

アメリカ人学者がみた日本の教育

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社会学的な研究を行うためには一定の手続きをとる必要がある。まず、社会現象を鋭い眼で幅広く観察し、その中から予備仮説を構築するのである。次に、この予備仮説が他の研究者によって今迄どのように処理されてきたのかをデータベース(教育学系の場合はERIC)をもとに調べなければならない。この結果を十分に考慮に入れたうえで、予備仮説を作業仮説へと磨きあげるのである。こうしてやっとこの作業仮説の検証作業へと入れることになる。そして最後にその結果を論文の形で発表するわけである。

ところで論文を書く際には、そのIntroductionの中で、自らの作業仮説に近い研究の論文にはもれなく目を通しており十分に理解していることを示さなければならない。又自らの研究のもつoriginalityにも言及しなければならない。

今回、私が最近書いた論文の中のこのIntroductionの部分を他校の先生がたに紹介することにした。というのも、私はこのIntroductionの中でアメリカ人が日本の教育のどのようなところに注目し評価しているのかを大きく5つに分けてまとめているからである。他校の先生がたもこのことに高い関心があると思われたので、拙い論文ではありながらもChart Networkにその部分載せることにした。

< INTRODUCTION >

By the end of the Second World War, the Japanese manufacturing industry had been completely destroyed. However, today Japanese products such as cars, semi-conductors, computers and video cassette recorders are being used throughout the world. Therefore, many researchers in Japan and elsewhere have been interested in finding out what factors have contrib-

uted to the Japanese success in industry. A great deal of research has been done, especially in the United States. Thus, I will begin by giving a general survey of the results of research done by these Americans.

General Survey

I would like to discuss five points mentioned by many American researchers.

(1) The Japanese Traits

The Japanese, influenced by Confucianism, place a high value on education and they are full of curiosity.¹ For example, Thomas P. Rohlen states:

What explains this level of accomplishment? In the background, most certainly are such things as the long-standing respect for education held by the Japanese and the traditional view that diligence in school is a path to greatness.²

Leonard Cantor states:

First, and in some ways most important, is what has been described as the 'Japanese obsession' with education: in Rehder's words, "It would be difficult to identify a country with a greater historical or contemporary zest for learning than Japan."³

Thus, many American researchers believe that these Japanese characteristics have played an important role in the Japanese success.

(2) Prestige of Mathematics and Science

Many Japanese believe it was because of the inferiority of the technology and the lack of natural resources that Japan was defeated by the United States during World War II. Moreover, they know well that because of the lack of natural resources, Japan has no alternative but to develop herself based on high technologies. These factors have led the Japanese to give a high level of prestige to mathematics and science. In a word, in Japan, it seems that the social environment surrounding children is full of the understanding that mathematics and science have a special importance.⁴ For example, Ralph W. Tyler states:

The performance of the Japanese students appears to reflect the greater prestige in that country of engineering, science, and other fields involving mathematics.⁵

Similarly, many American researchers have paid attention to the important position which mathematics and science have held in the Japanese society. In addition, they seem to think this undoubtedly has helped Japan to win industrial success.

(3) Mathematics and Science Education in Japan

Both the Japanese traits and the high prestige of science and mathematics in Japan have helped the Ministry of Education to carry out a more advanced science and mathematics education to a more extensive number of people. Many researchers have been particularly interested in this. For example, William K. Cummings states:

While many factors are behind the Japanese success in the high-tech product area, math and science education at the school level and science and engineering

education at the university level are certainly among the most important.⁶

Now, I would like to discuss, among other things, what the researchers have paid special attention to in Japanese math and science education.

First, the researchers have mentioned the number of Japanese who receive mathematics and science education. William K. Cummings states:

High school attendance has become virtually universal; and two out of three of the high school attendees are in the academic course where math and science is mandatory. As school standards have remained high, Japanese youth continue to do well on international achievement tests. What should be kept in mind is that the Japanese scores are averaged over a larger population of the cohort than other societies.⁷

Second, the researchers have taken notice of the high proportion of mathematics and science in the curriculum.⁸ Kay Michael Troost states:

Science and mathematics play a large role in the general curriculum as set by the Ministry of Education. Hence, in terms of volume, Japanese students take more science and mathematics than their American counterparts.⁹

Third, the researches have referred to the qualitative side as well. As Kay Michael Troost has admitted,¹⁰ the content of Japanese math and science education is more advanced.¹¹ Thomas P. Rohlen explains its high standards as follows:

The level of accomplishment expected on science and math questions is probably roughly equivalent to what is taught to second-year science and math students in the best American universities.¹²

As evidence to prove that most of the Japanese receive advanced math and science education, most researchers have made use of the results of the international tests. For example, Nobuo K. Shimahara states:

Japanese students have consistently achieved very high scores in the international tests administered by the International Association for the Evaluation of Educational Achievement (IEA). In the 1983 IEA tests, for example, Japanese 7th and 12th graders out-performed students from participating nations in all categories of arithmetic and mathematics.¹³

What I mentioned above—more advanced math and science education to more people—is regarded by many American researchers as one of the principal factors which have contributed to the Japanese success.

(4) Students' Preference for the Department of Technology

Compared with other countries, in Japan, the students who decide to enter colleges of technology have increased in number fourfold since the 1960's.¹⁴ This is drawing the researchers' attention.

In addition, the proportion of the students majoring in technology is high in Japan.¹⁵ This has also been paid attention to by the researchers. For example, a research paper states:

Distribution of enrollment by fields presents some interesting patterns. For example, although Japanese high education confers only 40 percent as many bachelor's degrees as the U.S., it produces as many engineers, because nearly 20 percent of Japanese university students specialize in engineering compared with only 7 percent in the United States.¹⁶

The researchers think that the students' preference for technology has helped sup-

ply many engineers, which has led to the Japanese industrial success.

(5) Foreign Language Education

In comparison to (1), (2), (3), and (4) mentioned above, a fewer number of papers have referred to the advantage of the foreign language education in Japan. However, it is a noteworthy feature of Japan. The papers have illustrated its effects as follows: every Japanese engineer has received foreign language education for at least six years through secondary school, so they can freely gather information from other countries reading the literature written in foreign languages.¹⁷ For example, Lawrence P. Grason says:

The Japanese requirements are similar to those in U.S. schools, with one major addition—the Japanese require 12 or so more credits, which are devoted to the study of one or two foreign languages. This training, following six years of foreign language study in secondary school, gives Japanese professionals a major linguistic advantage over their American counterparts, and allows them to read the literature of at least the English speaking countries.

Thus, some researchers think foreign language education in Japan has supported the rapid progress of Japanese industry.

As I discussed above, many American researchers think the success of Japanese industry has much to do with education, especially math and science education. In other words, they think its relation as follows:

The Japanese in general are eager to study and place a high value on math and science. These attitudes help carry out the more advanced math and science

education to more people, which in turn produces more engineers. In addition, these engineers have the advantage that they can read literature written in English. Thus, these factors have made Japan a strong industrialized country.

I think that what the researchers have shown conforms to the reality in Japan very well. However, I think that all of them have failed to recognize one of the important factors which have contributed to the Japanese success. That is, in Japan, **able** students have been more likely to decide to enter the school of engineering, as compared with other departments. Japanese companies have established a good reputation as manufacturers of television sets, cars, computers, and so on since the Second World War. I think this is partly because, in Japan, many **able** students have rushed into the fields of industry, in comparison to other fields. However, none of the researchers I have read have touched on this point. Therefore, in the main paper, using the methods of statistics, I would like to verify the hypothesis that **able** students have a preference for majoring in engineering at a university in Japan, which has also helped Japan become an industrial nation.

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