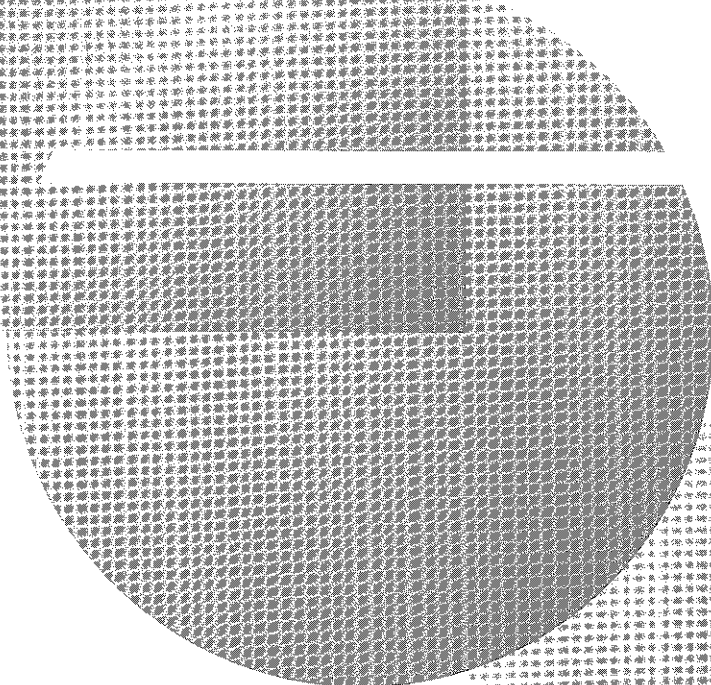


# RESEARCH SUMMARY

Number 3



The Impact of Training Type  
and Time on TOEIC Scores

R.F. Boldt and S.J. Ross

March 1998



# THE IMPACT OF TRAINING TYPE AND TIME ON TOEIC SCORES

Edited by Monica Hemingway from "Scores on the TOEIC® (Test of English for International Communication) Test as a Function of Training Type and Time" by R.F. Boldt and S.J. Ross, (1998). This study is published, in its entirety, as TOEIC Research Report #3. Please see the last page of this Research Summary for further information on the study and how to order a copy.

Copyright ©1998 by The Chauncey Group International. All rights reserved.  
THE CHAUNCEY GROUP, THE CHAUNCEY GROUP INTERNATIONAL  
and its design logo are trademarks of the Chauncey Group International Ltd.  
EDUCATIONAL TESTING SERVICE, ETS, the ETS logo, and TOEIC are  
registered trademarks of Educational Testing Service.

## PREFACE

The TOEIC (Test of English for International Communication) test was developed to measure English language skills used in international business settings around the globe. Today, it is the world's leading test of English language proficiency in a business context. More than 2,000 corporations and language schools worldwide use the TOEIC test and, in 1997 alone, over 1.5 million people took the test in more than 20 countries.

The TOEIC test measures listening and reading skills directly and in an objective, cost-effective, and efficient manner. The test also provides an indirect measure of speaking and writing. The TOEIC test allows organizations and language schools to accurately and rapidly assess the English language proficiency of employees and students.

Many organizations find that it is necessary to train both new and existing employees to bring them up to a level of English proficiency that will allow them to perform well in the global workplace. To make informed decisions about the costs and benefits of English language training, it is necessary to have a clear understanding of the impact of this training on language proficiency. This study by Drs. Boldt and Ross, with the assistance of the Institute for International Business Communication (IIBC), examines the relationship between the type and length of English language training and increases in English language proficiency (as measured by the TOEIC test).

Briefly stated, this study revealed that the course objective, study materials, and instructor preparation were major factors in determining the number of trainees who successfully completed a training course and their level of English proficiency, in terms of post-training TOEIC scores. In addition, a statistical simulation of training outcomes proved useful in helping to estimate training costs per successful trainee.

## INTRODUCTION

English language proficiency is often a concern for global organizations when making personnel decisions, such as hiring, overseas staffing, placement, and career advancement. While the English language skills of some candidates might be adequate, many candidates will need further training to reach required levels of English proficiency. Organizations are greatly concerned with the costs and benefits of providing language training for present and new employees. In order to make informed decisions about this type of training, it is necessary to know the current level of English proficiency, the desired level of proficiency, and the effectiveness of a particular language training program.

There are two important issues that must be considered by organizations when making language training decisions.

- (1) Which type of training is most effective in increasing the English language proficiency of employees?
- (2) What is the most economical way to increase the English language proficiency of employees?

The effectiveness of a language training program depends on many things. For example, the length and intensity of a training course can have a measurable impact on successful language learning. The learning materials used in the training course, the background of the instructors, the objective of the training course, and the number of students in the class also impact student progress. Beyond these commonly studied factors, there are many other variables that potentially impact student learning, such as motivation, age, and time spent in an English-speaking country, to name only a few. The question is, how large an impact does each of these have on the English proficiency demonstrated by participants in a training program?

This study addressed that question using data from 4,247 people in 23 Japanese companies and training institutions. Existing data sets containing TOEIC test data and related training data were used in this study. Analyses based on these combined data, initially gathered in many independent studies, were used to obtain results that were more powerful than those obtained through separate analyses. These analyses provided baseline data on post-training English language proficiency as a function of length, intensity, and types of training. The effects of training on TOEIC scores in Japanese organizations were the focus of this study because the number of data sets and the means to collect them were available only in Japan.

The information gathered in this study included pre- and post-training Listening Comprehension and Reading Comprehension TOEIC scores, training length and intensity, the objective of the training course, instructor qualifications, course materials, and class size.

## TRAINING OBJECTIVES

Company language training programs and language schools often have different objectives. In this study, each training course was classified according to the stated goal of the training program as specified by the program administrators.

General Education: The objective of these programs is to develop general language proficiency.

Staff Development: These programs exist to train employees so as to create a pool of employees from which the company may draw persons with English language skills in order to meet future company needs.

New Employee Evaluation: This strategy indicates a company policy of employee evaluation prior to more permanent job assignments in the home country or overseas.

## INSTRUCTOR BACKGROUND

Instructors were classified into one of four categories, based on the highest level of education an instructor had received.

Bachelor's Degree: Native English speakers with a bachelor's degree in any field. This was the most common qualification of instructors in this study.

In-house Training: Native English speakers with some minimal amount of training in strategies for using course materials or teaching methods, usually developed and provided by the training organization.

Certificate: Native English speakers with certification in practical classroom management techniques, correction or feedback methods, syllabus organizational principles, and assessment techniques.

Master's Degree: Holders of a master's degree in any field. Very few instructors had this qualification.

## TEACHING MATERIALS

The teaching materials sampled in this study were mostly communicative. Each English language training course was classified into one of the following categories based on the predominant type of materials used in the course.

General English Texts: These texts are primarily designed to be used 'off the shelf' by minimally trained native speakers. They generally feature the four skills of reading, writing, listening and speaking.

Current Events/News: These materials feature the use of current news items for reading and discussion. They may include a wide range of idiomatic and specialized English usage and are intended for use in maintaining and practicing language.

Video: Video is an increasingly popular mode of language instruction that involves the use of video-taped vignettes of "real-life" interaction. Video materials provide contextual clues about the meaning of language forms and functions.

Business Simulation: These materials often present role play scenarios in which learners attempt to use the target language in a plausible "real-world" context. Business simulations are often devised to be problem solving exercises that feature common communication problems encountered by international employees.

## CLASS SIZE

Language class size varied considerably in the programs sampled in this study. Class size has a clear potential impact on the rate of language improvement because the amount and focus of instructor input will vary directly with the number of students. Class size was broken down as follows:

Small: Less than 10 students.

Medium: 10 to 20 students.

Large: Over 20 students.

## ANALYSES

For some of the courses no record of the basic materials, instructor requirements, or course size were on record or within the memory of informants. For these courses, conditions were assigned as follows: "General English" textbook was assigned where the course material was not identified, "BA" was used when the instructor requirement was not known, and "Medium" was used when the class size was missing. The assigned conditions were the ones for which course preparation was the simplest or, in the case of class size, were most common. It was felt that conditions requiring more complex preparations would have been recorded or remembered. Based on these data, estimated post-training TOEIC scores could be predicted using pre-training scores, course length, and adjustments for the conditions under which the training courses were given.

Separate data sets were obtained for testing and evaluation by dividing the 4,247 cases into two parts, one an "estimation sample" of 1,416 cases, and the other an "evaluation sample" of the 2,831 remaining cases. Preliminary tests were done using the estimation sample and then assessed with the evaluation sample.

## PART I: EFFECTS OF ENGLISH LANGUAGE TRAINING

Training Time and Intensity. Among the findings from this study was that training "intensity," defined as hours per week, was less useful for predicting post-training TOEIC scores than was the total number of hours. This contrasts with an expectation of some language specialists that intensity would be the critical variable.

The tables below present the effects of course objective, instructor background, course materials, and class size on average TOEIC scores. The numbers shown below are gains relative to the results obtained by using the basic combination of general education as a course objective, an instructor with only a bachelor's degree, general English textbooks, and a medium class size. These gains arise from replacing one training condition in the basic combination with another (e.g., replacing general English textbooks with video while keeping all other elements constant). The gains are effect sizes, each of which represents a difference between the average post-training score expected when using the basic combination of conditions and that expected when one of the conditions is replaced. For example, if the expected TOEIC Total score after training under the basic combination is 600 points, the first table shows that new employees would have, on average, a post-training score of 703 (i.e., 600 + 103). Students trained for the purpose of staff development would have post-training scores of 630, an increase in TOEIC Total scores that is 30 points more than the gain obtained by students trained for purposes of general education.

**Course Objective.** Generally speaking, classes used to train new employees were associated with much greater improvements in English language proficiency than either staff development or general education courses. This was true for both Listening and Reading TOEIC scores. The higher TOEIC scores obtained by new employees are not surprising given that new employees (or job applicants) are typically highly motivated to perform well.

If the <b>course objective</b> were one of the following . . .	you would see this amount of change in TOEIC scores relative to what is seen when the course objective is <b>general education</b> .		
	Listening	Reading	Total
Staff development	16	12	30
New employee	59	40	103

**Instructor Background.** The students of instructors with a certificate in teaching or those who had received in-house training tended to see greater gains in Total TOEIC scores than did students of instructors with a master's or bachelor's degree. It appears that the instructors with some degree of teacher training had a greater impact on their students' rate of learning. The substantial effect of instructor training may be due to the likelihood that course materials are more systematically and appropriately used by these instructors. Course impact on language development, in other words, can be expected to be more homogeneous in instructional programs that include training modules for instructors.

If the <b>instructor background</b> were one of the following . . .	you would see this amount of change in TOEIC scores relative to what is seen when the instructor has a <b>bachelor's degree</b> .		
	Listening	Reading	Total
In-house training	32	0	35
Teaching certificate	— <sup>a</sup>	— <sup>a</sup>	37
Master's degree	— <sup>a</sup>	— <sup>a</sup>	5

<sup>a</sup> No data available.

**Teaching Materials.** Incorporating the use of video into the classroom was associated with the largest gains in Total TOEIC scores, while business simulations and the use of current events were related to somewhat more modest gains. However, all three materials proved to be more helpful than general English texts alone.

If <b>course materials</b> were one of the following . . .	you would see this amount of change in TOEIC scores relative to what is seen when the course materials are <b>general English text</b> .		
	Listening	Reading	Total
Business simulation	18	17	38
Video	32	15	53
News/Current events	— <sup>a</sup>	— <sup>a</sup>	44

<sup>a</sup> No data available.

**Class Size.** Both the large and small class sizes were less efficacious in terms of post-training TOEIC scores than was the mid-size class. The finding that the effect of small classes was less than for medium-sized classes was quite unexpected, particularly the considerably lower Reading scores observed among the students in small classes. However, it should be mentioned that only a few trainees were trained in small classes and so this sample may not be representative of small classes in general.

If <b>class size</b> were one of the following . . .	you would see this amount of change in TOEIC scores relative to what is seen with a <b>medium class size</b> .		
	Listening	Reading	Total
Small	0	-66	-15
Large	10	-24	0

Reading vs. Listening Comprehension Scores. In general, language training had a larger impact on Listening than on Reading Comprehension scores. In particular, using video in the classroom and administering a preliminary special training program to instructors made the greatest contribution to Listening efficacy. Perhaps the greater impact of video on Listening scores occurred because video-based teaching materials provide rich and authentic input into the aural channel.

## **PART II: A STATISTICAL SIMULATION OF TRAINING OUTCOMES**

In the present study, the researchers conducted a statistical simulation of English language training. This simulation explored the effect of different candidate groups, training conditions, and selection standards on predicted post-training TOEIC scores. The simulation assumed that a minimum pre-training TOEIC Total score was required for selection into the training program, and that a minimum post-training TOEIC score was required for successful completion of the training program. In order to add a degree of realism to the simulation, the minimum scores chosen were ones currently in use in the business world.

Two different simulations were developed: In one simulation the standards for admission into, and successful completion of, a training program were high and for the other simulation they were lower. The high standards required TOEIC Total scores of 650 for selection into a training program and of 750 for successful completion of training. The lower standards required TOEIC Total scores of 220 and 470.

Impact of Training Course Conditions. Using a combination of video, specifically trained instructors, and medium-sized classes resulted in the highest student pass rates, regardless of the course objectives and selection standards. The least effective combination was to use general English texts and instructors with only a bachelor's degree. In some cases, this combination resulted in one-third the pass rate of the more effective combination above.

High vs. Low Standards. One significant difference between using low and high trainee selection standards was that for high standards, using video materials in the training approximately doubled the rate of successful training completion, while a considerably smaller increase occurred when lower standards were used. When low standards were used, most of the trainees were able to successfully complete the training. Because the pass rate was so high, it was quite difficult to increase the rate even more. But when high standards were used, far fewer trainees successfully completed training. Because the pass rate was quite low, there was much more room to increase the pass rate. Under these conditions, the use of video and instructors with some degree of teacher training were shown to increase substantially the trainee pass rate.

The table below presents results of the statistical simulation examining pass rates for students trained under various conditions in medium-sized classes for general education purposes.

Comparison of pass rates for high vs. low trainee standards		
	Course Materials, Instructor Background	Pass Rate
<b>High standard</b> - Selection: 650 - Pass: 750	General English texts, bachelor's degree	24%
	Video, bachelor's degree	45%
	Video, in-house training	62%
<b>Low standard</b> - Selection: 220 - Pass: 470	General English texts, bachelor's degree	52%
	Video, bachelor's degree	66%
	Video, in-house training	77%

A statistical simulation can provide information that helps to put training costs on a dollar/qualified trainee basis. For example, if one considers introducing the use of video into a course that currently just uses general English materials, a cost analysis could establish the costs associated with using the new materials, and training costs per trainee. The simulation could then be used to estimate the percent of trainees passing the course (training yield). High training yields would keep the cost per successful candidate low. The training yield could be used to evaluate more realistically the cost per successful candidate or per fixed number of trainees successfully completing the training course. The costs and yields of several types of training might also be compared. A simulation can determine what combination of costs and treatment effects would lead to an adequate yield of personnel, using the result of the simulation as a conceptual background for designing a new type of training that might be introduced.

## **CONCLUDING COMMENTS**

This study helps to define the relative contribution of several training factors to student improvement in English language proficiency. However, given that language learning is affected by many more variables than just those examined here, the program administrator and teacher ultimately will need to examine the data and make their own judgments as to the relative efficacy of various approaches to training.

This study also points to several directions for further research. In this study, course materials were frequently confounded with teaching methods. For example, business simulations involve both materials (e.g., real-life cases studies, informational material) and teaching methods (e.g., role play). Although it is often

difficult to separate materials and methods, future researchers may be able to create different ways of categorizing these variables so that we can more adequately address the differential impact of methods and materials. In addition, other factors that we know impact learning and teaching, such as student motivation, should be included in studies to more realistically evaluate the influence of training in a classroom setting.

The current study, while faced with several unavoidable limitations, does help to shed light on an important area that holds great promise for language educators everywhere. These results should be taken as a first step towards a better and more complete understanding of the effects of language training on student progress.

### **RESEARCH REPORT #3**

Research Report #3 contains a complete description of the research methods and the statistical simulation, tables and figures, results, and a discussion of the findings and their implications. If you would like to purchase a copy of the complete Research Report #3, or any of the research publications listed below, please contact your local TOEIC representative or TOEIC Service International at the following address:

#### **TOEIC Service International, Research Publications**

The Chauncey Group International  
664 Rosedale Rd.  
Princeton, NJ 08540

E-mail: [toeic@chauncey.com](mailto:toeic@chauncey.com)

Other research titles available from The Chauncey Group International:

#### **RESEARCH REPORTS**

Research Report #1 (1989). *Enhancing the interpretation of a norm-referenced second-language test through criterion referencing: A research assessment of experience in the TOEIC testing context.* By Kenneth Wilson

Research Report #2 (1996). *Report on Business English: A review of research and published teaching materials.* By Tony Dudley-Evans & Maggie Jo St. John.

#### **RESEARCH SUMMARIES**

Research Summary (1982). *An introduction to TOEIC: The initial validity study.* By Protase Woodford.

Research Summary #1 (1993). *Relating TOEIC scores to oral proficiency interview ratings.* By Kenneth Wilson