A longitudinal study on development of adolescents' social attitudes

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The purpose of this study was to identify the factor structure of social attitudes among contemporary Japanese adolescents, and to examine the process of change in social attitudes through adolescence. Longitudinal data covering six years through junior high and high school years were obtained from 70 boys and 70 girls. Subjects were asked to respond to the 39-item social attitude questionnaire once a year. In order to explore the factor structure, the Quasi Three-Mode Principal Component Analysis was employed. Four factors, named *Conformity to Peer Norms*, *Totalitarianism vs. Individual Freedom*, *Political Apathy*, and *Respect for Traditional Values*, respectively were derived from both sex groups. All these factors were found to have basic stability. Sex differences were found regarding the pattern of intercorrelations among four attitude scales; for boys *Conformity* was closely associated with *Political Apathy*, while for girls *Totalitarianism* showed close relationship with *Political Apathy*. It was discussed the observed sex differences could be attributable to the differential sex-role expectations among boys and girls.

Key words: social attitudes, adolescence, longitudinal study, questionnaire, sex differences, quasi three-mode principal component analysis.

Adolescence is a period in which reconstruction of personality is undertaken. This is an important period because for

most of the adolescents, their personality structures, value systems, and attitudes toward the social and political systems are established during this phase. Studies on attitudes of adolescents for the past decades have been directed toward exploring either internal structures of the attitude, or external patterns of interrelationship among various attitude measures. Researchers on the internal attitude structures identified radicalism-conservatism (Eysenck, 1944; Thurstone, 1934) as a basic dimension of

¹ The authors wish to thank to Professors Mitsuru Wakabayashi and Takashi Murakami for reading and editing an earlier version of this paper.

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social attitudes. Since the purpose of their studies was to explore the factorial structure of social attitudes, the process of the attitude formation had not been examined in detail in their studies. Though adolescence is an important period for attitude formation, there exist very few data, especially longitudinal data, for understanding the process of attitude development in adolescence.

Several Japanese psychologists in the area of adolescents' social attitude studies have paid attention to two dimensions of the social attitude: conservatism and radicalism (Fujiwara, 1956). Nishihira (1967) noted that it is appropriate to add a mass-social attitude as the third dimension for understanding the structure of social attitudes among adolescents in contemporary Japan.

Commonly, a conservative attitude includes items concerning the feudal or authoritarian thoughts, a tendency to respect a traditional life-style and a "giri-ninjo" philosophy involving human relations in Japan, a passive and conservative way of living, acceptance of totalitarian philosophy on family systems, and the idea that women are inferior to men. On the other hand, a radical attitude consists of items concerning tendencies to respect the individual right and egalitarianism, orientations toward rational and scientific thoughts, and support for working-class solidarity. Lastly, a mass-social attitude includes items concerning a tendency to conform to others, other-directedness, political apathy associated with social alienation, a heightened feeling of "anomie," and a petit-bourgeoisie attitude. Emergence of this unique dimension may reflect a social change occurred since the late 1960s in Japan. Around this era, Japanese society began to represent some features of what is called the "mass society": mass-media, mass-production goods, and especially the various forms of youth culture.

Kuze and Hayamizu (1974) and Kuze,

Goto, Asano, Miyazawa, Ninomiya, Ikeda, and Ito (1980) discussed the process of social attitude changes in adolescence based on both the cross-sectional and the longitudinal data. They identified three dimensions of social attitudes: conservative, radical and mass-social. Then, interrelationship among these attitudes and the process of attitude change were examined. Their studies revealed some interesting results, but incidentally raised new questions. For example, one of the questions was whether these dimensions of social attitude have sufficient validity to explore the structure of social attitude among adolescents in modern Japan. This question was derived from the idea that social attitudes tend to be influenced by time as well as by changes of the social environment.

The present study has two purposes. The first one is to identify the factorial structure of social attitudes among contemporary Japanese adolescents for constructing new attitude scales. For this purpose, factor analyses will be conducted based on the same data as used by Kuze et al. (1980). The second one is to examine the process of change in social attitudes through the period of adolescence. In order to examine attitude change, the mean scores of attitude scales, intercorrelations among scales, and correlation coefficients between different periods for each scale will be calculated. They are all subject to comparison across groups by grade years.

Method

Social Attitudes Questionnaire

Table 1 presents 39 items that constitute the social attitudes questionnaire for the present study. For each item, subjects were asked to respond on a 5-point scale regarding the extent to which they agree with the content of the statement.

Subjects and Research Plan

The subjects are boys and girls in the

Table 1
Social attitudes questionnaire

-
1. Government should be left totally to the politicians.
 2. Women should not meddle in politics.
 3. Lineage of the family should be a consideration in choosing a spouse.
 4. Traditions and customs should be honored.
 5. Human sympathy and obligation are very important in getting along in the world.
 6. Naturally, the eldest son inherits the family estate.
 7. Filial piety is the duty of children.
 8. One should use honorific words in speaking with one's superiors.
 9. One should follow the regulations established by the school, no matter what.
 10. The existence of the ranking system is necessary to maintain order in the world.
 11. Japan should be united around the Emperor.
 12. Demonstrations and strikes are a disgrace to a democratic nation.
 13. The father should hold all the power in a family.
 14. One should respect the rights of the individual.
 15. If what we are doing is right, we should not concern about appearance.
 16. No matter how obligated we are to the person, it is best to refuse an unreasonable request.
 17. If we are doing something for the good of the society, we should do it, in spite of our parents' opposition.
 18. We should stop doing things that are irrational, even if they are traditional.
 19. Laborers have the right to demonstrate and strike.
 20. If I feel that a senior's view is incorrect, I will discuss it until I understand it.
 21. Dating should be done freely, and others should not be critical of it.
 22. In order to improve politics, we should elect more Dietmen who are progressive.
 23. Men and women should split household work equally.
 24. One can not rely on superstition.
 25. Ceremonies, such as weddings, should be simplified as much as possible.
 26. In the family, children's opinions should be regarded as equal to those of the parents.
 27. I am embarrassed if I do not know catchwords of today.
 28. I am not interested in the strikes and demonstrations by laborers and college students.
 29. I feel left out if I do not watch the TV programs everyone else is watching.
 30. There is no need to consider whether the laws of the nation are desirable.
 31. It is better for junior high and high school students to enjoy their leisure time, rather than think about political issues.
 32. Feelings and moods are more important than theories.
 33. I do not think Japan's politics will change, no matter who is elected to the House of Representatives.
 34. In today's world, it is best to seek a little happiness in an ordinary home.
 35. I want to avoid if people collecting for the community chest and the year-end mutual aid campaign.
 36. It is a bother to think about political issues, such as the Vietnam War, that are removed from daily life.
 37. One can never be happy unless he has money.
 38. I feel inferior if I do not have the same things, and wear the same clothes as everyone else.
 39. Pollution is an issue only for the victims and assailants.

junior high and high schools affiliated to the Faculty of Education, Nagoya University. Almost all of them lived in Nagoya and its vicinity, and they represented about the average regarding the level of scholas-

tic aptitude within the area. Longitudinal data were obtained by monitoring the same group of students once a year. A complete set of panel data covering six monitoring points throughout the junior

high and high school years were obtained from 140 students (70 boys and 70 girls). They started the junior high school in three different years (in 1972, 1973, and 1974) and all graduated the high school six years later (in 1978, 1979, and 1980 respectively). All subjects were combined into a single group for the purpose of present analyses. The questionnaire was administered in a group-test situation at the end of every school year.

Analysis

In order to explore the factor structure of social attitudes and also to describe the factor changes over six years (six time periods), the method of a Quasi Three-Mode Principal Component Analysis (QTMCA) (Murakami, 1983) was employed. This method allows to decompose a set of raw data matrices derived from the different time periods into three different kinds of matrices: (1) the factor loading matrix for items common to each time period, (2) the factor score matrix for subjects common to each time period, and (3) the core matrix for each time period which represents the degree of association between factor-score vectors and factor-loading vectors. The analyses for the present study were carried out for boys and girls separately, because a sex difference was expected to exist in the factor structure of social attitudes.

Results

Results by QTMCA (Quasi Three-Mode Principal Component Analysis)

Table 2 presents the factor loading matrices for items common to each time period obtained by using the QTMCA method. Table 3 presents the core matrices that represent a set of covariances between factor-score vectors and factor-loading vectors for the boy and girl subjects respectively. As shown in Table 3, four factor-loading vectors and five factor-score vectors are retained respectively based on

the examination of reduction in the sizes of eigenvalues. The subject mode analysis produced five factors for both sexes (see Table 3).

Two factor loading matrices shown in Table 2 indicated that there exist no essential sex differences in the content of items which showed high loadings to each factor. For both sexes, the first factor indicated an attitude concerning conformity toward accepting current jargons, popular TV programs, clothes and belongings which are preferred and shared among peer group members. This factor was labeled *Conformity to Peer Norms*.

Factor 2 for boys was defined by items indicating obedience to rules of the school, respect for freedom and right (negative), and egalitarianism (negative). Factor 2 for girls was characterized by items concerning the protection of rights (negative). Therefore, Factor 2 was labeled *Totalitarianism vs. Individual Freedom* for both sex groups in common.

Factor 3 for boys was characterized by items concerning an avoidance of political and social problems. Factor 3 for girls was also characterized by basically the same items as those for boys, but it reflected some items unique to girls, e.g., following the majority, a denial of traditional sex-role duties (negative), and so on. On the basis of these results, Factor 3 was labeled *Political Apathy* for both sex groups.

Factor 4 was represented by items concerning respect for the Japanese traditional values on human relations, i.e., on the filial piety, the ranking systems in the Japanese society, etc. Thus, Factor 4 was labeled *Respect for Traditional Values*.

Stability of factor loadings over six years was examined based on the core matrices shown in Table 3. If a factor was stable over six years, elements of the same cells of the core matrices would appear salient across all years. On the other hand, when it is unstable over time, elements would become larger at different cells of the core matrix at each time period (Murakami,

Table 2
Factor loadings

No. of Items	Boys					Girls				
	Factor loadings				Communi- nality	Factor loadings				Communi- nality
	1	2	3	4		1	2	3	4	
1.	.26	.11	.34	-.10	.20	.04	.31	.41	-.03	.27
2.	.08	-.03	.54	.03	.30	.02	.25	.50	-.04	.32
3.	.04	.27	.30	.02	.16	.01	.51	.12	-.04	.28
4.	-.11	.16	-.01	.29	.13	.05	.15	-.04	.36	.16
5.	.10	-.03	.10	.25	.09	.33	.23	-.00	.13	.18
6.	.14	.16	.11	.10	.07	.17	.38	.15	.10	.20
7.	.12	-.05	-.19	.37	.19	-.09	.05	.11	.54	.31
8.	.06	.05	-.11	.39	.17	-.03	.16	.14	.52	.31
9.	.28	.40	-.07	.02	.24	.02	.51	.05	.16	.29
10.	.07	.11	.19	.26	.12	.06	.21	.31	.07	.15
11.	.21	.30	.12	-.11	.16	.20	.52	.21	.07	.36
12.	.26	.34	.04	-.33	.29	.19	.46	.27	.02	.33
13.	.31	.10	.20	.09	.16	-.07	.23	.45	.31	.36
14.	.05	-.35	-.03	-.02	.13	.29	-.40	-.12	.03	.26
15.	-.23	-.29	-.11	-.07	.15	.03	-.17	-.32	.14	.15
16.	-.10	-.08	-.36	-.21	.19	.01	-.08	-.10	.20	.06
17.	-.20	-.37	.03	.02	.18	.21	-.22	-.26	-.14	.18
18.	.11	-.38	-.17	-.06	.19	.04	-.17	.02	-.15	.05
19.	-.14	-.37	.08	.14	.18	.03	-.49	-.13	.06	.26
20.	-.01	-.23	-.35	.01	.17	.06	-.11	-.34	.19	.17
21.	.22	-.50	.05	-.17	.33	.41	-.45	.11	.08	.39
22.	-.08	.04	-.01	.13	.03	.08	-.27	-.19	.07	.12
23.	.06	.11	-.30	-.35	.23	.16	-.10	-.49	-.19	.31
24.	-.05	.01	-.04	-.30	.10	-.25	-.40	-.04	-.29	.31
25.	-.18	-.31	.15	-.09	.16	-.22	-.19	-.07	-.04	.09
26.	.08	-.33	-.22	-.08	.17	.45	-.15	-.27	-.10	.30
27.	.62	.15	.05	.12	.42	.61	.05	.09	.02	.39
28.	.22	.10	.12	-.20	.11	.08	.22	.39	.01	.20
29.	.57	.12	.08	.01	.34	.55	.03	.15	.00	.33
30.	.28	.18	.40	-.12	.29	.15	.17	.43	-.03	.24
31.	.42	-.17	.29	-.18	.32	.33	-.05	.55	-.05	.42
32.	.45	-.14	.21	.02	.26	.51	-.08	.32	-.04	.37
33.	.15	-.24	.21	.05	.13	.11	-.07	.37	.02	.16
34.	.39	.03	-.17	-.09	.19	.18	.11	.35	.31	.26
35.	-.01	-.11	.50	-.10	.27	.05	.10	.26	-.54	.37
36.	.31	-.02	.37	-.41	.40	.13	.08	.56	-.23	.38
37.	.08	-.26	.38	.09	.23	.27	-.05	.40	-.13	.25
38.	.61	-.08	.17	.14	.42	.55	.12	.05	-.15	.34
39.	.24	.14	.51	-.19	.37	.07	.15	.45	-.47	.46
Contri- bution (%)	2.57 (6.6)	1.96 (5.0)	2.32 (5.9)	1.35 (3.5)	8.20 (21.0)	2.40 (6.1)	2.70 (6.9)	3.39 (8.7)	1.84 (4.7)	10.32 (26.5)

Notes: Factor 1, 2, 3 and 4 are labeled in order *Conformity to Peer Norms*, *Totalitarianism vs. Individual Freedom*, *Political Apathy*, and *Respect for Traditional Values*. Items with factor loadings with .30 or higher (shown by italic letters) were used to develop composite scales. However, three items with smaller loadings, but quite relevant in meaning, were used for the scale development. Items with high loadings across two or more factors were excluded from the aggregation.

Table 3
The core matrices by QTMCA

Factor scores by years	Boys				Girls			
	Factor loadings				Factor loadings			
	1	2	3	4	1	2	3	4
J 1								
(1)	.80	.05	.01	-.02	<i>1.00</i>	-.09	-.00	.10
(2)	-.01	.39	.07	.01	.04	<i>.84</i>	.01	.12
(3)	-.08	-.19	<i>.59</i>	-.49	.13	-.14	.72	-.21
(4)	-.02	-.04	-.06	.34	.06	.08	.02	.93
(5)	-.25	-.09	-.18	.21	.13	.05	-.24	.37
J 2								
(1)	.80	.12	.09	-.17	<i>.82</i>	.01	.01	.14
(2)	-.11	<i>.88</i>	.13	-.03	-.09	<i>1.02</i>	-.07	.11
(3)	-.13	-.14	<i>.85</i>	-.04	.11	.05	<i>.88</i>	-.03
(4)	-.04	-.11	-.11	<i>.69</i>	-.01	.08	-.09	<i>.94</i>
(5)	-.03	-.49	.02	.06	.23	-.13	-.25	-.11
J 3								
(1)	.87	-.10	-.05	.22	.97	-.01	-.01	.01
(2)	.08	.79	-.11	-.16	-.11	<i>.89</i>	-.10	.04
(3)	.03	.12	<i>1.01</i>	-.15	-.11	-.03	<i>1.05</i>	.02
(4)	-.24	.04	.40	<i>1.15</i>	-.16	-.06	-.08	.99
(5)	-.06	-.08	.10	.06	-.01	-.43	-.07	.10
H1								
(1)	<i>1.16</i>	-.26	-.05	-.00	<i>1.04</i>	.09	.05	-.04
(2)	.09	<i>1.11</i>	-.23	.04	.09	<i>1.00</i>	-.07	-.04
(3)	.06	-.19	<i>1.03</i>	.19	-.04	-.06	<i>1.03</i>	-.02
(4)	.10	-.09	-.06	<i>1.12</i>	-.01	.10	.08	<i>1.04</i>
(5)	-.10	.22	.29	.04	.02	-.01	.12	-.01
H2								
(1)	<i>1.08</i>	-.01	-.08	.09	<i>1.02</i>	-.02	.02	-.05
(2)	-.09	<i>1.12</i>	-.17	-.00	.04	<i>.95</i>	-.08	-.08
(3)	.00	.14	<i>.99</i>	.06	-.03	-.07	<i>1.08</i>	.12
(4)	.11	.17	.06	<i>1.15</i>	.07	-.10	.06	<i>1.00</i>
(5)	.10	.18	.19	.01	-.17	.45	.22	-.13
H3								
(1)	<i>1.02</i>	.07	-.15	-.07	<i>1.00</i>	.14	.03	-.13
(2)	-.11	<i>.86</i>	-.23	.14	.08	<i>.83</i>	.11	-.02
(3)	.12	-.04	<i>.80</i>	-.09	.03	.07	<i>1.01</i>	.11
(4)	.08	.03	.07	<i>1.00</i>	.05	-.11	.09	.92
(5)	.36	.78	<i>.80</i>	-.09	-.12	<i>.57</i>	.34	-.10

Notes: J1, J2, and J3 mean the first, second, and third years in junior high school, and H1, H2, and H3 mean the first, second, and third years in high school. Covariances with .50 or over are shown by italic letters.

1983). Core matrices for boys in Table 3 essentially show the same results as those for girls, except for J1: the first year in junior high school (hereafter junior high school groups are named in the same

manner). That is, firstly, factor-loading vectors 1 to 4 showed a link with factor-score vectors 1 to 4, respectively. These results are found throughout six years, except for J1. Second, the fifth factor-score

Table 4
Coefficients of reliability for each scale by year (Cronbach's α)

Sex and scales	Years					
	J 1	J 2	J 3	H 1	H 2	H 3
Boys						
Conformity to Peer Norms	.66	.53	.59	.76	.75	.79
Totalitarianism vs. Individual Freedom	.14	.51	.49	.66	.68	.66
Political Apathy	.49	.59	.64	.71	.64	.72
Respect for Traditional Values	.36	.34	.41	.39	.48	.52
Girls						
Conformity to Peer Norms	.67	.60	.65	.65	.66	.67
Totalitarianism vs. Individual Freedom	.67	.70	.63	.65	.73	.76
Political Apathy	.61	.71	.76	.79	.80	.82
Respect for Traditional Values	.61	.63	.51	.60	.53	.57

Notes: J1, J2, and J3 mean the first, second, and third years in junior high school, and H1, H2, and H3 mean the first, second, and third years in high school.

vector links with factor-loading vectors 2 and 3, in some years especially in the final year. These results on the core matrices indicated that the factor loadings shown in Table 2 are invariant throughout six years, except for J1. Moreover, the factor scores which correspond to those factor loadings are almost stable, although that factor scores corresponding to second and third factor-loading vectors fluctuate slightly.

In sum, factor structure of social attitudes, except for *Totalitarianism vs. Individual Freedom*, among adolescents are considerably stable for both sexes at least over the six years covered by this study.

Construction of Scales and Internal Consistency of Social Attitude Scales

Four attitude scales for each sex group were constructed based on the above results of QTMCA. Items used for constructing scales were shown in Table 2 with their factor loadings indicated by italic letters. Reliability coefficients (Cronbach's alphas) of each scale computed at each year for each sex group are presented in Table 4.

Among boys, most reliability coefficients for *Conformity*, *Totalitarianism*, and *Political Apathy* are high throughout six years, while

those for *Traditional Values* are low during those years. Among girls, all reliability coefficients for four attitude scales are high over six years. These results support the findings derived from the analysis of core matrices in Table 3.

Changes in Mean Scores and in Correlation Coefficients among Scales

Mean scores and standard deviations for each aggregate scale by grade are presented in Table 5.

Boys. In H3 (the third year of high school, hereafter high school groups are called in the same manner), the mean for *Conformity* was lower than means for other years, except for J3 ($p < .05$, $p < .01$, $p < .05$, and $p < .05$, respectively). This indicates that boys in H3 tend to have a weaker attitude of conformity to peer norms.

The comparison of means of *Totalitarianism* showed no differences among year groups, indicating that the conservative and totalitarian attitude changed very little throughout six years. Means for *Political Apathy* remained low over six years. The mean score for J1 was lower than means for other years ($p < .05$, $p < .001$, $p < .001$, $p < .001$, and $p < .001$, respectively). The mean score for J2 was lower than those for J3 and for all three years of high

Table 5
Mean scores and standard deviations of each scale

Sex and scales	Years					
	J 1	J 2	J 3	H1	H2	H3
Boys						
Conformity to Peer Norms	2.84 (0.56)	2.84 (0.52)	2.74 (0.52)	2.79 (0.65)	2.76 (0.58)	2.65 (0.62)
Totalitarianism vs. Individual Freedom	2.29 (0.38)	2.30 (0.47)	2.33 (0.41)	2.25 (0.47)	2.32 (0.48)	2.28 (0.44)
Political Apathy	2.01 (0.47)	2.17 (0.51)	2.36 (0.57)	2.38 (0.57)	2.37 (0.49)	2.45 (0.54)
Respect for Traditional Values	3.18 (0.49)	3.20 (0.47)	3.25 (0.46)	3.33 (0.47)	3.33 (0.42)	3.29 (0.45)
Girls						
Conformity to Peer Norms	3.11 (0.56)	3.01 (0.51)	2.97 (0.49)	2.99 (0.49)	2.99 (0.53)	3.01 (0.51)
Totalitarianism vs. Individual Freedom	2.56 (0.50)	2.41 (0.49)	2.33 (0.47)	2.34 (0.46)	2.39 (0.49)	2.32 (0.50)
Political Apathy	2.44 (0.38)	2.50 (0.43)	2.53 (0.43)	2.62 (0.47)	2.71 (0.47)	2.67 (0.48)
Respect for Traditional Values	3.65 (0.54)	3.56 (0.58)	3.49 (0.47)	3.36 (0.52)	3.50 (0.48)	3.40 (0.50)

Notes: J1, J2, and J3 mean the first, second, and third years in junior high school, and H1, H2, and H3 mean the first, second, and third years in high school.

school ($p < .01$, $p < .01$, $p < .01$, and $p < .001$, respectively). These results show that after J3 boys tend to be apathetic to political affairs.

Means for *Traditional Values* remained high throughout six years. Comparing means among year groups indicated that J1 was lower than H1 and H2 ($p < .05$, and $p < .05$). Also, the mean for J2 was found lower than that for H1 ($p < .05$). These results suggest that among boys the attitude toward traditional values becomes stronger in high school than in junior high school.

Correlations coefficients were computed between all possible combinations of time periods for each attitude scale. All correlations for boys are high during the six years except for those of *Traditional Values*. Correlation coefficients for *Traditional Values* remain significantly high for the three years in high school. Generally speaking, social attitudes for boys tend to be stable in adolescence.

Girls. As shown in Table 5, among girls means of *Conformity* for the periods from

J2 to H2 were lower than those for J1 ($p < .05$, $p < .01$, $p < .05$, and $p < .05$, respectively). This result indicates that girls in J1 display very strong tendency toward conformity to peers compared to all other years that followed thereafter. Also, means of *Totalitarianism* for the periods from J2 to H3 were lower than those for J1 ($p < .01$, $p < .01$, $p < .001$, $p < .01$, and $p < .001$, respectively). For girls, *Totalitarianism* shows a declining trend after J2.

In contrast, the mean of *Political Apathy* for J1 was lower than those for J3 and thereafter ($p < .05$, $p < .001$, $p < .001$, and $p < .001$, respectively). Moreover, J2 and J3 showed lower means compared to those for the all high school years ($p < .01$, $p < .001$, and $p < .001$, for J2; $p < .05$, $p < .001$, and $p < .01$, for J3). And the mean for H1 was lower than that for H2 ($p < .05$). These results suggest that girls tend to develop politically apathetic attitude during the high school period, relative to their junior high school years.

Means of *Traditional Values* for all years after J3 became lower, compared to J1

Table 6
Correlations between scales for each year

Sex and scales	Years					
	J 1	J 2	J 3	H1	H2	H3
Boys						
Conformity × Totalitarianism	.066	-.008	.004	-.115	-.060	.169
Conformity × Political Apathy	.227	.253*	.268*	.376***	.320**	.472***
Conformity × Traditional Values	.139	-.096	.107	.035	.312**	.102
Totalitarianism × Political Apathy	.036	.306**	.089	-.248*	.092	.245*
Totalitarianism × Traditional Values	.138	-.079	.161	-.033	.055	.290*
Political Apathy × Traditional Values	-.240*	-.361**	.214	.120	-.039	.043
Girls						
Conformity × Totalitarianism	.070	.097	.085	.242*	.188	.270*
Conformity × Political Apathy	.253*	.181	.116	.138	.195	.284*
Conformity × Traditional Values	-.107	-.050	-.101	-.091	.054	.048
Totalitarianism × Political Apathy	.321**	.411***	.404***	.378***	.404***	.579***
Totalitarianism × Traditional Values	.458***	.391***	-.113	.135	.046	.059
Political Apathy × Traditional Values	-.068	-.048	-.121	-.046	.066	.126

Notes: Conformity means *Conformity to Peer Norms*, Totalitarianism means *Totalitarianism vs. Individual Freedom*, and Traditional Values means *Respect for Traditional Values*.

($p < .05$, $p < .001$, $p < .05$, and $p < .001$, respectively). The means of *Traditional Values* for H1 and H3 were lower than that for J2 ($p < .01$ and $p < .05$). In H1 the mean was lower, relative to J3 ($p < .05$), and also to H2 ($p < .01$). These results suggest that the attitude toward *Traditional Values* becomes weaker gradually during adolescence, although it may reach the weakest in H1.

Correlation coefficients for each attitude scale across different time periods are consistently high, indicating that all scales are stable over six years.

Intercorrelations among Attitude Scales over the Six Monitoring Periods

Correlation coefficients among attitude scales over six monitoring periods are presented in Table 6 for each sex group. Results shown in Table 6 indicate that there exists a sex difference in patterns of intercorrelations among attitude scales. For boys, correlations between *Conformity* and *Political Apathy* are positive throughout six monitoring periods, while intercorrelations among other attitude scales are not consistent over time. For girls, correla-

tions between *Totalitarianism* and *Political Apathy* are all positive and statistically significant across the six monitoring periods. However, the other correlations are found not to show any consistent patterns.

Discussion

The Factor Structure of Social Attitudes in Adolescence

In order to explore the factor structure of social attitudes in adolescence, the method of Quasi Three-Mode Principal Component Analysis (QTMCA) was used for analyzing a set of longitudinal data derived from junior high and high school students. Four factors, namely *Conformity to Peer Norms*, *Totalitarianism vs. Individual Freedom*, *Political Apathy* and *Respect for Traditional Values*, were produced for both male and female samples. All of four attitude scales derived from QTMCA are found to have a basic stability.

The first scale, *Conformity* resembles to the mass-social attitude identified by Kuze and Hayamizu (1974). A set of items that define *Totalitarianism* for the present study includes some of items which constituted

a conservative attitude and a radical attitude (negative) for their study. Further, items for *Political Apathy* and *Traditional Values* overlap with conservative and mass-social attitudes for their study. These findings suggest that social attitudes in adolescence differ dynamically over the passage of time.

The other findings show that there exist sex differences in correlation patterns among four attitude scales for this study. Among boys *Conformity* is closely associated with *Political Apathy*, while among girls *Totalitarianism* shows close relationship with *Political Apathy*. Sex differences in mean social attitude levels would be discussed later.

Stability of Social Attitudes in Adolescence

Stability, or a change, of social attitudes in adolescence was examined from the four different points of view: stability of factor structures, intercorrelations among four scales, comparison of mean scores between different years for each scale, and comparison of correlational patterns among attitude scales across the six time periods. The results indicated that social attitudes were stable in adolescence for both sex groups. Comparison of mean scores in each scale showed that for both sexes the mean of *Political Apathy* was higher during the high school, compared to the junior high school periods. For other scales, little changes in means were found over the high school years for both sexes, but those means became unstable at the junior high school level.

Very often, adolescence is characterized as an unstable period with a label like "storm and stress" (Hall, 1904). But the findings of our study suggest that the change in social attitudes during adolescence is small. Kuze, Goto, Asano, Nino-miya, Miyazawa, Munekata, and Ohno (1983) pointed out that it is necessary to examine those subjects who are slightly younger or older than those studied by the present research, in order to explore the

process of attitude formation, and also the change of it, within the long periods of adolescence. For this purpose, the following questions should be answered. What kind of social attitudes do children have? How do the social attitudes maintained by adolescents change upon encountering new attitudes after adolescence, toward the establishment of meaningful relationships among them?

Sex Differences

Considering that sex-role expectations for girls are different from those for boys, it is expected that sex differences would exist on the developmental process of social attitudes. This study identified four factors for both sexes, with the same contents and labels attached for both sex groups. However, sex differences appeared on the pattern of factor loadings among individual items that constituted each factor. In addition, interrelations among four scales showed an interesting difference between sex groups; for boys *Conformity* was associated positively with *Political Apathy*, while for girls *Totalitarianism* related positively with *Political Apathy*. One of the reasons for explaining these sex differences on social attitudes would be the difference in sex-role expectations between the two groups. Girls tended to think that staying out of political affairs conforms to female sex-role expectations in the society, and thus, *Political Apathy* became associated positively with the conservative life style. On the other hand, traditional sex-role expectations for males often encourage political participation on the part of boys, though their conservative life style tends to allow them to choose avoidance from politics.

Although development of social attitudes is considered to have close relationship with sex-role expectations, very few data exist in this area. In future studies, sex differences on the social attitudes should be examined in more detail by exploring the effect of differential expectations on

sex-role behaviors between boys and girls.

References

- Eysenck, H.J. 1944 General social attitudes. *Journal of Social Psychology*, **19**, 207-228.
- Fujiwara, K. 1956 A psychological study of adolescence. *Bulletin of Noma Institutes of Education*, **12**. (In Japanese)
- Hall, G.S. 1904 *Adolescence: Its psychology and its relations to physiology, anthropology, sociology, sex, crime, religion, and education*. Englewood Cliffs, N.J.: Prentice Hall.
- Kuze, T., & Hayamizu, T. 1974 A study of social attitudes of the adolescents. *Bulletin of the Faculty of Education, the Department of Educational Psychology, Nagoya University*, **21**, 1-11. (In Japanese with English summary)
- Kuze, T., Goto, M., Asano, K., Miyazawa, S., Ninomiya, K., Ikeda, H., & Ito, Y. 1980 A longitudinal study of social attitudes of adolescents (II). *Bulletin of the Faculty of Education, the Department of Educational Psychology, Nagoya University*, **27**, 65-87. (In Japanese with English summary)
- Kuze, T., Goto, M., Asano, K., Ninomiya, K., Miyazawa, S., Munekata, H., & Ohno, H. 1983 A supplementary analysis of "A longitudinal study of social attitudes of adolescents." *Bulletin of the Faculty of Education, the Department of Educational Psychology, Nagoya University*, **30**, 41-61. (In Japanese with English summary)
- Murakami, T. 1983 Quasi three-mode principal component analysis: A method for assessing the factor change. *Behaviormetrika*, **14**, 27-48.
- Nishihira, N. 1967 A factor-analytic study of the measurement of social attitudes: FMS. *Memoirs of the Faculty of Liberal Arts & Education, Yamanashi University*, **18**, 119-128. (In Japanese)
- Thurstone, L.L. 1934 The vector of mind. *Psychological Review*, **41**, 1-32.

(Received Jan. 12, 1985; accepted Sept. 14, 1985)