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To cite this article: Hiroe Niiyama, Irene Kontkanen, Eija Paavilainen & Kiyoko Kamibeppu (2018) A comparison of personality maturity among Japanese youth and Finnish young adult students: a cross-sectional study using Erikson psychosocial stage inventory and sense of coherence scale, *International Journal of Adolescence and Youth*, 23:4, 482-495, DOI: [10.1080/02673843.2018.1435418](https://doi.org/10.1080/02673843.2018.1435418)

To link to this article: <https://doi.org/10.1080/02673843.2018.1435418>



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Published online: 07 Feb 2018.



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A comparison of personality maturity among Japanese youth and Finnish young adult students: a cross-sectional study using Erikson psychosocial stage inventory and sense of coherence scale

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ABSTRACT

Objective: This study aimed to clarify the child-rearing improvement approach in Japan by evaluating the 'Personality Maturity' of Japanese youth and Finnish young adult students. **Methods:** The cross-sectional survey was carried out on the Internet with youth aged 18–25 using the Erikson Psychosocial Stage Inventory (EPSI) and Sense of Coherence (SOC) scales. In total, 865 Japanese youth were recruited from GMO-Research Monitors and 898 Finnish young adult students were recruited from Tampere University; 762 Japanese youth and 896 Finnish young adult students responded to all 13 SOC and 42 EPSI questions. **Results:** Mean total and subscale scores of Japanese youth were lower than those of Finnish young adult students for both EPSI and SOC. We found a strong, negative correlation ($r = -.685$) in Japan and a strong, positive correlation in Finland ($r = .831$) between total EPSI and SOC scores. **Conclusions:** Japanese youth showed stronger development of either EPSI or SOC.

ARTICLE HISTORY

Received 14 November 2017

Accepted 29 January 2018

KEYWORDS

Young adult; personality maturity; EPSI; SOC; Japan; Finland

Introduction

The social response to the declining Japanese birth rate and rapidly aging population is of international concern. In the beginning of the twenty-first century, low morale of Japanese youth was viewed as a problem (Miyahara et al., 2001), and the Japan Child and Family Research Institute (JCFRI) conducted research in 2001 with a hypothesis that a delay in the maturity of Japanese youth may have had some significance as a background to the falling birth rate (Miyahara et al., 2002, 2005; Miyahara, Saito, Takei, Uchiyama, & Hoshiyama, 2003; Miyahara et al., 2004; Saito & Miyahara, 2004). In 2006, the issue was discussed as a serious problem at the Central Council for Education of Japan, but no clear solution has been suggested to date (Ministry of Education, Culture, Sports, Science & Technology, 1998).

Japanese youth are at a high standard in terms of learning achievement as measured by the Program for International Student Assessment (PISA), which has been long used internationally as an indicator of youth ability (PISA, 2015). Thus, to investigate causes of the declining morale (Miyahara et al., 2001; Ministry of Education, Culture, Sports, Science & Technology, 1998) in Japanese youth, new scales for

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This article was originally published with errors. This version has been corrected. Please see Corrigendum (<https://doi.org/10.1080/02673843.2018.1458468>).

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evaluating capacities other than learning achievement have become necessary. In this study, psychological and social developmental changes in adulthood, which are achieved through the process of growing up were defined as 'Personality Maturity' (PM), and this new concept was measured through a new scale to evaluate young adult's capacities. PM is similar to non-cognitive skills (motivation, socio-emotional factors, regulation, time preference, personality factors, and the ability to work with others; Heckman, 2008) in terms of being an important factor in youth development evaluation other than learning achievement (Barnett, 2011; Heckman, 2013). In this research, PM is understood to be a higher-order concept that is present for the first time when desirable intellectual and physical development of young people is achieved.

Declining morale among Japanese youth is thought to relate to unsuccessful establishment of self-identity, also known as Erikson's identity diffusion (Ministry of Health Labour Welfare, 2016). Therefore, the Erikson Psychosocial Stage Inventory (EPSI) was adopted to measure this factor (Erikson, 1956, 1982; Nobuo & Tetsuhiko, 2008; Rosenthal, Gurney, & Moore, 1981).

Sense of coherence (SOC) among adolescents may affect stress and coping in much the same way as is seen in adults (Eriksson & Lindström, 2005; Vibeke Koushede & Holstein, 2009). Regarding SOC, according to 'the Survey on the factual investigation of Young People's Employability' by the Ministry of Health, Labour and Welfare in 2004, the rate of early turnover of Japanese youth (defined as leaving a job within three years) is 50.3% for high school graduates and 23.6 per cent for those aged 30 years or younger, which has risen recently (Cabinet Office, 2004). It is speculated that one of the reasons for this is that Japanese youth today lack the ability (Cabinet Office, 2004; Torsheim & Aaroe, 2001) to deal with complex (adverse) situations successfully; thus, the SOC instrument was used as an index to measure this factor (Antonovsky, 1987; Eriksson & Lindström, 2005; Saito, 2014).

The EPSI and SOC scale were used simultaneously as indices of PM to enable complex and comprehensive evaluation; the JCFRI has already used the EPSI and SOC scale simultaneously (Miyahara et al., 2004, 2005, 2006; Saito et al., 2007, 2008). It is said that because of artificial intelligence and the Internet of Things (machine-to-machine communication), young people looking for employment will increasingly encounter inexperienced and complicated situations which their parents or grandparents did not experience. To manage these situations, they will need to be equipped with entrepreneurship skills to think and act for themselves. It is speculated that, in young people, the higher the EPSI and SOC scores, the higher their chances of mastering entrepreneurship skills (Saito, 2014).

The JCFRI conducted one study using the EPSI alone (Miyahara et al., 2003) and three studies combining the EPSI and SOC scale (Saito & Miyahara, 2004; Saito et al., 2007, 2008); thus, only four relevant studies have used these measures in Japan. Internationally, only two reports have used the EPSI alone: Galambos, Magill-Evans, and Darrah (2008); Rosenthal et al. (1981), in which identity achievement in youth fighting chronic diseases such as cerebral palsy was investigated.

No studies evaluated PM using the EPSI and SOC scale together. In an international comparison of Japanese youth, only one EPSI report was recognized and there was no combination of SOC and EPSI together (Sakata & Nakanishi, 1986).

In the survey conducted by the JCFRI, the analysis had been mainly focused on generativity among the eight EPSI subscales; however, there were no studies that focused on achieving identity, especially for the whole EPSI and all eight subscales.

In a report by the JCFRI in 2004 (Saito & Miyahara, 2004), 355 men and women aged 15–25 years were investigated. The Spearman correlation coefficient between EPSI and SOC scale was as high as .729, and both scores were higher with age; thus, evaluation of PM in youth combining the EPSI and SOC scale seemed to be effective. In an international comparison, lower scores in youth in Japan were predicted compared to that of Australia and South Korea (Tetsuhiko & Nobuo, 1986).

In this study, to clarify the new direction of child-rearing in Japan, it was necessary first to evaluate the PM of the Japanese youth, who were the foundation of the research. Therefore, we decided to do comparisons diversely with internationally reputed countries regarding child-rearing.

To ensure the evaluation of Japanese youth in terms of both learning achievement and PM, I thought it necessary to select countries acknowledged internationally for their parenting. Given that their youth

as well as education system are internationally recognized in terms of academics, we selected Finland as a comparison country. In addition, Finland has a reputation for women's social advancement, which has been late to come to Japan; therefore, interesting results can be expected (Khazan, 2009; The Economist, 2015; World Economic Forum, 2015).

To evaluate PM of Japanese youth multilaterally, EPSI and SOC scale were used together. The aim of this study was to evaluate PM of Japanese youth (18–25 years old) measured by the EPSI and SOC scale in comparison to Finnish young adult students of the same age.

Methods

This survey was conducted as a joint project between the Japanese team (author and JCFRI) and the Finnish team (Tampere University).

Design and study population

The subjects (aged 18–25 years old) were recruited from youth in Japan and from university students in Finland. The aim was to recruit between 800 and 1000 participants.

Data collection

The main cross-sectional survey was carried out over the Internet in February 2014 in Japan and Finland. The participants were recruited as follows. In Japan, a pilot study was carried out by e-mail with 2,100,000 GMO Research monitors who were registrants of a GMO internet research company with a simple questionnaire about family members, their age, cohabiting family members, and disabled family members. A total of 5,000 applications from parents to participate in the survey were received. These parents were asked to administer the youth questionnaire with their children. In total, 865 responses, for a response rate of 17.3%, from youth in order of arrival were received in the main survey, of which data for 762 Japanese youth were analysed.

In Finland, the questionnaire was sent to 3,701 young adult students of Tampere University. Tampere University is one of 10 national universities in Finland and students at Tampere University are the elite among Finnish youth. Using the university's internet facility, data were analysed from 896 individuals (response rate 24.2%), who answered all EPSI and SOC questions.

Measurements

The Erikson Psychosocial Stage Inventory (EPSI) and Sense of Coherence (SOC) scale were used as scales.

EPSI

The EPSI measures how well respondents have resolved conflicts indicative of Erikson's stages of psychosocial development and is one of few measurements that evaluate the development of the personality from young adult to adult. A few studies have used the EPSI, including to assess young adults with congenital heart disease or a heart transplant (Galambos et al., 2008; Mackie et al., 2016). In Japan, the Nakanishi version of the EPSI with 56 questions and 8 subscales (trust, autonomy, initiative, industry, identity, intimacy, generativity, integrity) (Nobuo & Tetsuhiko, 2008) has been used, and in Finland, the Rosenthal version of the EPSI with 72 questions and 6 subscales (trust, autonomy, initiative, industry, identity, intimacy; deleted generativity, integrity from the Nakanishi Version) and each subscale (stage) (Rosenthal et al., 1981) has been used. Items are rated on a 5-point scale, ranging from almost always true (5) to almost never true (1). For example, ('I am able to take things as they come' in autonomy, and 'I know what kind of person I am' in identity). Each subscale (stage) has its own distinctive goal to be attained if 'healthy' personality is to be achieved and it arises because a new dimension of social

interaction becomes possible with increasing maturity. If the adolescent succeeds in forming a strong identity rooted in family, race, or ideology, then genuine intimacy becomes possible along with stable long-term relationships (Rosenthal et al., 1981). The maximum possible score is 5 points because we used the Personal Mean Point (PMP) for the EPSI (the mean of each item; obtained by dividing the total score of 42 items by 42). These subscales have satisfactory construct validity and adequate alpha reliability coefficients. The mean EPSI score in healthy 20- to 30-year-olds is $3.94 \pm .44$ (Galambos et al., 2008).

SOC scale

Antonovsky's theory of sense of coherence included three core components of comprehensibility, manageability, and meaningfulness (Antonovsky, 1987). A strong person in SOC seeks a balance between rules and strategies, between stored and potential information (Antonovsky, 1987). A short-form of the SOC scale with 13 items rated on a 7-point scale was used. Item 1 asks the question, 'Do you have the feeling that you don't really care about what goes on around you'? Response options ranged from very seldom or never to very often (Antonovsky, 1987; Miyahara et al., 2006). These subscales have satisfactory construct validity and adequate alpha reliability coefficients .84–.93 (Antonovsky, 1987).

Language

Both the EPSI and SOC scale were based on the English version. The Japanese team used the Japanese versions of the EPSI and SOC scale (Miyahara et al., 2002, 2003, 2004, 2005, 2006; Saito et al., 2007, 2008, 2009; Saito & Miyahara, 2004) and the Finnish team translated the English versions of the SOC scale (Eriksson & Lindström, 2005) and EPSI (Rosenthal et al., 1981) into Finnish.

Statistical procedures

In terms of the EPSI's, each of the 6 subscales is made up of 7 items which are common to the Nakanishi version (Nobuo & Tetsuhiko, 2008) and Rosenthal version (Rosenthal et al., 1981); these were used for analysis. As for the SOC scale, 13 items were used for analysis.

PMP were calculated for the EPSI as a whole and for each of the 6 subscales. As for the SOC scale, Personal Total Score (PTS; the total score of the relevant question item) means were calculated for the SOC scale as a whole and for each of the three subscales.

Statistical analysis was conducted as follows: (1) Descriptive statistics were calculated for Japan (as a whole and young adult students only) and Finland, respectively. (2) For both the EPSI and SOC scale, Mann–Whitney U test was carried out for the result as a whole and for each of the subscales (deemed to be statistically significant at less than 5 per cent significance level), and Spearman's rank correlation coefficient, effect size γ (comparison of difference among means), and Cronbach's alpha were calculated. (3) The statistical difference was tested by the comparison of means, U test, and effect size γ (Cohen, 1988).

Ethical approval

Juntendo University Faculty of Health Care and Nursing (Juntendo Ethics Committee No. 25-28) gave ethical approval for this research, and the Ethics Committee of Tampere Region in Finland decided that this research can be carried out with this ethical approval.

Results

In total, data from 762 Japanese youth (male 388, 50.9%; female 374, 49.1%) were analysed. In Finland, data from 896 respondents (male 169, 18.9%; female 727, 81.1%) with responses to all EPSI and SOC questions were analysed.

Separation or living together with parents (see Table 1)

Overall, among the Japanese youth, 12.1% were currently separated from their parents and 87.9% were living with their parents. The rate during the infant and toddler period was the highest at 12.3% separated and 87.7% together, and declined gradually until the high school period at 9.5% separated and 90.5% together. In contrast, regarding 896 Finnish young adult students, 52 students (5.8%) were separated and 844 students (4.2%) were living together with parents during the childhood period.

Main reasons for separation from parent(s) (see Table 2)

In Japan, 45 mothers (5.91%) and 82 fathers (10.76%) were separated from their children, while in Finland, 745 mothers (83.15%) and 765 fathers (85.38%) were separated from their children. The most common reason why mothers or fathers lived away from Japanese youth or Finnish young adult students were that they had moved to their own apartment: 35 mothers (4.59%) and 50 fathers (6.56%) in Japan, and 719 mothers (80.25%) and 577 fathers (64.39%) in Finland. There was a large difference in the ratio of subjects who had moved to their own apartment between countries.

In addition, regarding the divorce rate in this study, one mother (.14%) and three fathers (.39%) in Japan, and 10 mothers (1.12%) and 150 fathers (16.74%) in Finland were divorced. These were low percentages compared with the divorce rates of each country (Statistics Finland, 2017).

Characteristics of the research subjects

The breakdown of characteristics of the Japanese youth was as follows: university students (27.0%), high school students (10.2%), students of special vocational high school students (3.9%), postgraduate students (1.8%), and 2-year college students and special high school students (.7%). Regarding employment, the sample comprised employed people (32.0%), housewives /husbands (8.7%), and those employed part-time (4.7%). The Finnish sample was entirely made up of young adult students (see Table 3). There was a statistically significant difference between Japan and Finland for both the EPSI (Total (EPSIW) and 6 subscales (EPSI6sub: trust, autonomy, initiative, industry, identity, and intimacy) and SOC scale (Total SOC (SOCW) and 3 SOC subscales (SOS3sub: comprehensibility, manageability, and meaningfulness)). The effect size γ was high at more than 1.0 for the EPSI as a whole and the 6 EPSI subscales, which means that the difference in means related to the EPSI (both EPSIW and EPSI6sub) was very large (see Table 4). In addition, the EPSI and SOC scale results of the Japanese youth and Japanese adult students were very similar and show a substantial divergence from the Finnish results (see Table 5 and Figures 1–4). In this paper, in reference to the correlation of the EPSI and SOC scale, when the absolute value of the correlation coefficient was more than .6, it was deemed to have a ‘strong correlation’ and if it was at or more than .4 and less than .6, it was deemed to have ‘some correlation’.

Table 1. Rate of Japanese youth living with parent(s) currently and during the infant and toddler, elementary, junior high, and high school periods ($n = 762$).

	Current (<i>n</i>)	Current (%)	Infant and Toddler (<i>n</i>)	Infant and Toddler (%)	Elemen- tary school (<i>n</i>)	Elementary school (%)	Junior high (<i>n</i>)	Junior high (%)	High school (<i>n</i>)	High school (%)
Separated from parent (s)	92	12.1	94	12.3	80	10.5	75	9.8	72	9.5
Living with parent (s)	670	87.9	668	87.7	682	89.5	687	90.2	690	90.5

Table 2. Comparison between Japanese youth and Finnish young adult students on reasons for separation from parents.

	Mother				Father			
	Japan		Finland		Japan		Finland	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
Moved to own apartment	35	4.59	719	80.25	50	6.56	577	64.39
Work	0	.00	6	.67	20	2.62	3	3.35
Divorce	1	.14	10	1.12	3	.39	150	16.74
Death	2	.26	3	3.35	2	.27	26	2.90
Other reason	7	.92	7	.78	7	.92	9	1.00
Subtotal	45	5.91	745	83.15	82	10.76	765	85.38
Overall total	762	100.00	896	100.00	762	100.00	896	100.00

Table 3. Basic information about the research subjects in Japan and Finland (18–25 years old).

Items	Classified items	Student status classification	Japan		Finland	
			No. of people	Percentage of the whole	No. of people	Percentage of the whole
The total number of analysis	Analysis subjects		762	100.0	896	100.0
Gender	Male		388	50.9	169	18.9
	Female		374	49.1	727	81.1
Job classification	Student		333	43.7	896	100.0
		University student	206	27.0	61.9	100.0
		High school student	78	10.2	23.4	0
		Special vocational high school students	30	3.9	9.0	0
		Postgraduate students	14	1.8	4.2	0
		2-year college and special high school students	5	.7	1.5	0
	Employed (full time)		244	32.0	0	.0
	House wives/husbands		66	8.7	0	.0
	Employed (part time)		36	4.7	0	.0
	Self-employment		35	4.6	0	.0
	Unemployed		15	2.0	0	.0
	Irregular		13	1.7	0	.0
	Managing a company		8	1.0	0	.0
	Side business		1	.1	0	.0
	Others		11	1.4	0	.0
	Other than students		429	56.3		

Correlation of total EPSI and total SOC

There was a strong, negative correlation ($r = -.685$) in Japan and a strong, positive correlation ($r = .831$) in Finland. There was either a strong, negative correlation or some negative correlation in Japan, but in Finland, there was either a strong, positive correlation or some positive correlation. The correlations between the total EPSI and 3 SOC subscales (comprehensibility, manageability, and meaningfulness) were as follows: in Japan, $r = -.479 \sim -.695$; in Finland, $r = .692 \sim .796$. The correlations between the Total SOC and 6 EPSI subscales were as follows: in Japan: $r = -.498 \sim -.632$; in Finland, $r = .525 \sim .767$. Finally, the correlations between the 6 EPSI subscales and the 3 SOC subscales were as follows: in Japan, $r = -.338 \sim -.662$; in Finland, $r = .400 \sim .772$).



Table 4. Comparison between Japan and Finland on SOC and EPSI total and subscale scores.

	Comprehensibility	Manageability	Meaningfulness	Total SOC	Trust	Autonomy	Initiative	Industry	Identity	Intimacy	Total EPSI
Japan (J)											
Mean	20.088	15.878	17.398	53.364	2.868	2.644	2.349	2.598	2.581	2.672	2.619
SD	4.337	3.334	3.966	10.059	.526	.582	.512	.594	.587	.563	.482
Median	20.000	16.000	17.000	53.000	2.857	2.714	2.429	2.571	2.571	2.714	2.643
Minimum	5.000	4.000	4.000	17.000	1.429	1.143	.857	1.000	1.000	1.143	1.262
Maximum	35.000	27.000	28.000	89.000	5.000	4.857	4.143	5.000	4.571	4.857	4.500
Difference between maximum and minimum	30.000	23.000	24.000	72.000	3.571	3.714	3.286	4.000	3.571	3.714	3.238
Finland (F)											
Mean	21.967	19.458	19.308	60.732	3.567	3.782	3.351	3.794	3.114	3.708	3.553
SD	4.794	4.127	4.303	11.612	.651	.660	.599	.661	.707	.678	.548
Median	22.000	20.000	20.000	62.000	3.714	3.857	3.429	3.857	3.286	3.857	3.631
Minimum	8.000	5.000	6.000	23.000	1.143	1.286	1.286	1.429	.857	1.143	1.714
Maximum	34.000	28.000	28.000	85.000	5.000	5.000	4.714	5.000	4.286	5.000	4.690
Difference between maximum and minimum	26.000	23.000	22.000	62.000	3.857	3.714	3.429	3.571	3.429	3.857	2.976
Statistical difference between Japan and Finland											
U test	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
Effect size y	.411	.954	.462	.678	1.182	1.827	1.798	1.903	.820	1.663	1.810
Evaluation of effect size y	Moderate	Strong	Moderate	Strong	Strong	Strong	Strong	Strong	Strong	Strong	Strong
Difference in descriptive statistics between Japan and Finland (J-F)											
Mean	-1.879	-3.580	-1.910	-7.369	-7.00	-1.138	-1.002	-1.196	-533	-1.036	-934
SD	-457	-793	-337	-1.554	-126	-078	-086	-067	-120	-116	-066
Median	-2.000	-4.000	-3.000	-9.000	-857	-1.143	-1.000	-1.286	-714	-1.143	-988
Minimum	-3.000	-1.000	-2.000	-6.000	.286	-143	-429	-429	.143	.000	-452
Maximum	1.000	-1.000	.000	4.000	.000	-143	-571	.000	.286	-143	-190
Difference between maximum and minimum	4.000	.000	2.000	10.000	-286	.000	-143	.429	.143	-143	.262

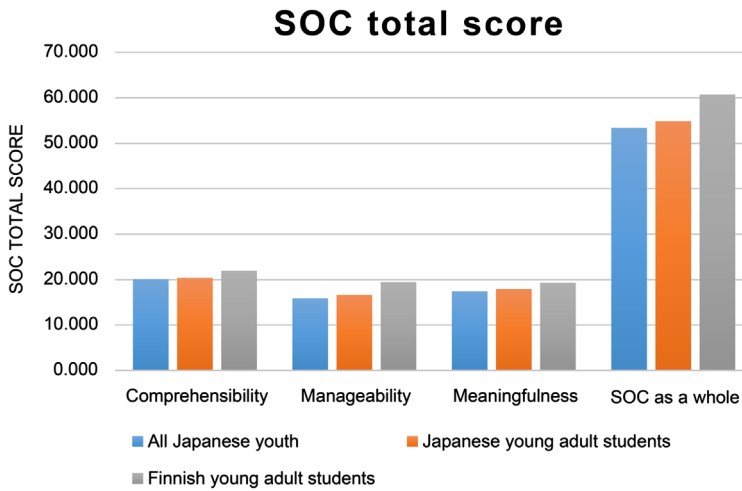


Figure 1. Comparison of Sense of Coherence (SOC) total and subscale scores among Japanese youth ($n = 762$), Japanese young adult students ($n = 206$), and Finnish young adult students ($n = 896$). Numbers on the left side are SOC scores.

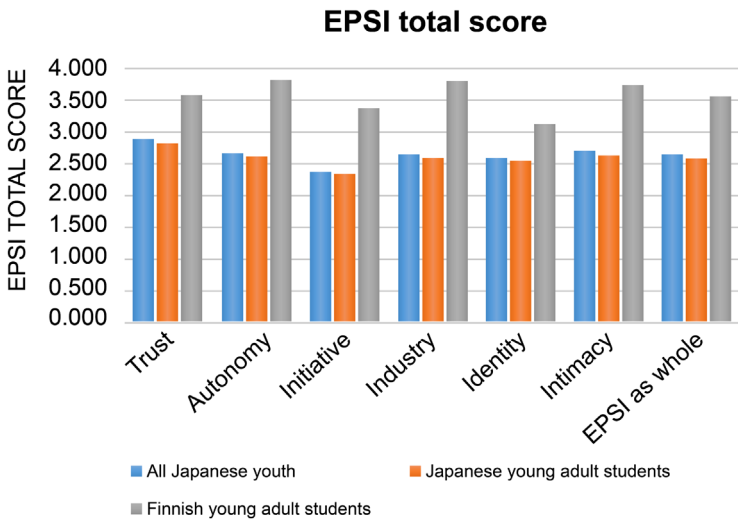


Figure 2. Comparison of the Erikson Psychosocial Stage Inventory (EPSI) total and subscale scores among Japanese youth, Japanese university students, and Finnish university students. Numbers on the left side are EPSI scores.

Discussion

Summary of the main findings

Tampere University students can be described as born out of the success group of child-rearing in Finland. These survey results show that compared to Japanese youth, the Finnish young adult students performed better both in learning achievement and PM. The result of the correlation analysis suggested that they followed two-directional development in which both EPSI and SOC developed, which is a pattern of development with many possibilities in the future because of multifaced PM. The result of this research about Japanese youth suggests that PM does not develop in parallel with intellectual and physical development, but that it takes its own developmental style.

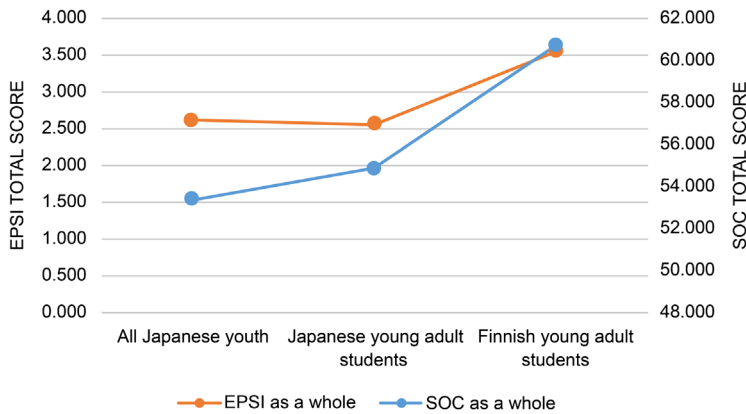


Figure 3. Comparison of SOC as a whole and Epsi as a whole among Japanese youth, Japanese university students, and Finnish university students. Numbers on the left side are Epsi scores and numbers on the right side are SOC scores.

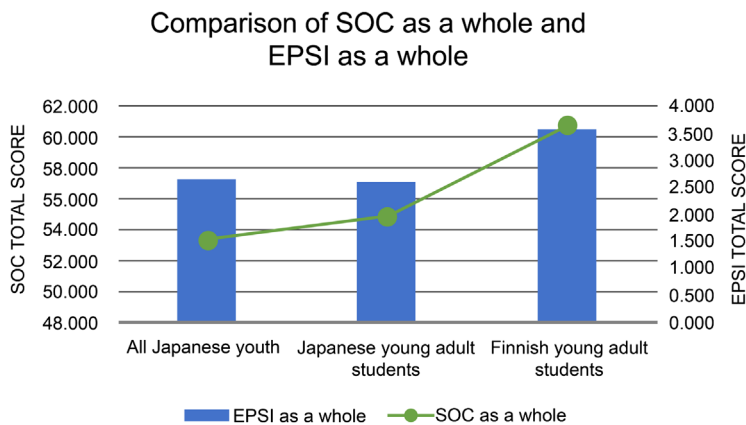


Figure 4. Comparison of SOC and Epsi total scores among Japanese youth, Japanese university students, and Finnish university students. Numbers on the left side are SOC scores and numbers on the right side are Epsi scores.

According to the literature, for the Epsi as a whole (Erikson, 1950, 1959, 2005), Japanese youth are found to have a weaker sense of identity compared to Finnish young adult students. Since Japanese youth show very low scores for other subscales, namely trust, autonomy, initiative, industry, and intimacy, achievement on all areas measured by these subscales is incomplete. Compared to the Finnish young adult students, Japanese youth are more likely to be in a state where self-identity is not established, to not have a clear self-image as to 'this is myself', to not be able to accept oneself as he/she is, and to not have confidence that 'I can manage as I am'. It cannot be said that Japanese youth experience themselves as good enough, in other words, they have not been able to build enough confidence in themselves.

However, because the Epsi and SOC scale scores of Japanese young adult students and Japanese youth in this survey were similar, I think the statistical comparison between Epsi and SOC scale in Japanese youth and Finnish young adult students in this survey was correct.

As for the 6 Epsi subscales, compared to the Finnish young adult students, Japanese youth were found to have the following: (1) lower trust, suggesting that they were in a state of not being able to have a sense of trust about the environment including others and oneself; (2) low autonomy, suggesting that they do not have the sense of being able to choose and decide freely by themselves and they appear

to feel doubt or shame about themselves; (3) low on initiation, suggesting that they are not keen on making a start on their own and to get on with it with energy, suggesting that they are unwilling to take responsibility for action they think is good; (4) low diligence, suggesting they have a low level of effectiveness accompanied by self-respect which can be obtained by exercising their skills in order to achieve goals; (5) lower level of identity, suggesting they do not appear to have a clear understanding of themselves and have a weak idea as to how to live their lives; (6) lower intimacy, suggesting they often lose themselves and cannot form intimate relationship with others, which means they often feel lonely.

As for the SOC scale as a whole (Antonovsky, 1987), compared to the Finnish young adult students, Japanese youth had weaker SOC and insufficient comprehensibility, manageability, and meaningfulness, which suggests that Japanese youth have a weak sense of their world being coherent, of living in an environment with support from trustworthy others, and a weak capacity to face and accept stressors calmly. As for the 3 SOC subscales, Japanese youth had (1) a low sense of comprehensibility, namely, they did not expect that stimuli they encountered in the future would be predictable and that they would be able to make sense of them; (2) a low sense of manageability, that is, they would feel victimized by events or feel that life treated them unfairly; and (3) a low sense of meaningfulness, that is, they didn't feel that life made sense emotionally, that at least some of the problems and demands posed by living are worthy of commitment and engagement.

Comparison of the current results with previous work

The findings of this survey that there is a strong, negative correlation between EPSI and SOC scale among Japanese youth deviates from preceding studies in Japan (Miyahara et al., 2004, 2005; Saito et al., 2007). Judging from the ways the questionnaire was administered, it is assumed that Japanese youth who took part in the survey had good relationships with their parents. Judging from the fact that while the option 'no response' was allowed for the EPSI and SOC scale, all of the analysed subjects answered all questions without error, which suggests they are young people who try to meet the demands that are placed on them. This suggests that they are good youth supported by excellent child-rearing in Japan, in the past twenty years. It is therefore serious that PM of Japanese youth as a result of excellent child-rearing has shown a strong, negative correlation for the EPSI and SOC scale ($r = -.685$).

In the international comparison of Nakanishi, the mean EPSI score for the Japanese young adult students was lower than that in Australia or Korea. Also in this survey, Japanese youth had statistically different low scores compared with young adult students in Finland.

Similar results between this survey and that of Nakanishi suggest that the EPSI of this survey quite correctly represented the situation of achieving the ego identity of Japanese youth.

EPSI comparisons inside their own countries are considered effective, but accurate consideration is not to be made as to whether the difference between Japanese and foreign youth, for example, Finnish youth or Australian youth on the EPSI expressed the correct identity achievement evaluation.

Clarification of factors that affect Japanese youth's EPSI and SOC scale scores is of importance for future research.

Limitations of the study

This study was limited due to potential response bias associated with internet-based surveys. A further limitation is the nature of self-report questionnaires.

The response rate of the questionnaire in Japan was 17.3%, while the rate in Finland was 24.2%; both rates were low. Because this survey in Japan was on a first-come-first-served basis, it remains questionable whether the concept of response rate can be applied.

In addition, the groups were not the same, that is, all of the Finnish sample were young adult students and less than half of the Japanese sample were young adult students.

Finally, there was no collection of other data which may have affected the results, such as living circumstances.

Implications and conclusions

Antonovsky (1987) argued that those with strong identity have strong SOC and EPSI. SOC should show a strong, positive correlation in healthy development, which suggests that the PM of Japanese youth who took part in this survey was highly unhealthy. It is therefore necessary to improve PM of Japanese youth so that attention is not concentrated solely on learning achievement in child-rearing, but on cultivating EPSI and SOC in the maturing personality, and in particular, on improving trust, autonomy, initiative, industry, identity and intimacy, and in particular, ego-identity.

Acknowledgement

We are grateful to the following people for their help with this research: participating youth, mothers, and fathers in Japan and Finland, and TUKIJA in Finland. We would like to thank Editage (www.editage.jp) for English language editing.

Disclosure statement

No potential conflict of interest was reported by the authors.

Funding

This work was supported by the JSPS KAKENHI [grant number 23660080].

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