



The Effectiveness of Achieve 3000 Integrated Model on Improving English Reading Performance

Guodong Sun(✉)

College of Translation Studies, Xi'an Fanyi University, Xi'an, China
Sunguodong2021@gmail.com

Abstract. Until now, scholars have attempted to investigate the solutions to reading problems from linguistic, psychological and cognitive aspects. However, reading is a recursive complicated process in which integrating and innovating solutions from various aspects is indispensable in achieving English reading success. When learning the reading course in English major, students will encounter more pressure. The research intends to apply Achieve 3000 Platform to construct an Achieve 3000 Integrated Model (A3IM) to tackle reading problems. The research have conducted a quasi-experimental research method to 60 students in Experiment and Control Classes to justify the effectiveness of this strategy in improving English reading performance.

Keywords: Achieve 3000 Integrated Model · English reading · Reading Model · Experiments · Independent T-test

1 Introduction

Reading, as an important means of linguistic input, not only plays a significant role in helping learners master their mother tongue, but also will serve as the most essential mode to start learners' trips in their second language acquisition. Its importance has been once more justified by the teaching curriculum of English major in various universities because according to Chinese ELT Advisory Board, all the universities should offer reading classes in three semesters as fundamental compulsive courses for English majors. Though much time has been devoted to reading instructions, English reading results are far from satisfactory. Wu attributes them to two factors: linguistic factors and non-linguistic factors (2008).

As for linguistic factors, lexical shortages are the first obstacle to hinder students from deriving the meaning of words and grammatical unfamiliarity will further worsen their ability to decipher the sense of the sentences (Lu, 2005; Wu, 2008; Zhang, 2019). When facing these problems, Gough proposes the Bottom-up Reading Model to solve them (1972). This model requires teachers to start their teaching with difficult words and sentences before they guide the students to construct the meaning of the whole text.

Nonetheless, the non-linguistic factors such as cultural knowledge, topic knowledge and textual structure (Lu, 2005; Wu, 2008; Zhang, 2019) will also prevent students

from drawing the overall meaning from the texts (Lu, 2005; Wu, 2008; Zhang, 2019). In order to tackle these problems, Goodman proposes another reading model of Top-down Reading Model (1971). This model suggests that teachers should enable readers to accumulate the background knowledge related to the reading task. The students later will synthesize various language cue systems (contextual, syntactic, and semantic) to predict the meaning.

Despite the above solutions and studies in English reading, some psychological and cognitive aspects still lack further exploration. Psychologically, English readers are still short of intrinsic and extrinsic reading motivations to push their reading forward (Wu, 2008). Besides, they have not developed a constant reading habit, which produces a virtuous cycle. In light of this, the research will introduce Achieve 3000 platform to probe the comprehensive solutions to English reading problems.

2 Literature Review

2.1 Previous Studies on English Reading

Before the 1960s, Leonard Bloomfield and Charles Fries, and Carl Lefevre proposed that students should learn reading from decoding lexical and syntactic elements under the influence of structural linguistics (Durkin, 1963). They further claimed that they could read easily if they master a certain amount of words and grammar. The reading-related studies were furthered by behavioral psychology. They advocated that reading is a meaning-acquiring process in which students should commence their learning by recognizing words, phrases, sentences and paragraphs until they obtain the meaning of texts naturally. The first scholar to put forward this approach officially was Gough and he labeled it Bottom-up Model (Gough, 1972).

The bottom-up model does help interpret the linguistic denotations of texts, but ignores analyzing the linguistic connotation under the contexts. Later in 1979, Coody began to reform the previous reading model and put forward a new reading model on the strength of psychology (1979). He further stated that the English reading process is an interactive process of their background knowledge, conceptual abilities and process strategies. This model emphasizes the active participation of readers by utilizing their existing experience and various background knowledge. The reading model process the texts from relevant knowledge to reading meaning obtained the name of Top-down Model from Goodman (1994).

Though both Bottom-up model and Top-down model have tackled certain problems of reading, it does not mean that the two models should be treated separately. In reality, these methods collaborate with each other simultaneously at various levels (Rumelhart, 1994). Besides, students' reading motivations, interests and habits are also worth noticing. In order to deal with the above reading problems completely, the research will integrate respective solutions to various problems and develop an integrated strategy to tackle English reading disability completely.

2.2 Achieve 3000 and Its Applicability in English Reading

Before the introduction of the platform, the research needs to clarify its technological basis---Lexile Index. Put forward by Jackson Stenner and Malbert Smith, this index refers

to the index which measures text difficulty and reader ability and its score ranges from 0 to 1610 (<https://www.lexile.com/>). Combining two predictors of semantic difficulty (word frequency) and syntactic complexity (sentence length) with textual readability, they put forward Lexile analyzing technology and make differentiated education possible.

Based on this differentiated learning strategy, Metametircs Education Company developed an artificial intelligence literacy platform after 15 years of research and development. This platform designs a five-step learning process of pre-reading activities, reading articles, reading comprehension detection, post-reading discussion and writing practice and covers various articles in social and natural science.

So far, it has been widely applied across different languages, grades and people with different learning abilities. The effects of Achieve 3000 platforms on English reading were justified by many scholars in the reading courses of elementary school, middle schools and even universities. Yang unfolded the research on English reading under Achieve 3000 (2021) whereas Yu and Chen applied it to Spanish reading (2020). Most importantly, some scholars focused their research on improving the English reading performance of students with disabilities (Crawford, 2020). Considering its wide applicability in English reading, this research intends to draw on the merits of Achieve 3000 platform, construct a Self-adaptive Reading model and prove its effectiveness in improving the reading capability of students.

2.3 Constructing an Achieve 3000 Integrated Model

Now that Achieve 3000 is suitable for English reading and satisfies the linguistic, cognitive and psychological demands of students, the research has integrated this platform and English reading demands to construct an Achieve 3000 Integrated Model (A3IM). As is shown in Figure-1, the platform first diagnoses the Lexile level of each reader, and then he will receive the teaching-related materials, which suit their Lexile ability. In the following phase, he will go through a five-step reading process from pre-reading thinking, reading articles with the guidance from the top and bottom levels, practicing reading exercise skills, pre-reading deep learning and final challenging reading. The final phase will require teachers, students and the platform to cooperate to achieve higher reading performance.

3 Methodology Based on A3IS

This research attempts to choose a quasi-experimental method to justify whether the application of A3IS (Achieve 3000 Integrated Strategy) to English reading helps improve the reading performance of students. The research will adopt Convenience Sampling to select two natural classes with each containing 30 students from one university in the northwestern part of China. An English reading Pre-test and Post-test will be conducted to Control Class A and Experiment Class B after the research team has developed the standard test papers and ensured their validity and reliability.

The research designed a six-step operational procedure. The first step was to organize a research team and held a discussion on selecting Control Class A and Experiment Class B. The second step was that they informed students of the English reading experiment and

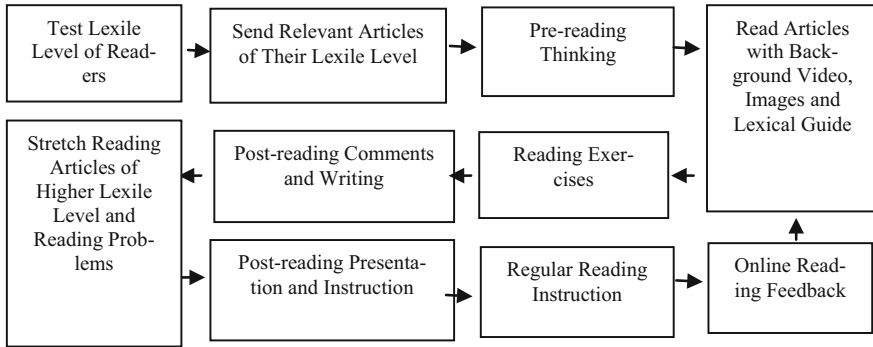


Fig. 1. Working Process of Achieve 3000 Integrated Strategies

obtained their informal consent. The third step was that all the team members conducted the first English reading paper pre-test before treatment, marked their test results and recorded them in an Excel file. Fourthly, the students of Experiment Class B received A3IM extracurricular reading guidance when they had the traditional reading courses after they tested their primary reading Lexile scores via Achieve 3000 while those in Control Class A only obtained the traditional reading instruction. Matching the reading teaching curriculum with the intervention plan, teachers invited students in Class B to follow the reading process in Fig. 1 for three months with two to four textbook-related articles a week. When the three-month intervention was completed, the fifth step occurred when the students in the two classes participated in an English reading post-test after experiment. The team members collected their test papers again, marked their cores and saved their marks in different Excel files. Lastly, the researcher adopted SPSS 22 to conduct two Independent T-tests to pre-test and post-test scores of both classes.

4 Data Comparison and Analysis Before and After A3IS

Having conducted two separate independent T-tests on the scoring data of two classes before and after adopting A3IS, the research writer finds that students in Class B obtain higher scores in English reading class and display more obvious progress than their counterparts in Class A with the assistance of Achieve3000 Platform (Table 1).

As can be seen from the above two charts, the pre-test mean difference in the test scores of the two classes is as small as 3.941. However, the mark gap has been enlarged into 8.219 in the post-experimental test. In other words, mark difference of around 5.0 has been fully displayed. Class B performs better than Class A when assisted by A3IM. More importantly, in the pre-test, there is no significant difference between Control Class A and Experiment Class B because Sig.t (0.054) is larger than α (0.5). By contrast, in the post-test, there is a significant difference between two classes since Sig.t (0.001) is smaller than α (0.5). In conclusion, A3IM truly helps students in Class B achieve higher results in English reading (Table 2).

Table 1. Independent T-test for Pre-test Scores (Obtained from SPSS 22)

		T-test for Equality of Means				
		Mean Difference	Std. Error Difference	T	Df	Sig(2-tailed)
Scores Before the Experiment	Equal Variance Assumed	3.94097	1.91844	2.054	66	0.054
	Equal Variance Not Assumed	3.94097	1.95855	2.012	54.532	0.059

Table 2. Independent T-test for Post-test Scores (Obtained from SPSS 22)

		T-test for Equality of Means				
		Mean Difference	Std. Error Difference	T	Df	Sig (2-tailed)
Scores After the Experiment	Equal Variance Assumed	8.2188	1.2740	6.451	66	0.001
	Equal Variance Not Assumed	8.2188	1.2638	6.503	65.984	0.002

5 Conclusion

Under the guidance of A3IM, different levels of students will choose suitable materials, receive their own feedback, meet their own challenges and achieve their reading success. Continuous adaptation and progression will serve as a lasting motivation and delight to push them forward and cultivate them to read habitually. It is certain that A3IM paves the way for the self-adaptive process of reading but also flip the reading classroom. However, it still need scholars to probe the various applications of this platform in English writing, speaking and listening to enrich and enlarge the domain of this study.

References

1. Coady, J. (1979) A Psycholinguistic Model of the ESL Reader. In: Ronald, M. and Bruce, B., Eds., *Reading in a Second Language*, Newbury House Publishers, Rowley, 5-12.
2. Crawford, M. C. (2020). *The Analysis of Two Comprehensive Reading Intervention Programs on Reading Outcomes for Middle School Students with Learning Disabilities* (Doctoral dissertation, University of Houston).
3. Durkin, D. (1963). Linguistics and the Teaching of Reading. *The Reading Teacher*, 16(5), 342-346.
4. Goodman, K. (1994). Reading, Writing, and Written Texts: A Transactional Sociopsycholinguistic View. In A. Flurkey, & J. Xu (Eds.), *On the Revolution of Reading: The Selected Writings of Kenneth S. Goodman* (pp. 3–45). Portsmouth, NH: Heinemann.
5. Gough, P.B. (1972). *Language by ear and eye: The Relationship between Speech and Reading*. MA: MIT Press, 335-338

6. Rumelhart, D.E. (1994). Theoretical models and processes of reading. US: International Reading Association, 864–894.
7. Yang, M.X. (2021). The Application of Lexile Graded Reading Assessment System in Spanish Reading Course. *Intelligence* (11), 116-118.
8. Yu, X. & Chen, L. (2020). The Application of Achieve 3000 in the Teaching of Reading for English Majors. *Campus English* (33), 75-76.

Open Access This chapter is licensed under the terms of the Creative Commons Attribution-NonCommercial 4.0 International License (<http://creativecommons.org/licenses/by-nc/4.0/>), which permits any noncommercial use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons license and indicate if changes were made.

The images or other third party material in this chapter are included in the chapter's Creative Commons license, unless indicated otherwise in a credit line to the material. If material is not included in the chapter's Creative Commons license and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder.

