



Vocational Education in a “Mature Society” of Japan: Implications on Research Approach for Vocational Education and Training

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ABSTRACT

This article aims to describe the actual situations of economic and social circumstances in “mature society” of Japan. It also discusses about the role of vocational education and its relationship with the economic development. Since the 1990s, Japan has witnessed low economic development, ageing workforce and unstable employment for the younger generation. Hence a longitudinal study was needed to examine the role of vocational education in a mature society. The study was not only focused on the role of vocational education on the economic domain but also on human development and well-beings. The study abstracted six factor scales concerning vocational skills and verified the positive role of students who studied vocational and specialized courses (substantial knowledge and skills) and system construction, especially for higher vocational education based of the vocational key competencies derived from a longitudinal survey.

Keywords: Mature society, vocational key competency, specialized courses, higher vocational education, Japan

INTRODUCTION

The issue of ageing population in Japan is critical because it may affect economic competitiveness of the country. Ageing workforce may require different types of training. Hence this article analyzes the economic and social circumstances of mature society of Japan. It also examines research approach to vocational education and training in Japan based on the author’s long-time experience as vocational education and training (VET) expert and as an exchanged scholar in several Asian countries. This article is also based on the author’s speech at the “Economic Transition and Technical and Vocational Education and Training” conference in Japan. As a background, the author will discuss about the economic and social changes in Japan and their impact on vocational education and training system in a “mature society” like Japan. It is a philosophical and reflective discussion. Reflection on the challenges of VET by the author who has lived and observed the evolution of vocational education and its research in Japan. It is hoped that this discussion and reflection would be beneficial and meaningful for the Japanese VET researchers who are now facing and will be facing the same challenges in the near future.

Economic and Social Circumstances

Regarding socio-economic context, the author discusses about the economic and social changes in Japan and what the country has already experienced in 1990’s. In Japan, Gross Domestic Product (GDP) has decreased since 1995 when the economic bubble exploded. The total amount in USD in terms of real estate investment has decreased from \$ 5,348,827 mil. in 1995 to \$ 4,920,680 mil. in 2013 (Ministry of Internal Affairs, 2015). Perhaps, it is not an era that we can expect high economic growth in Japan. The author also believes that the present era in Japan has already entered the so-

called “*mature society*” i.e., *stable or low developmental society*. Mature society is more concerned on “qualitative” rather than

“quantitative” development. In terms of the GDP per capita (as shown in Table 1), in 2013, Japan’s GDP per capita is higher than most countries except United States, Canada, some European countries, Australia and New Zealand. Relatively high GDP per capita may reflect a higher standard of living.

However, the increasing ageing population and the declining fertility rate in Japan is alarming. With a low birth rate, Japan’s population is shrinking. With the present population of 127 million, it is expected to reduce to 83 million by 2100 (World Economic Forum, n.d). Population reduction would affect the consumer spending. According to the National Institute of Population and Security Research (2014), the proportion of elderly Japanese (those age 65 and above) is about 23 percent in 2010. Larger proportion of ageing population in Japan would have an impact on social welfare, public health and economic prosperity (World Economic Forum, n.d). This suggests that Japan’s labor-market and employment policies need to be altered drastically because the workforce will continue to age and shrink (Tsuya, n.d).

Japan has a rapidly ageing population. Like the rest of the developed world, this is largely due to the effect of people living longer and women having fewer children. Longer life expectancy and the ageing population have created a pressure to extend working lives. Much of the growth in employment for mature-age persons was in part-time employment. Participation of older women in the workforce has also increased significantly. Retiring age individuals who want to continue working may require reskilling as part of the life-long learning process. In other words, retraining of the older workers especially in VET is also required.

For the younger generation, they should be employed after graduation. In Japan, in general, parents and students traditionally place higher value on academic education as compared to vocational education. However, due to the relatively high unemployment or underemployment rate among university graduates, VET especially the specialized courses at professional training colleges are gaining popularity. Hence, investment in VET in Japan should be increased. Becker (1991) pointed out the higher expenditure for VET in Japan and East Asian countries (Becker, 1991). This case is most applicable in Japanese vocational education and training expenditure. In addition, a successful VET program depends on collaboration with the private sector.

Disparity in Employment

Employment disparity in Japanese labor market especially for younger generation has been going on since the 1980’s. It has becoming of depraved situation as the “Free-ter” (*Free + Arbeiter*) without full time position. Table 2 shows the percentages of full-time *versus* part-time employment for adults and youth in a company for approximately 30-year period. The full-time jobs are shrinking to about half whereas the part-time jobs are on the rise. The rate of part-time workers for the age 15 to 24 years old has already reached about 50% (see Table 2). This is a critical problem for the future generation of Japan especially the younger generation. This situation is in contrast to the Japanese tradition of labor market which it used to provide lifelong employment praxis and fulltime immediate employment for graduates.

Table 1: Comparison of GDP for per capita

Country (region)	1985	1990	1995	2000	2005	2010	2012	2013
World	2772	4303	5372	5423	7240	9451	10402	10553
Japan-a	11448	24971	42642	37295	35835	43038	46668	38644
Indonesia	588	701	1139	790	1273	2947	3551	3475
Korea	2561	6626	12525	12215	19096	22588	24954	26482
Taiwan-b	3270	8075	12864	14643	16022	18487	20531	21072
China	291	347	612	932	1735	4375	5976	6626
Vietnam	78	94	273	385	623	1302	1716	1868
Hong Kong	6593	13277	23542	25115	26327	32433	36739	38039
Malaysia	2138	2612	4631	4167	5554	8754	10422	10514
United States	17971	23495	28593	36138	43914	47925	50907	52392
Canada	14045	21405	20550	24088	36095	47297	52607	52270
Argentina	3478	5186	8869	9223	5768	11508	14725	14760
Brazil	1376	2687	4750	3695	4739	10978	11320	11199
United Kingdom	8538	18519	21305	26269	40008	38796	41650	42423
Italy	7942	20725	20560	20044	31590	35146	34356	35243
Austria	9137	21651	30114	24491	38191	46377	48154	50420
Netherlands	9788	21023	28844	26066	41243	50339	49248	50930
Greece	4590	9187	12231	11462	21743	26483	22331	21722
Germany	9249	21928	31153	23316	34085	41100	42672	45091
Russia	...	3850	2688	1770	5308	10618	14091	14680
South-Africa	1791	3141	3753	3041	5344	7295	7586	6936
Australia	11539	18940	21647	21240	37152	57593	68459	65600
New Zealand	7375	13373	17184	14112	27833	33260	39191	41952
Ministry of Internal Affairs and Communication, Department of Statistics (2015)								
http://www.stat.go.jp/data/sekai/0116.htm								

Table 2: Percentages of full-time *versus* part-time employment

	Total							15~24 years old						
	Actual number					Rate (%)		Actual number					Rate (%)	
	Employee	Employee, excluding executive of company or corporation	Regular employee	Non-regular employee	Part-time worker, Arbeit (temporary worker)	Regular employee	Non-regular employee	Employee	Employee, excluding executive of company or corporation	Regular employee	Non-regular employee	Part-time worker, Arbeit (temporary worker)	Regular employee	Non-regular employee
Feb. 1984	1460	1406	998	408	354	71.0	29.0	-	-	-	-	-	-	-
Feb. 1985	1509	1463	994	470	417	67.9	32.1	-	-	-	-	-	-	-
Feb. 1986	1556	1502	1018	483	432	67.8	32.2	-	-	-	-	-	-	-
Feb. 1987	1559	1507	989	517	469	65.7	34.3	-	-	-	-	-	-	-
Feb. 1988	1611	1555	1009	546	496	64.9	35.1	317	317	265	52	47	83.6	16.4
Feb. 1989	1694	1634	1045	588	533	64.0	36.0	337	336	269	67	61	80.1	19.9
Feb. 1990	1765	1695	1050	646	584	61.9	38.1	337	335	265	69	63	79.3	20.7
Feb. 1991	1861	1784	1121	664	603	62.8	37.2	361	360	287	73	66	79.7	20.3
Feb. 1992	1922	1843	1137	706	638	61.7	38.3	374	372	296	76	70	79.6	20.4
Feb. 1993	1946	1862	1146	716	647	61.5	38.5	362	361	275	85	78	76.4	23.6
Feb. 1994	1972	1895	1168	727	656	61.6	38.4	371	370	285	86	79	76.8	23.2
Feb. 1995	1994	1904	1159	745	675	60.9	39.1	369	367	263	104	96	71.7	28.3
Feb. 1996	2026	1935	1165	770	700	60.2	39.8	360	359	252	107	99	70.2	29.8
Feb. 1997	2103	2014	1172	840	754	58.3	41.7	357	356	231	124	114	65.1	34.9
Feb. 1998	2114	2028	1158	869	791	57.1	42.9	348	347	217	130	122	62.5	37.5
Feb. 1999	2076	1996	1093	902	817	54.8	45.2	325	324	195	129	120	60.2	39.8
Feb. 2000	2087	2011	1077	934	846	53.6	46.4	311	310	179	131	123	57.7	42.3
Feb. 2001	2150	2076	1083	994	891	52.1	47.9	305	305	168	137	128	55.1	44.9
2002 Jan.-1	2140	2041	1059	983	793	51.9	48.1	287	286	152	135	115	53.0	47.0
2003 Jan.-1	2167	2076	1014	1062	867	48.8	51.2	276	275	138	137	117	50.2	49.8
2004 Jan.-1	2184	2089	990	1099	873	47.4	52.6	272	272	135	137	115	49.6	50.4
2005 Jan.-1	2198	2100	1013	1087	845	48.2	51.8	271	271	132	139	111	48.7	51.3
2006 Jan.-1	2241	2146	1010	1135	867	47.1	52.9	267	266	129	137	108	48.5	51.5
2007 Jan.-1	2297	2197	1007	1190	906	45.9	54.1	258	258	128	130	106	49.6	50.4
2008 Jan.-1	2299	2207	1009	1197	900	45.8	54.2	257	256	129	129	97	50.0	50.0
2009 Jan.-1	2309	2218	1027	1191	890	46.3	53.7	243	242	118	124	98	48.8	51.2
2010 Jan.-1	2337	2246	1050	1196	909	46.8	53.2	235	234	118	118	96	50.0	50.0
2011 Jan.-1	<2375>	<2282>	<1041>	<1243>	<957>	<45.6>	<54.4>	<237>	<236>	<116>	<122>	<100>	<48.8>	<51.3>
2012 Jan.-1	2363	2273	1031	1242	978	45.4	54.6	216	216	103	113	95	47.7	52.3
2013 Jan.-1	2371	2291	1020	1270	996	44.5	55.5	224	224	104	120	100	46.4	53.6
2014 Jan.-1	2400	2319	982	1337	1047	42.3	57.7	228	227	98	129	106	43.2	56.8
2015 Jan.-1	2442	2358	1015	1343	1045	43.0	57.0	222	222	103	119	100	46.4	53.6

Technological, Social and Economic Strategies

To maintain Japan’s competitiveness in the world economy, more knowledge and skilled workers are needed. Recently, the Japanese government has introduced Japan Revitalization Strategy (2014) to regain Japan economic power through cultivating human resources, making business as growth engine, reforming regional economic structures, restructuring education, training and employment systems, and promoting innovation in science and technology. Changes have been made in industrial and human resource policies. First, in industrial policy, several growth strategy were proposed:

- Innovation in technology for transportation, energy and robotic systems:
 - Traffic system for the next generation by auto-driving cars or *new Linear Shinkansen* etc.
 - New energy and smart society
 - Frontier robot technology
- International expansion of medical technology
- Reinforcement of tourism industry
- International opening of new business market via TPP (Trans-Pacific Partnership), etc.

Secondly, in human resource policy, they proposed the following measures:

- Reformation of employment circumstances
- Reinforcement human resource development
 - Career education for formation of work values for school/university students
 - Program of vocational competency training at universities
 - Foundation of the new practical higher vocational education

Challenges of mature society

Next, the author would like to discuss about the main challenges of a “mature society” (post-developed economic society) of Japan. According to Mizuno (2014), in “the end of capitalism” theory, there are limited possibilities for developed countries to expand because each country may already reach the “mature” state. But the shifting from geographical market expansion to profit expansion by gross production to the vertical direction is possible. But the vertical vector (electric financing investment) is not necessarily stable way (Figure 1). Therefore, the countries may need to seek out other ways within the next few decades. So, how useful is the modern economic (market) system? Alternatively, we have to consider the deeper and higher expansion (vertical vector). The new creation of higher technology might help the country’s economic competitiveness. Also, there is a possibility for rich countries to become smart society (Motani, 2013; 2014).

Education and VET for the well-being

In the era of globalization and stiff economic competition, education and training should be positioned not only as a measure of economy, but also as a measure of intellectual development and well-being. What are the roles of vocational education and training in an advanced country like Japan? The author believes that VET plays two roles. First, VET is important to nurture basic competency and values (soft competencies). And second, VET is important to instill specialized vocational knowledge and skills (hard competencies). In the so-called “ageing society”, younger generation in Japan should possess relevant competencies and positive values.

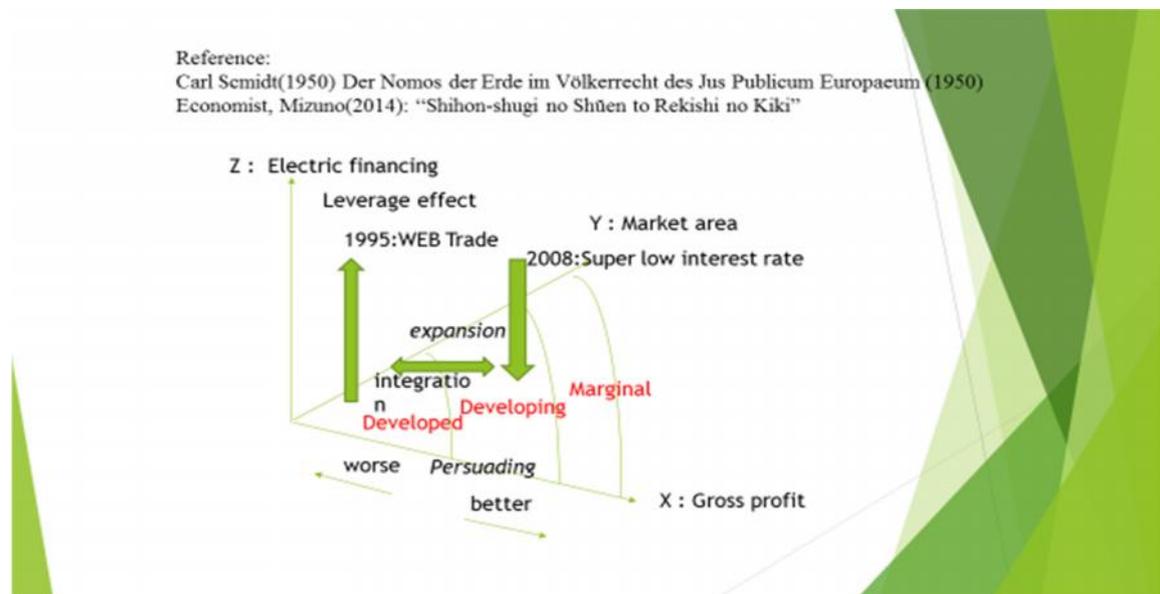


Figure 1: Mizuno’s model (Economist, 2014)

Sustainable key competences and substantial knowledge and skills in VET

To maintain economic competitiveness, VET graduates need to possess advanced technical knowledge and skills. The author has designed a longitudinal study to trace the competence of VET students in several cohorts. The author has discussed some important issues from his longitudinal study in this article. What are needed for high vocational competences and vocational values? At the same time, we have to instill in students some educative behaviors in and outside of school (university) for career and vocational development. The author highlights the importance of both aspects within vocational education and their reciprocal relationship from the author's longitudinal survey concerning the formation of vocational competencies and the role vocational and career education for college students.

Longitudinal survey among university and vocational college students

The author has conducted a comparative longitudinal study in four countries: Japan, the USA, Germany and South Korea (Terada et al., 2015). The study focused on comparing vocational competences and values among post-secondary students (university and college community students) in the four countries between 2013 and 2014 (short term vocational students) and between 2013 and 2015 (fourth-year students). Participants were 170 university students from USA and 181 community college students, 114 university students from Germany, South Korea=210 and 150, Japan=206 and 213 so the total is 1,244. In the second survey on short term college students and vocational college students in Japan and Korea in 2014, participants to this longitudinal survey from one Japanese two-year college (Code 16), one Japanese special training college (code 17) , and one Korean vocational college (code 22). The number of students are 100 (code 16), 117 (code 17) and 125 (code 22) who are, of course, same persons as former first survey in 2013.

Factor scales abstracted through factor analyses

In 2013 survey, the study abstracted six factor scales on vocational skills from 30 items (variables) using factor analysis by principal factor method and pro-max rotation. In the factor analysis for 2014's data, the author found the same six factors as in 2013. The factors are "work management skill" (F1), "language/culture skill" (F2), "technical skill" (F3), "communication skill" (F4), "physical skill (F5) and "adaptive skill" (F6). The author abstracted five factor scales on vocational values from 27 items (variables) in 2014's survey by using the same method. The factors were mostly same factor as in 2013, though there are some different structure. The factors were "self-realization orientation" (F1), "society/contribution orientation" (F2), "life/stable orientation" (F3), "leader/rich man orientation" (F4) and "independent craftsman orientation" (F5).

Analyses of the eight of vocational education on vocational basic competences

Table 3 shows the analytical results of the survey conducted to the vocational and two-years college students whom the author has implemented the longitudinal survey. The focus is on their vocational competencies which are the 6 scale factors abstracted from 2014's survey. Table 3 shows regular specialized course learning which was provided for college students has shown significant effect on the factor scale 2 (language/culture skills) at the second survey for three total colleges' students (Table 5). The key result shows that it is important for vocational education and training to teach basic competency for the college students.

Table 3: Q2-5 Formation effect of the study efforts for specialized courses on skill factor 2 (language/culture skill): Analysis of variance of total three colleges

	new Q 2-5 Efforts at specialized course	Average	Standard Deviation	N
A_skill scale F2	1.Do not	1.772	0.442	64
	2.Do	1.879	0.447	271
	total	1.859	0.447	335
B_skill scale F2	1	1.797	0.564	64
	2	2.051	0.599	271
	total	2.002	0.600	335
At second measure: Experience effect: B(1 2 Do) > 1 Not, $p < .01$				

Table 4 shows the effect of part-time job experience and its relationship with the factor scale 2.

Table 4: Q2-8 Formation effect of part time job experience on skill factor 2: Total three colleges

	Q 02-8 job experience	Average	Standard Deviation	N
A_skill scale F2	1.Do	1.844	0.453	188
	2.Used to do	1.883	0.443	97
	3.Never done	1.879	0.444	48
	total	1.860	0.448	333
B_skill scale F2	1	1.963	0.577	188
	2	2.085	0.662	97
	3	2.004	0.559	48
	total	2.004	0.601	333
At repeating B > A, $p < .001$				

The skill formation effect of vocational certificates which students have on the same factor scale 2 also can be observed into the repeating effect (between the first and the second) for Korean No. 22 college’s students.

Table 5: Formation effect of vocational certificates on skill factor 2 in Korea

	Q 03-1 Vocational certificate	Average	Standard Deviation	N
A_skill scale F2	1.Have	2.059	0.427	41
	2.Not have	1.922	0.450	77
	total	1.970	0.445	118
B_skill scale F2	1	2.332	0.614	41
	2	2.135	0.558	77
	total	2.203	0.583	118
At repeating effect B > A, $p < .05$				

The effect of the study effort of specialized courses learning on skill factor scale 4 (technical skills) at the second survey (Table 6).

Table 6: Formation effect of the study effort of specialized courses on skill 4 (technical skill):

Total three colleges				
	new Q 2-5 Efforts at specialized course	Average	Standard Deviation	N
A_skill scale F4	1.Do not	1.934	0.758	66
	2.Do	2.229	0.832	274
	total	2.172	0.825	340
B_skill scale F4	1	2.147	0.852	66
	2	2.281	0.802	274
	total	2.255	0.813	340
Repeating effect at measure on 2 (D o): B>A, $p<.05$				

Finally, the volunteer activity has an effect on career formation on Korean vocational college students. In Korea, the students are more active to make such activities than Japanese students who often work in part time job which is not in their specialty (Table 7).

Table 7: Formation effect of volunteer activities on skill factor 4

	Q 02-17 volunteer	Average	Standard Deviation	N
A_skill scale F4	1.Have	2.288	0.685	22
	2.Had	2.330	0.851	91
	3.Never had	1.606	0.554	11
	total	2.258	0.823	124
B_skill scale F4	1	2.530	0.640	22
	2	2.381	0.829	91
	3	1.758	0.634	11
	total	2.352	0.802	124
Experience effect at both times: $p<.05$				

Foundation of the new higher vocational education in Japan

The results show the importance of key competences formation and vocational values. The author has to point out the significance of regular and specialized vocational learning and other experiences outside the formal curricula. However, in Japan, there are significant challenges for the construction of a consistent vocational education system. Also, there are some significant differences between Japanese and Korean students as we can observe in the comparative analyses (Terada, 2014). The study provides some suggestive considerations even though the samples are purposive samples. Most significant difference between Korean and Japanese students found in this study, the Korean students have strong specialized learning and Japanese have rather weak specialized learning.

Actual system situation of higher vocational education in Japan

The duration of higher vocational education is two to three years:

- Short-term university at which they provide two to three years program, mainly for ladies in the fields of training of child education, social services etc. are mostly managed by private education corporation. There are about one twentieth than university students.
- Technical colleges have a unique system in which they combine the secondary technical education (three years) and higher short term technical education (two years). This sector is quite small, and has only ten thousands for each grades.
- Specialized technical and vocational colleges together with the secondary and adult courses. About 25 % high school graduates enter private sector, and schools are not positioned by the article I of school law, but schools defined by the other article within school law. This sector

is main one among Japanese higher vocational institute.

- 16 Universities of Vocational Ability Development (Polytechnics) administrated by Ministry of Labor in which basic two years program are articulated with senior two years program. Regrettably, they can't provide academic degree directly because they don't belong to the Ministry of Education, and also a little small size sector as well as technical college.
- The reason why Japanese society could maintain comparatively highly development and stable peoples' lives are traditional employment, social welfare system and famous in-company training system (Table 8) .

Table 8: Implementation Status of Designated OJT and Off the Job Training

Total number of enterprises	77.8
Construction industry	82.1
Manufacturing	79.6
Electric and energy	97.3
Information and communication	82.7
Transport and post industries	78.6
Retail	75.4
Wholesaling	73.5
Finance, insurance, and real estate industries	93.1
Estate and lentil	80.6
Research and technical service	87.8
Hospitality	65.9
Restaurant	72.4
Leisure	68.3
Education and learning	84.1
Medical and social welfare	84.7
Complex service	97.0
Other services	72.6
Survey of private companies (over 30 employees)	
Source: Ministry of Health, Labor and Welfare (2015)	N=4,908

Recently, a substantial number of Japanese companies tend to shift to western style. How does the Ministry of Education respond to that? First, they didn't provide practical and vocational program within university sector excluding traditional professional fields such as medical, law and teacher training etc. But, they have introduced new vocational oriented program such as information technology and tourism etc. Nevertheless, they always have to accord to the usual criterion as traditional universities. It is so difficult to attain vocational aims in general and traditional universities.

Reformative tendencies

Issue of transition from secondary schools to higher vocational education system is critical. In Japan, Ministry of Education has set a central special committee for system construction of career education and vocational education since 2009. Especially, concerning vocational education, reorganization is focused on higher education level in the direction of the new construction and reconstruction of present institutions. Main discussion issue is whether the present university can absorb more practical vocational function, otherwise higher vocational institutions can become one kind of “university” and confer some academic degrees. Thus, the new higher vocational education needs to focus on the well-being of the students' in their future career, not in economic matters only.

CONCLUSIONS

This study conducted in “mature society” of Japan has focused on higher VET as one kind of measure for economic and work force development. But when a country’s economic situation faced the lower development or zero development, education and VET have to shift to another option to aid the human side. VET in the “mature” society has to make re-definition of their roles. It should be redesigned for human development, well-being and career formation. Traditional vocational knowledge and skills are still important, but how sustainable are they? At the same time, there are strong relationship between vocational ability, character (*die formale bildung*), and key competencies. Thus, to ensure the continued development and adaptation of individuals’ skills over their lifetimes, higher VET has become increasingly important.

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