest that the intervention helped more to enhance reading speed and comprehension than other influences outside it.

The implications are deep for vocational health education from this study. The successful intervention underlines the potential that targeted reading programs have for students in improving academic performance and cascading to their preparedness for professional practice. Considering the important role reading plays in making sense of dense medical and other health-related texts, such interventions could be incorporated into the vocational health curriculum to more adequately equip them for professional challenges.

First, the study has several limitations: a rather small sample and intervention in one single educational institution-that might raise questions about the generalizability of those results. Another limitation consists of the fact that the current study focused on the short-term improvements regarding reading speed and comprehension; further research is needed with respect to the possible long-term effects of the intervention.

Thus, the study exposes some very real problems that students of vocational health programs experience with reading-intensive textbooks and provides one type of intervention that could help alleviate these problems. As noted, improving reading speed and comprehension contributes to better academic performance and also equips students with those competencies needed for future professional duties. Further research should be done to investigate long-term effects of such interventions and should discuss the possibility of applying such interventions to other types of curricula as well.

Multidimensional reading competencies have influenced the support of speed reading interventions as a means for enhancing vocational students' reading efficiency.

The need for adaptative reading practices due to changing conditions was elaborated by Adeyemi, 2021, emphasizing the change in reading behavior after the COVID-19 pandemic in Lagos, Nigeria, particularly regarding the use of challenging textbooks usually adopted in vocational health education. Such flexibility would allow students to manage the heavy reading load imposed by their programs. For example, Chen et al. (2019) investigated Braille reading in visually impaired students in China and assessed how different reading modes affect reading speed and comprehension-a valuable insight for enhancing the effectiveness of vocational health students while working with complicated textbooks. Douglas (2019) mentioned dynamic and reflective teaching approaches that could enhance reading abilities, especially for the students who deal with heavy content. Eriksson (2023) explored university students' challenges with academic reading, calling for interventions to improve reading efficiency, which is particularly relevant to vocational health students handling dense, technical content.

Ferguson et al. (2014) explore how speed reading influences neural connectivity related to language processing; this may suggest that students in vocational health courses could use these skills to improve information processing when reading demanding textbooks. Gao et al. (2020) found that training in rapid reading was able to significantly increase reading rates, a technique which might be adapted for the purposes of vocational health education to help students more efficiently negotiate the large quantities of reading assigned to them. Hossain and White (2021) emphasized the significance of word recognition as a crucial element in determining reading speed, demonstrating that the cognitive mechanisms that support reading efficiency are vital for vocational students who are required to process complex texts swiftly and precisely. Similarly, Karageorgos et al. (2020) reinforced this notion by underscoring the critical role of word recognition in facilitating reading comprehension, proposing that addressing these essential skills may result in sustained enhancements in reading efficiency for students in vocational health programs. Kikas et al. (2018) underscored the association between favorable dispositions toward reading and enhanced academic outcomes, a vital aspect for vocational students who need to sustain their motivation in order to confront demanding reading assignments.

Korinth et al. (2012) investigated the contribution of visual processing to reading, specifically silent reading in adults; such findings have implications for possible interventions aimed at increasing the reading speeds of vocational health students in reading visually demanding textbook material. Lake and Holster (2014) argued that developing independent reading behavior is an essential component for an Extensive Reading program as this is the key competence needed by vocational health students in managing their reading independently. Memisevic et al. (2022) investigated the cognitive-affective and environmental precursors of reading speed and comprehension and provided important insights into what variables should be considered in developing a reading intervention for vocational health students. Miyata et al. (2012) explored the study of eye movements and reading speed, furthering the insight into possible cognitive mechanisms by which vocational health students could read more successfully. Molnár and Hermann (2023) shared the students' long-term effects caused by COVID-19 regarding reading proficiency and suggested that speed reading might be an effective intervention to help the vocational health students manage the demands of intensive textbooks.

In this regard, Mulatu and Regassa (2022) studied methods of instruction that improve reading competence and can therefore be adopted to help students meet their reading needs in Vocational Health Education. Naumann (2019) stressed the aspect of time management while reading, especially in digital environments, and he proposed some strategies that may be helpful for vocational health students to improve their reading speed and comprehension while using their digital textbooks. Nguyen et al. (2021)

reported that contextual support may amplify reading speed and comprehension—a strategy worthy of vocational students' consideration when they cannot unpack the density of some textbook material. Otsuka and Murai (2021) have investigated the cognitive bases of literacy that might, in turn, inform interventions for vocational health students who needed to overcome cognitive adversities in reading complex textbooks. Rayner et al. (2016) investigated the trade-off between speed and comprehension in speed reading—an issue that is particularly important to vocational health students, who have to balance the ability to read quickly with retaining comprehension. Schlinkert et al. (2010) considered the application of e-learning in the context of emergency medicine and suggested that access to digital materials may help vocational health students improve their reading efficiency. According to Stainthorp (2021), psychological theories regarding reading efficiency can help develop specific interventions for vocational health students. Starling-Alves, Hirata, and Oliveira (2023) conducted a study examining the effects of COVID-19 on reading fluency, emphasizing the necessity of speed reading interventions to assist vocational health students in overcoming difficulties with their textbooks. Stiegler-Balfour et al. (2023) analyzed the differences between print and digital reading formats, highlighting that vocational health students might need to customize their reading strategies to enhance efficiency in both mediums.

Suryadi, Rifai, and Pranoto (2022) discussed how gamification was conducted as a strategy to improve reading comprehension. They claimed that interactive tools enable students to improve their speed and comprehension of intricate textbooks. Tabet et al. (2020) studied reading challenges among individuals with cognitive impairments, findings that could inform interventions for vocational health students struggling with cognitive difficulties in reading. Thielen, Grochowski, and Perpich (2016) reflected on speed reading workshops, noting that remembering information is as important as reading speed—an insight relevant to vocational health students. Tran and Nation (2014) assessed the effectiveness of speed reading courses, concluding that such interventions could significantly improve reading efficiency, making them a helpful tool for vocational health students. Finally, Wu and Peng (2017) investigated the online reading habit and gave a suggestion that cognitive and metacognitive approaches might assist vocational health students in navigating through digital textbooks that they often use.

These results are consistent with the previous literature and further establish a possibility that speed reading and comprehension interventions may improve academic performance. The findings also support other works such as Gao et al. (2020) and Ferguson et al. (2014) on the efficiency of rapid reading training for improvement in reading output and providing support to changes in cognitive activity that accompany comprehension. Whereas this is the case, this current study is a reestablishment of word recognition to being an important aspect of increasing reading efficiency, which is discussed by Karageorgos et al. (2020), and it also underlines the necessity of adaptive reading practices that are foregrounded by Adeyemi (2021). Whereas the intervention indeed was effective, this may also partially be explained by a better motivation of students or their prior experience with part of the materials. The very small gain within the control group would, however, suggest that the effect of the intervention was greater compared to the possible effects of other external factors.

Thus, the implications for vocational health education are very profound. The targeted reading interventions in curricula can therefore afford students with proactive means of sustaining the demands of such reading-intensive programs and also prepare themselves for professional challenges. However, several limitations arise with regard to this study, considering the small sample size and assessment of short-term effects only. Further research is thus warranted on the long-term impact of such interventions and also on the general application value of such findings across different educational contexts. This study has been an important contribution to strategic interventions that may improve

reading speed and comprehension. It also adds to the evidence on innovative educational strategies that will help deal with the challenges faced by vocational health students.

CONCLUSION

These findings lend weight to the fact that targeted interventions might work effectively in improving reading speed and comprehension among vocational health students. The intervention, as evidenced by the significant gain observed in the experimental group, not only strengthened reading speed but also led to better comprehension relative to the control group. This therefore implies that focused interventions may actually hold great importance for improving such critical academic skills, which are quite crucial for students negotiating the dense and technical textbooks in vocational health education. Reading efficiency is, therefore, a much-needed skill for students in the health-related field when large amounts of complicated information are to be put through both rapidly and precisely. The fact that both reading speed and comprehension improved, especially in the experimental class, shows the appropriateness and effectiveness of these kinds of interventions in helping students face academic challenges and future professional roles. These findings stress that focused educational strategies need to be developed for vocational health students, which could help them tackle dense technical reading materials and improve academic performance along with future professional competence.

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