

My Way of Writing Papers

My Writing Style for the Research Paper

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Introduction

I have been involved in international cooperation for almost half a century. I am not a research professional, but as a practitioner, I have written several research papers based on my experience of international cooperation.

The theme given to address is "writing style for the research paper", but so far, I do not have my own writing style. However, when writing a paper, I have "what I have kept in mind". Hereunder, let me present what I keep in mind when writing academic papers. The points I have kept in mind can be summarized as:

1. Analyze my own experiences
2. Pursue originality
3. Make a comparison
4. Build a model
5. Establish a hypothesis

One and 2 are what I have always been aware of when writing a paper. However, with regard to 3 to 5, it may be more correct to say that, I was unconsciously trying to do so rather than being conscious of the task. Hereinafter, these five points will be described in sequence. For 3, 4 and 5, I consider my own papers as examples.

1. Analyze my own experiences

For more than half a century, I have been involved in international cooperation activities as a consultant or an expert as a member of a project team, or as a staff member of an overseas cooperation association. Most of the tasks are valuable experiences, and also research materials that in general no one else can have. For me, especially valuable experiences should be shared with others rather than kept within, and in order to share these experiences, I analyze the experiences and systematize them with the assistance from research professionals.

There are words that always come to my mind when I deal with my experience with research materials. “The ELUCIDATION of immediate experience is the sole justification of any thought; and the starting point for thought is the analytic observation of components of this experience.” This is the statement by A.N. Whitehead¹, quoted by Albert O. Hirschman in his book *The Strategy for Economic Development*². I am always encouraged by these words when writing a paper.

Immediately after graduating from the university, I became employed by a general trading company, but left the company only three years later and changed employers; a private association whose purpose is to contribute to international cooperation through overseas consulting activities. I was with that private association for 33 years, and then I changed employers again to a private consulting company where I was employed for 18 years. During that time, I was assigned the following activities in the field of international cooperation.

My main activities were: 1) a long-term expert dispatched by Japan International Cooperation Agency (JICA) to Kenya for 3 years, Indonesia for 2.5 years and Ethiopia for 1.5 years, 2) United Nations Industrial Development Organization (UNIDO) field advisor (based in Tanzania for 2.5 years, in charge of Uganda, Seychelles and Malawi), 3) Participant in various JICA survey teams (ASEAN and African countries), and 4) undertook surveys commissioned by the Ministry of Foreign Affairs, Prime Minister's Office, JETRO, JICA Research Institute, etc. The field of my work is mainly industrial promotion, especially small and medium-sized enterprises, and I was also involved in the promotion of micro-enterprises in poor areas of various countries. Among these industrial promotion projects, four projects were related to the dissemination of production management technology assisted by JICA (hereinafter referred to as the "Kaizen Project").

Production management technology (Kaizen technology) is a general term for methods and ways of thinking related to production management that contributed to the industrial development of Japan after World War II. Specifically, the main emphases are quality and productivity improvement, cost reduction, shortening the delivery time,

¹ A. N. Whitehead (1930), *Process and Reality*, New York, Macmillan

² Albert O. Hirschman (1958), *The Strategy for Economic Development*, New Haven : Yale University Press

etc.

The JICA supported Kaizen projects that I have been involved in are: 1) Tunisia (2006-2008. 2 years), 2) Argentina (2009-2010. 1 year), 3) Ethiopia (2011-2014. 3 years), and 4) Mexico (2014-2015. 1 year). The total period of participation in the Kaizen project is 10 years. The experience that my papers have been based on so far has mainly been related to the JICA supported Kaizen projects in these countries.

2. **Pursuing originality**

In organizing, theorizing and systematizing my own experience, I have put together my own ideas as much as possible. In other words, I have pursued originality. If someone else had already put together a similar idea, I do not think it would make much sense to write a paper on the same topic from the beginning, and likely no one would read it, anyway. A paper is meaningful only when someone reads it. I have always kept this in mind when writing research papers.

3. **Make a comparison**

Looking back, when I review the papers, I have written, I have not been particularly aware of comparisons, but many of these works conducted is a comparative analysis. Comparing different objects makes the characteristics, strengths and weaknesses, problems, etc. of each object clearer, and deepens the understanding of the object. The idea that further comparison would make the paper compelling may have always been at the bottom of my consciousness when writing these papers.

Recently, I came across a book that is in support of this idea, and I was even more encouraged, namely: *Upheaval: Turning Points for Nations in Crisis*³, written by Jared Diamond, a professor of geography at the University of California, Los Angeles (UCLA). This book lists seven countries and conducts a comparative analysis of 12 items on how each survived the national crisis.

He states in his book: "Comparative studies can offer perspectives and detect issues that would not emerge from studying just a single case." (P.12)" and further he writes that "Those who study just one country end up understanding no country." (P.13) "

³ Jared Diamond (2020), *Upheaval: Turning Points for Nations in Crisis*, Penguin Random House, UK

Focusing on Kaizen technology, I would like to introduce four papers that attempt a comparative analysis:

- JICA's approach and EU's approach to quality improvement,
- Japanese-style Kaizen and Western-style Kaizen,
- Results of 10 years of JICA support in Tunisia and Ethiopia, and
- Private organizations that have contributed to the spread and development of Japanese-style Kaizen.

3.1. Comparison of JICA approach and EU approach to quality improvement

I was involved in the “Quality and Productivity Improvement Master Plan Study for Tunisia” from August 2006 to July 2008. Around the same time, the EU was also implementing a quality improvement support project for the country. I described their differences in the approaches in “*The Quality and Productivity Improvement Project in Tunisia: A Comparison of Japanese and EU Approaches (2008)*”⁴, edited by National Graduate Institute for Policy Studies (GRIPS) Development Forum.

As a result of comparing Japan and the EU, the JICA approach applies Kaizen's solution method according to the problems in the “*gemba* (factory floor)” of the companies, while the EU approach applies the ISO9001 concept to companies. There were differences between the JICA and EU approach for quality improvement. It can be said that Japan is an “order-made approach” or “tailor-made approach” while the EU is a “ready-made approach”. Another difference is that Japan has a bottom-up or an all-participation approach, while the EU has a top-down approach. However, I came to the conclusion that both have advantages and disadvantages and are rather complementary than competitive to each other.

3.2. Comparison of Japanese and Western Styles Kaizen Technology

Kaizen is the Japanese name for production management technology developed by the manufacturing industry in Japan, initially. Production management technology was developed as a scientific management technology in the United States before the second world war (WWII) and was introduced into Japan, after the WWII. In the US

⁴ This paper caught the eye of Ethiopia's then-Prime Minister Meles Zenawi, who requested Japan to support Ethiopia with a similar Kaizen project to Tunisia. See JICA / GRIPS Development Forum (2011) “*Intellectual Partnership for African Development-Industrial Policy Dialogue between Japan and Ethiopia-*” (p.1.) and National Graduate Institute for Policy Studies (GRIPS) Development Forum (2016) “*Ethiopian Industrial Policy Dialogue Records: See Policy Dialogue and Policy Research Vol.I (p.25.) in Ethiopia*”.

case, methods and ways of thinking related to production management were further advanced and were then introduced into Japan. In the Japanese case, private associations and companies improved and redeveloped the US method to adapt to the Japanese industrial climate and corporate culture. Japan's original Kaizen methods were also developed, and combined with the US, those methods and ways of thinking developed into: i) Quality Control Circle (QCC), ii) Total Quality Control (TQC) /Total Quality Management (TQM), iii) Total Preventive Maintenance (TPM), and iv) Toyota Production System (TPS), etc. Kaizen activities in the Japanese industry after the WWII played a significant role in bringing about the miracle of Japan's economic recovery. In the 1980s, European countries and especially the United States, thoroughly analyzed Japanese Kaizen methods and ways of thinking, and redeveloped them in the American style, e.g., as: i) Six Sigma (SS), ii) Lean Production System (LPS), and iii) Business Process Reengineering (BPR). Among these, SS and LPS were internationally standardized as ISO18404 in December 2015⁵.

The differences between Japanese-style and Western-style Kaizens are discussed in my paper “*Kaizen and Standardization* (2018) ⁶”in “*Applying the Kaizen in Africa*”. In this paper, TQM and SS, TPS and LPS, BPR and (Japanese style) Kaizen are compared, and it also discusses the possibility of Western-style Kaizen (e.g., SS) adaptation to African small and medium-sized enterprises.

3.3. Achievements of JICA-assisted Kaizen Projects over 10 years: Comparison between Tunisia and Ethiopia

JICA has been assisting in a Tunisia quality and productivity improvement project since 2006. The total period of the project with three phases is more than 10 years. Also, JICA has been carrying out a Kaizen project in Ethiopia with three phases for 10 years from 2009. Focusing on the difference in the achievements in both countries the paper discusses the direction and challenge of development for Tunisia and Ethiopia, the future challenge for JICA assistance, and the future challenge for the JICA expert team. The title of paper is “*A Comparative Study of Kaizen Projects in Tunisia and*

⁵ The title of ISO18404 (2015) is Quantitative Methods in Process Improvement-Six Sigma- Competencies for Key Personnel and their Organization in relation to Six Sigma and Lean Implementation. Before 2015 the Six Sigma approach gained the status of an international standard in 2011 as the Quantitative Methods in Process Improvement-Six Sigma- Part 1: DMAIC Methodology (ISO 13053-1:2011) and the Quantitative Methods in Process Improvement-Six Sigma- Part 2: Tools and Techniques (ISO 13503-2:2011).

⁶ Otsuka, Keijiro, Jin Kimiaki and Sonobe, Tetsushi eds. (2018). *Applying the Kaizen in Africa*, Cham: Palgrave Macmillan.

*Ethiopia (2021)*⁷.

In this comparative study, the emphasis was on how to define the achievements and from what perspective the achievements should be organized. In the paper, the achievement is not merely the result of JICA's assistance, but the achievement that contributes to the sustainable development of the future. The achievements were divided into three categories (items) is: 1) whether they have had a vision for the spread of Kaizen and then formulate specific policies and strategies, 2) whether the organizational structure for embodying the vision, policies and strategies (including establishment of organizations for the dissemination of Kaizen and related systems) have been formulated, and 3) whether the capacity (individual, organizational and network ability) to ensure that the organizational structure function has been developed and accumulated. Tunisia and Ethiopia were an attempt compare on the basis of these three items.

The comparison items are as follows. (1) Vision / Policy / Strategy, (3) Establishment of organizational system (structure / organization / system): (i) core organization for dissemination, (ii) human resource development system, (iii) qualification certification system, (iv) system for disseminating Kaizen to companies, (v) award system, (vi) cooperation / cooperation system with private organizations, (vii) Cooperation / cooperation system with universities, (3) Capacity: (i) individual capacity, (ii) organizational capacity, (iii) network capacity. The above comparison items are extremely important for Tunisia and Ethiopia, who are trying to spread and develop KAIZEN methods and ideas in the future. In the above-mentioned research paper, the ten year's achievements of kaizen projects for Tunisia and Ethiopia were compared with each of these items. The comparison revealed the characteristics, strengths and weaknesses of each.

3.4. Role of Private Associations in Promoting Kaizen in Japan

Three private associations, the Union of Japanese Scientists and Engineers (JUSE), the Japan Productivity Center (JPC), and the Japan Management Association (JMA), have played important roles in introducing scientific management technology from technically advanced countries, and then modifying and disseminating them in Japan. If anything, JUSE focused on improving the quality, JPC focused on improving

⁷ This paper will be included in the collection of papers scheduled to be published in 2021 by the JICA Ogata Research Institute.

productivity, and JMA focused on improving "noritsu"⁸, and in particular, developed a national movement for postwar Japan's industrial development and economic recovery.

The experiences of these three associations are being utilized as reference examples in the JICA Kaizen Project, which aims to transfer and disseminate Kaizen technology to developing countries. "*The Role of Private Organizations in Introduction, Development and Dissemination of Production Management Technology in Japan 2011*" was compiled with this in mind. In the case of Japan, private associations played an important role in promoting Kaizen within Japan, but in the case of the Kaizen projects supported by JICA, public institutions play that role that role in developing countries.

4. **Build a model**

In analyzing my experiences, I always look into the possibility of building a model. If I build a model, then I try to support it with my experience and case studies, and then I can confirm the validity and effectiveness of the model. The following example is one case where I attempted to build a model with my experience.

- "A Study on Intermediary-type Technology Transfer: Building a Three-stage Model and its Application" (2014)⁹

The technology dealt with here is Kaizen technology. For ODA-based technology transfer, JICA transfers Kaizen technology to the recipient organization (counterpart organization in developing countries, hereinafter referred to as c/p organization), and the Kaizen technology acquired by the c/p organization is then transferred to private and/or public companies in the country.

Kaizen technology may be modified or improved in the recipient country by adapting to the country's industrial climate and corporate culture. Since c/p organizations play an intermediary role, ODA-based technology transfer is called "intermediary technology transfer" in my doctoral dissertation.

⁸ "Noritsu" is "efficiency, recognizing that the essence of scientific management is management that pursues the full utilization of the" ability "of people, the" performance "of equipment, and the" function "of materials. In other words, "noritsu" is scientific management." (JMA Group Collaboration Promotion Committee, "*The Origin of the JMA Group (Encyclopedia)*" p.26)

⁹ In 2014, I obtained a doctorate in "International Development" from the Graduate School of International Cooperation Studies, Takushoku University, Tokyo, with this research paper.

From the standpoint of the recipient country, the process of technology transfer can be divided into three stages: 1) selecting and learning (or acquiring) the technology that is desired to spread in the future, 2) applying the acquired technology to the trial and modifying or improving upon it, and 3) widely disseminating and establishing the modified or improved technology. In other words, the three stages of technology transfer consist of the "selection and learning (or acquisition) of technology," "application and adjustment of technology," and "dissemination and establishment of technology." In my dissertation, I decided to call this a "three-stage model of technology transfer". I examined the transfer of Kaizen technology to the four countries where JICA supported the Kaizen project, namely Tunisia, Argentina, Ethiopia and Singapore¹⁰, from the perspective of the three-stage model; the validity of the model was confirmed.

The idea for this three-stage model came to me in the late 1980s. At that time, I was dispatched to Tanzania¹¹ as a senior industrial development field advisor (SIDFA) of United Nations Industrial Organization (UNIDO, Vienna, Austria). In Arusha, a city in northern Tanzania, the Center for Agricultural Mechanization and Rural Technology (CAMARTEC, hereafter the "center") is established. CAMARTEC is an agency of the Government of Tanzania, whose purpose is to promote agricultural mechanization in Tanzania, and as a concrete activity, develop appropriate agricultural machinery and equipment for Tanzania, and ensure through the local branch that the center distributes appropriate agricultural machinery and equipment to farmers.

When I visited the center, I paid attention to their activities in detail. The center imports farm tools from the Scandinavian countries as samples, improves them to suit the local soil, makes prototypes, test them, and transfers the technology to the local branch of the center if it deems appropriate. At the center's regional branch (established by state), the improved and developed agricultural machinery and equipment is retested locally, and if it matches the local needs, the center undertakes to produce and sell the equipment on its own terms, or the technology is transferred to a local agricultural machinery manufacturing company for manufacturing and sales.

¹⁰ Singapore is the first country of Kaizen project implementation assisted by JICA. JICA dispatched a big team consisting Japanese experts and consultants to Singapore to transfer Kaizen technology focusing productivity improvement for 8 years from 1983 to 1990.

¹¹ I stationed as SIDFA in Tanzania, in charge of Uganda, Malawi, and Seychelles from 1985 to 1988. The title SIDFA was later changed to the name Country Director of UNIDO.

As I later experienced international cooperation-based technology transfer projects, I became increasingly confident in the validity of the idea of the “three stage model of technology transfer”. I later contributed to this belief with an analysis published in academic journals and bulletins. In addition to the dissertations mentioned above, the papers I have written about the three-stage model of technology transfer are as follows:

- “*A Methodology of Technical Cooperation for the Promotion of SMEs in Developing Countries*”, *Development Technology (Vol.3)* Development Technology Society, 1997
- “*A Study on an Industrial Technology Transfer Model under Official Development Assistance (ODA)*”, *Development Technology (Vol.16)*, Development Technology Society, 2010
- “*The role of private organizations in the introduction, development and dissemination of production control technology in Japan*” Takushoku University Graduate School, Bulletin of Graduate School of International Cooperation Studies (No. 4, March 2011)
- “*A Study on a Industrial Technology Transfer Model in Official Development Assistance (ODA) and Its Application Cases*”, *International Development Studies (Vol.8 No.2)*, Keiso Shobo Publishing Co., Ltd., 2009.

At the time of each publication, it was not possible to grasp the reaction of the three-stage model, but after the dissertation was published, it was confirmed that some researchers¹² cited the three-stage model of technology transfer in their published works.

5. **Establish a hypothesis**

Here I focus on the “hypothesis setting for research”. I have been involved in many field survey projects related to international cooperation. Most of the surveys included investigating the actual situation and making recommendations or proposals based on the survey results. However, when conducting the survey on a Tunisian enterprise, it

¹² (1) Ohno, I., & Kitaw, D. (2011), *Kaizen National Movement, a Study of Quality and Productivity Improvement in Asia and Africa*, Tokyo: JICA-GRIPS, (2) I. Ohno and Getahun Tadesse Mekonen (2021), *National Movements for Quality and Productivity Improvement in Japan and Singapore: From a Perspective of Translative Adaptation Processes*, JICA Ogata Research Institute, (3) Getahun Tadesse Mekonen (2021), *A Revealing Insight into the Kaizen in Africa*, JICA Ogata Research Institute.

was decided to set a hypothesis by assuming the survey results to some extent, and then to examine and verify whether the hypothesis was actually valid by the end of the survey. The idea was also implemented in the Argentine survey which was conducted for one year from 2009. The following are two survey projects that set the hypothesis in advance of project works.

5.1. A Case Study in Tunisia

JICA dispatched a consultant team¹³ to Tunisia from August 2006 to July 2008 to carry out “*The Study on the Master Plan for Quality / Productivity Improvement in Tunisia*”. The purpose of the study was to conduct a pilot project for quality / productivity improvement in Tunisian companies (mainly the manufacturing industry) and to formulate a master plan for quality / productivity improvement based on the results.

The pilot project was a survey to confirm whether Kaizen's method and way of thinking developed in Japan, which has a different industrial culture and corporate culture from Tunisia, is really effective or transferable to Tunisia. The target enterprises¹⁴ selected for the pilot project include 15 enterprises in the field of electrical machinery and 15 enterprises in the field of food processing. The JICA consultant team, led by the author, set the following four hypotheses in conducting the survey.

Hypothesis 1:

For Tunisian companies that depend on foreign countries for most of their parts and materials, international competitiveness is increased by improving not only "product quality" but also "design quality" and "parts quality".

Hypothesis 2:

Many Tunisian companies have room for quality / productivity improvement, even without investment in new machinery and equipment, and apply various quality / productivity improvement methods and technologies developed in Japan.

Hypothesis 3:

Companies with a strong top management commitment can expect results in quality / productivity improvement.

Hypothesis 4:

¹³ The author was a team leader for the project.

¹⁴ Ultimately, the pilot project was implemented by 14 companies in the electrical field and 13 companies in the food processing field.

An organizational structure is needed to widely promote quality / productivity improvement activities in the Tunisian industry in various fields.

The pilot project was carried out for nine months from January to October 2007, and the data verified that all of the above four hypotheses were valid¹⁵. In particular, the fact that the effectiveness of Hypothesis 2 and Hypothesis 3 was clearly demonstrated by the pilot project was highly evaluated by both the Tunisia and the Japanese sides, and both sides agreed to implement the next stage project. Regarding Hypothesis 4, the aid receiving organization (c/p organization) is the Management Unit of the National Program of Quality and Productivity Promotion (Unité de Gestion du Program National de Promotion de la Qualité et la Productivité: UGPQP), which is a temporary organization under the Ministry of Industry since the first JICA support project (2006~2008), and the size of the unit is about 10 staff members. The JICA consultant team has been training Kaizen human resources (candidates for future Kaizen trainers or consultants) with a collaborative system consisting of eight technical centers under the same ministry. Kaizen technology can basically be applied to any factory even if the industry is different, but special consideration is required for application depending on the peculiarity of the industry. In that sense, collaboration with eight technical centers was able to develop a KAIZEN human resource adapted to each industry.

5.2. A Case Study: Argentina

In April 2009 JICA dispatched a consultant team to Argentina to carry out “*The Diffusion Plan for the Business and Production Management Technology for Small and Medium Enterprises in Argentina*”. The main objectives of this project were to: 1) develop a long-term training program, 2) establish a qualification certification system, and 3) formulate a regional expansion plan for production and management technology. In the case of a normal project, these plans will be formulated on the basis of the results of project implementation. However, this project initially formulates

¹⁵ For details on the verification of the hypothesis, refer to the following reports and papers. (1) JICA / JDS (2008) "*The Study on the Master Plan for Quality/Productivity Improvement (final report)*"; (2) Toru Yanagihara, Kazumitsu Kuroda, Tsuyoshi Kikuchi (2018) "*Formation and development of productivity / quality improvement support system-Japan / Singapore / Tunisia-*" (International Development Society "International Development Research (Vol.27, No.2)" November 2018); (3) Tsuyoshi Kikuchi (2009) "*Proposal of Industrial Technology Transfer Model in Official Development Assistance (ODA) and Its Application Case*" (Takushoku University Institute for International Cooperation Studies "International Development Studies (Vol.8 No.2)" March 2009).

tentative plans in advance and implements the project in confirming the feasibility of the tentative plans during the project life. The project lasted from April 2009 to March 2010. Since the staff members of INTI (counterpart organization) on the Argentine side were competent and well trained, in spite of tight schedule all tentative plans were confirmed to be feasible by the end of the project.

A feasible program for long-term training could be formulated with some modification of the original ideas by the end of the JICA assisted project. And what was more than expected was that a preparatory committee for the qualification certification system was established and several meetings were held before the project was terminated. Regarding the regional expansion plan, the trained staff members (consultants) of the local branch of INTI began to provide technical guidance (training and consultation) for SMEs in the region, which was also more than expected¹⁶.

At the beginning of this survey project, three plans were formulated, but these are tentative plans created based on the results assumed before the start of this survey. The tentative plan was regarded as a hypothesis, and in the process of implementing the project, the tentative plans (hypotheses) were supplemented and revised while confirming the feasibility, and more feasible final plans were formulated by the end of the project.

Conclusion

Three points discussed above, i.e. "comparison", "model building" and "hypothesis setting" among the five key points may be summarized in one word: "comparing". The reason is that building a model means looking at the facts based on the model and looking at the model from the facts, which is a comparison between the model and the facts. By repeating the comparison, the model will be modified and improved. In addition, setting a hypothesis also establishes the relationship of seeing the facts from the hypothesis and seeing the hypothesis from the facts, which means that we are trying to compare the hypotheses with the facts. Therefore, it may be said that most of the research papers I have written so far have the intention of "comparing", whether or not I am aware of it.

¹⁶ For further information about this project, see JICA/JDS (2008) Final Report: "*The Diffusion Plan for the Business and Production Management Technology Small and Medium Enterprises in Argentina*".

One last word. As I mentioned at the beginning, I am not a research professional, but a practitioner who has been involved in research and technology transfer activities (training, technical guidance, consulting, etc.) in the field of international cooperation. Practitioners have research materials based on their own experience. That is one of their strengths as a practitioner. In that sense, most of practitioners (especially private experts and consultants) involved in international cooperation must have valuable experience that only they have. The valuable experience is not stored as their own, but it should be shared with the people involved in international cooperation and young people who will be interested in international cooperation. Therefore, practitioners should not store valuable experiences as their own, but share them with those involved in international cooperation and young people who may be interested in international cooperation in the future. The form of sharing may not necessarily be a professional paper, but may be an activity report or an experience report.