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著者	ONO AKIO, SAKAYANAGI TSUNEO
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# INFLUENCE OF SEX ROLE SELF-CONCEPT AND LIFE FULFILLMENT SENTIMENT ON VOCATIONAL MATURITY

By

AKIO ONO (小野章夫)<sup>1</sup>

(Osaka University of Education)

and

TSUNEO SAKAYANAGI (坂柳恒夫)<sup>2</sup>

(Aichi University of Education)

Influence of sex role self-concept on vocational maturity was investigated in relation to life fulfillment sentiment and sociostatistical variables such as sex, academic grades and siblings of 323 university students (147 males and 176 females). Results were well in accordance with hypotheses. Firstly, androgynous and masculine subjects were more advanced than nonmasculine (or feminine) and undifferentiated subjects in their vocational maturity. In particular, there was observed the primacy of psychological androgyny over any other types in sex role self-concept. Secondly, fulfillment sentiment was positively related to vocational maturity. Thirdly, sex role self-concept was highly associated with fulfillment sentiment for facilitating vocational maturity.

There were no sex differences in vocational maturity, and it is hence indicated that differential career counseling should be based on clients' sex role self-concept in connection with fulfillment sentiment, rather than sex itself. The present study is also characterized by emphasizing nonmasculinity instead of femininity as contrasted with masculinity for classifying sex role self-concept types. A new mode of psychological androgyny consisting of masculinity and nonmasculinity is thus suggested.

**Key words:** Vocational maturity, Sex role self-concept, Psychological androgyny, Non-masculinity, Life fulfillment sentiment, Differential career counseling.

## INTRODUCTION

Criticizing the traditional major tests of masculinity-femininity in adults, Constantinople (1973) proposed that masculinity and femininity are not posited at the ends of one bipolar dimension in nature, but belong to separate dimensions. In 1974, Bem developed a new sex role inventory that treats masculinity and femininity as two independent dimensions, and empirically succeeded in introducing the concept of

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1. Department of Psychology, Osaka University of Education, Osaka, Japan.

2. Department of Career Guidance, Aichi University of Education, Kariya, Japan.

psychological androgyny.

In the meantime, among diverse factors influencing career decision making, sex role *self-concept* became an important issue about 1980 (Harren & Biscardi, 1980; Harren et al., 1978; 1979; Krefting & Berger, 1979; Moreland et al., 1979; Stockton et al., 1980; Strange & Rea, 1983; Wolfe & Betz, 1981; Yanico et al., 1978). In fact, this subject would have appeared to researchers to be a variable worth exploring in relation to career choice in the light of Super's theory (1957) stating that occupational choice is an implementation of one's self-concept, as Yanico et al. (1978) pointed out. The results of the studies within this context seem to imply the significance of differential counseling in general, which is mainly based on sex role self-concept rather than sex itself, although most researchers refer to their results for each sex.

Moreland et al. (1979) hypothesized that masculine and androgynous subjects would be more advanced in career decision making than subjects classified as feminine or undifferentiated, and provided evidence to support their hypothesis on the whole in that differences in sex role self-concept were associated with differences in subjects' decision making progress regarding choice of college, choice of academic major and choice of occupation. On these three decisional tasks, for example, androgynous women were superior to undifferentiated women, but did not differ significantly from women classified as masculine or feminine. On the other hand, androgynous men did not differ from men categorized as masculine, feminine or undifferentiated in their selection of college and major. On these two tasks, masculine men were superior to feminine and undifferentiated men. For choice of occupation, however, androgynous men were more advanced than men categorized as feminine.

Our initial intention in this paper was to examine an influence of sex role self-concept on vocational maturity, which is regarded as a basis for career decision making. It was thus hypothesized, first of all, that androgynous and masculine subjects would be more advanced in their vocational maturity than feminine and undifferentiated subject. In relation to this hypothesis, as an interpretation of Bem's view (1974) implying that it would not be the sex-typed individual, but the androgynous person who typifies psychological health, it was also assumed that androgynous subjects would be more advanced than any of the other types in sex role self-concept. Our next intention here was to weigh the degree of influence of sex role self-concept on vocational maturity in comparison with other psychological factors as well as sociostatistical factors. As examples of the latter, we can naturally specify sex, academic grades and siblings of our subjects if they are university students. However, it is rather difficult to choose a relevant psychological variable as compared with sex role self-concept.

In this respect, referring to the concept of developmental tasks Super and his associates (1957) used in their treatment of vocational maturity, Anastasi (1979) put other words for it, saying that at any stage of development, "vocational maturity implies sufficient flexibility to permit the individual to modify his or her occupational

activities and life-style to meet the demands of changing personal and social situations." From this, we may understand that vocational maturity is greatly associated with one's adjustment in everyday life or life satisfaction at different developmental stages. In this paper, we hence selected life satisfaction or life fulfillment sentiment in adolescence as a variable comparable with sex role self-concept. Thus, our second hypothesis was that fulfillment sentiment in daily life would be positively related to vocational maturity, and thirdly it was hypothesized that sex role self-concept would be largely connected with fulfillment sentiment for facilitating vocational maturity.

#### METHOD

One hundred and fourty seven male and 176 female students of Osaka University of Education took part in this study as subjects. They were 19.4 years old on the average, and were tested in groups of about 80 persons during the period from June to July in 1985.

The following three questionnaires were completed by subjects in the order described next. Firstly, the 30 items, originally reported by Wakabayashi et al. (1983), were used to measure vocational maturity. Secondly, a sex role self-concept inventory, consisting of 10 male scale items, 10 female scale items and 10 neutral scale items, was constructed making reference to the studies by Bem (1974), Ito (1978), Kashiwagi (1972) and Tzuriel (1984). Thirdly, the 20 items, originally reported by Ohno (1984), was adopted to measure fulfillment sentiment in daily life. All item-statements\* in the three instruments enumerated below were rated on a 5-point Likert type scale of one (never true) to five (very true).

#### Vocational maturity

(1) I want to do only what I like without getting a job if possible, because work is rather hard. (2) My job has been already decided, and I am prepared for it now. (3) What occupation one chooses is not an important matter, because whatever one does very hard will necessarily result in success. (4) I consider my future for myself, look for a right job by myself, and challenge to get it. (5) The occupations for which I can act to the best of my ability are limited, because I have not only a merit but a fault. (6) I want to devote myself now to what I like, and postpone a little longer to think about my future. (7) I was puzzled as to what job to get, but have realized it recently. (8) For choice of an occupation, it is most important to ascertain whether it suits one's interest and whether it is worth while to do. (9) I agree to the advice given to me when I choose my job, because I do not know what job suits me and have no particular favorite one. (10) I have potential ability to accomplish everything. (11) I want to finish my school soon, and try my ability through work. (12) There are many jobs I want to get, but it seems to me that I can get none of them. (13) I know well what conditions are required to get work, because I understand enough the details of occupations I am interested in. (14) I let things take their own course without thinking of one thing or another, because I think one's occupation is almost determined by birth. (15) It is inevitable that there are things I can do or I can not, and I can be

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\* The authors of the present article are fully responsible for traslating the original Japanese statements into English, particularly in the first and third questionnaires mentioned above.

interested in or I can not. (16) I do not try to think of my future occupation. (17) I have lost sight of what work I really want to get, because many people advise me of too various things. (18) Occupational choice is rather like drawing lots, and what job one gets depends on chance. (19) I have a future goal of my occupation, and I get along thinking various things to realize it. (20) There is a considerable gap between what people around me say to me and what I am thinking about myself. (21) I am very much interested in trying my ability fully through an occupation I choose. (22) There are many occupations which appeal to me, but whatever I may choose, it is necessary to start over again from the beginning. (23) Irrespective of occupations, I begin with a proper job, and think over future affairs later. (24) It is necessary to choose one's own occupation by oneself, and to take the responsibility for that choice. (25) My knowledge and ability are still insufficient, and it takes long time hereafter to become an independent professional. (26) I am deeply concerned with getting knowledge and qualification which are useful to me after I have gone out into the world. (27) It is meaningless to think of an occupation which suits my aptitude, because I never know how I shall be in the future. (28) It is important to choose a satisfactory occupation by collecting information and examining it closely. (29) After all, an occupation which my parents recommend is the most desirable one to myself. (30) From my experience until now, I generally understand how much ability I have and what I am suited for.

### Sex role self-concept

*Male scale*: (1) Has leadership abilities (4) Analytical (7) Willing to take the responsibility (10) Strong personality (13) Asserts oneself (16) Defends own beliefs (19) Strong spirit of independence (22) Makes decisions easily (25) Strong will (28) Willing to take risks

*Female scale*: (2) Cheerful (5) Delicate (8) Uses polite language (11) Sympathizes easily (14) Devoted (17) Gentle (20) Likes children (23) Tender (26) Compliant (29) Affectionate

*Neutral scale*: (3) Truthful (6) Conventional (9) Adaptable (12) Fair (15) Patient (18) Careful (21) Tactful (24) Honest (27) Healthy (30) Conscientious

### Life fulfillment sentiment

(1) My daily life is so monotonous that I feel it dull. (2) One can determine how to live for oneself. (3) I feel nobody takes notice of me. (4) I feel it pleasure to perform my duty. (5) My life is full of fulfillment sentiment, and I feel happy in life. (6) In time of necessity, I tend to rely on other people by all means. (7) I feel lonely as if I were left alone. (8) I have the satisfaction of having drawn my first breath. (9) My everyday life is not interesting. (10) I think I have the spirit of independence. (11) I feel myself miserable and disgusting. (12) I am conscious of my mission for something in daily life. (13) I live a life worth living. (14) When I think about my way of life, I am easily swayed by what other people say. (15) I think nobody understands me. (16) I think I live a valuable life. (17) I usually feel "I have no mind to do anything." (18) I am confident of my own way of life. (19) I am impatient, because I think I should not remain to be in my present state. (20) I have a bright hope in my future.

## EXAMINATION OF INSTRUMENTS

### 1. Vocational maturity

The second and third columns of Table 1 present factor loadings obtained from a factor analysis by the principal factor method performed on all items proposed to measure vocational maturity, item-total correlations of each item and coefficient alpha for the 30 items. We naturally eliminated negatively loaded items, negative item-total correlation items, and those items whose factor loadings are below the level of

Table 1. Reliability of vocational maturity scale.

Item No.	All items		Selected items (20)	
	Factor loading	*Item-total correlation	Factor loading	*Item-total correlation
( 1 ) R	0.419	0.348	0.419	0.398
( 2 )	0.592	0.512	0.610	0.561
( 3 ) R	-0.043	-0.053		
( 4 )	0.455	0.403	0.424	0.383
( 5 ) R	-0.141	-0.071		
( 6 ) R	0.492	0.377	0.492	0.449
( 7 )	0.546	0.470	0.554	0.505
( 8 )	0.251	0.248		
( 9 ) R	0.486	0.374	0.475	0.409
(10)	0.175	0.149		
(11)	0.374	0.361	0.375	0.346
(12) R	0.535	0.419	0.509	0.456
(13)	0.459	0.359	0.463	0.424
(14) R	0.384	0.294	0.377	0.327
(15)	-0.045	-0.011		
(16) R	0.643	0.567	0.641	0.599
(17) R	0.607	0.486	0.611	0.552
(18) R	0.371	0.291	0.379	0.338
(19)	0.612	0.554	0.622	0.567
(20)	-0.251	-0.217		
(21)	0.450	0.405	0.435	0.409
(22)	-0.269	-0.190		
(23) R	0.527	0.373	0.484	0.450
(24)	0.477	0.449	0.481	0.429
(25)	-0.059	-0.026		
(26)	0.324	0.297	0.309	0.280
(27) R	0.633	0.530	0.631	0.569
(28)	0.186	0.183		
(29)	-0.275	-0.251		
(30)	0.397	0.347	0.410	0.359
	coefficient alpha=0.755		coefficient alpha=0.856	

R denotes reverse scoring.

\* Correlation of each item with the sum of the remaining items.

0.300 and whose item-total correlations are below the level of 0.200. Twenty items were thus selected, and their factor loadings and item-total correlations are shown in the fourth and fifth columns of Table 1, together with coefficient alpha for the 20 items. Hence, we may understand that the measure consisting of the selected items exhibits highly acceptable levels of internal consistency, and yields scores that are unidimen-

Table 2. Reliability of life fulfillment sentiment scale.

Item No.	All items		Selected items (19)	
	Factor loading	*Item-total correlation	Factor loading	*Item-total correlation
( 1 ) R	0.576	0.506	0.580	0.515
( 2 )	0.356	0.368	0.344	0.346
( 3 ) R	0.596	0.548	0.599	0.558
( 4 )	0.416	0.401	0.412	0.396
( 5 )	0.697	0.624	0.702	0.639
( 6 ) R	0.377	0.379	0.363	0.351
( 7 ) R	0.699	0.652	0.700	0.658
( 8 )	0.503	0.465	0.506	0.473
( 9 ) R	0.723	0.656	0.728	0.666
(10)	0.263	0.271		
(11) R	0.586	0.547	0.588	0.553
(12)	0.407	0.388	0.402	0.378
(13)	0.754	0.691	0.757	0.699
(14) R	0.412	0.414	0.403	0.396
(15) R	0.541	0.504	0.543	0.511
(16)	0.722	0.663	0.724	0.669
(17) R	0.693	0.664	0.694	0.669
(18)	0.700	0.676	0.696	0.671
(19) R	0.586	0.548	0.587	0.554
(20)	0.532	0.474	0.533	0.480
	coefficient alpha=0.897		coefficient alpha=0.899	

R denotes reverse scoring.

\* Correlation of each item with the sum of the remaining items.

sional. One factor accounts for 68.7% of the total variance.

## 2. Life fulfillment sentiment

In the same manner as in selecting the items for vocational maturity, an item loaded below the level of 0.300 was eliminated from the total items initially adopted to measure fulfillment sentiment. Thus, factor loadings, item-total correlations and coefficient alpha for the remaining 19 items in Table 2 appear to be highly acceptable for internal consistency, and the measure consisting of these selected 19 items yields a unidimensional factor that accounts for 70.4% of the total variance.

## 3. Sex role self-concept

### *Sex role self-concept types based on masculinity and nonmasculinity*

In the principal factor analysis of the 30 items proposed to measure sex role self-concept, a factor indicating masculinity was clearly extracted as seen from factor loadings for masculinity in Table 3. Item-total correlations and coefficient alpha for the masculine items indicate acceptable levels of internal consistency. At the same

Table 3. Reliability of sex role self-concept scale (Masculinity &amp; Nonmasculinity).

Item No.	All items			Selected items		
	Factor loading	*Item-total correlation	coefficient alpha	Factor loading	*Item-total correlation	coefficient alpha
Masculinity						
( 1 )	0.497	0.446		0.497	0.446	
( 4 )	0.379	0.284		0.379	0.284	
( 7 )	0.470	0.411		0.470	0.411	
(10)	0.504	0.423		0.504	0.423	
(13)	0.630	0.565	0.777	0.630	0.565	0.777
(16)	0.686	0.513		0.686	0.513	
(19)	0.535	0.491		0.535	0.491	
(22)	0.402	0.364		0.402	0.364	
(25)	0.667	0.548		0.667	0.548	
(28)	0.435	0.391		0.435	0.391	
Nonmasculinity						
( 2 )	0.429	0.324		0.459	0.370	
( 5 )	0.206	0.176				
( 8 )	0.297	0.300				
(11)	0.251	0.213				
(14)	0.502	0.453		0.470	0.419	
(17)	0.427	0.396		0.399	0.365	
(20)	0.288	0.212				
(23)	0.621	0.528		0.621	0.534	
(26)	0.058	0.063				
(29)	0.689	0.576	0.785	0.677	0.583	0.809
( 3 )	0.599	0.514		0.604	0.533	
( 6 )	0.225	0.257				
( 9 )	0.371	0.325		0.377	0.360	
(12)	0.390	0.329		0.392	0.353	
(15)	0.401	0.354		0.367	0.341	
(18)	0.492	0.461		0.474	0.417	
(21)	0.423	0.341		0.433	0.359	
(24)	0.511	0.426		0.517	0.438	
(27)	0.392	0.332		0.407	0.380	
(30)	0.675	0.513		0.703	0.546	

\* Correlation of each item with the sum of the remaining items.

time, this factor accounts for 71.7% of the total variance.

However, the feminine and neutral items were not clearly differentiated as independent factors. Therefore, summarizing these two scale items, we decided to regard them a factor indicating *nonmasculinity*. As is also shown in Table 3, among the nonmasculine items, 14 items were selected according to the same criteria as in the



Table 4. Reliability of sex role self-concept scale (Femininity).

Item No.	All items			Selected items (5)		
	Factor loading	*Item-total correlation	coefficient alpha	Factor loading	*Item-total correlation	coefficient alpha
( 2 )	0.352	0.197				
( 5 )	0.253	0.146				
( 8 )	0.227	0.196				
(11)	0.340	0.279		0.402	0.252	
(14)	0.508	0.436	0.619	0.501	0.436	0.650
(17)	0.485	0.351		0.360	0.269	
(20)	0.260	0.122				
(23)	0.687	0.514		0.793	0.545	
(26)	0.143	0.127				
(29)	0.730	0.524		0.668	0.509	

\* Correlation of each item with the sum of the remaining items.

case of vocational maturity and fulfillment sentiment. Thus, the nonmasculine scale consisting of the selected 14 items accounts for 62.2% of the total variance, and their item-total correlations and coefficient alpha appear to reach acceptable levels of internal consistency. We thus treat masculinity and nonmasculinity as two orthogonal dimensions, obtaining four types of sex role self-concept that will be mentioned in detail later.

#### *Sex role self-concept types based on masculinity and femininity*

Further, we tried to perform the principal factor analysis on the 10 items proposed to measure femininity. As shown in Table 4, the feminine scale consisting of the five items, which were selected in the same way as in the previous cases, accounts for 78.7% of the total variance, and their item-total correlations and coefficient alpha seem to reach modestly acceptable levels of internal consistency.

#### RESULTS (1): ANALYSIS USING SEX ROLE SELF-CONCEPT TYPES BASED ON MASCULINE AND NONMASCULINE SCORES

Based on the sample mean scores of 33.44 for the masculine scale (10 items) and 50.62 for the nonmasculine scale (14 items) described before, a mean split method was used to determine subjects' sex role self-concept types. In a median split method, those subjects whose scores are the same as a sample median score can not be assigned to any group of the four types. Thus, those subjects, who scored above the mean on the masculine scale (high masculine), but below the nonmasculine scale mean (low nonmasculine), were designated masculine (Mfn). Those subjects, who scored below the mean on the masculine scale (low masculine), but above the nonmasculine scale mean (high nonmasculine), were designated nonmasculine (mFN) here. Androgynous

subjects (MFN) in Results (1) were those scoring above the mean on both scales (high masculine and high nonmasculine), while undifferentiated subjects (mfn) scored below both means (low masculine and low nonmasculine). "M" and "FN" refer to high masculine and high nonmasculine, respectively, and "m" and "fn" refer to low masculine and low nonmasculine, respectively. We used the letters "FN" and "fn" to signify the level of nonmasculinity, because it consisted of both feminine and neutral qualities.

In order to analyze influences of sex role self-concept and life fulfillment sentiment, together with those of sociostatistical factors, upon vocational maturity, a quantification method of the first type was used. This method is a kind of multiple regression analysis introduced by Hayashi et al. (1974), and can be applied to data in which a criterion variable is quantitative, and predictors are qualitative. Naturally, it is possible to transform quantitative data into qualitative ones by classifying subjects into categories or groups on the basis of a quantitative criterion as in the case of sex role self-concept mentioned above. Thus, two fulfillment sentiment groups were made up using the mean score of 64.80 (19 items) for the fulfillment sentiment scale: a high life fulfillment sentiment group and a low life fulfillment sentiment group.

In the results of analysis by a quantification method of the first type shown in Table 5, the criterion variable is the vocational maturity score, and the predictors are the two psychological variables of sex role self-concept and fulfillment sentiment as well as the three sociostatistical variables of sex, academic grades and siblings.

Table 5. Analysis of vocational maturity by quantification method I in Results (1).

Item	Category	N	Vector ( $\times 10^{-2}$ )	Range	Partial correlation	Relative influence (%)
Sex role self-concept	M F N type	112	357	688	0.324	39.9
	M f n type	48	145			
	m F N type	60	-214			
	m f n type	103	-331			
Fulfillment sentiment	High	167	255	528	0.290	30.6
	Low	156	-273			
Sex	Male	147	59	108	0.068	6.3
	Female	176	-49			
Grade	1-2	257	-27	134	0.070	7.8
	3-4	66	107			
Sibling	Same sex	108	-156	265	0.151	15.4
	Opposite sex	132	109			
	Both sexes	52	75			
	Non	31	-45			

Multiple correlation  $R=0.548$ .

In this table, the vector represents the degree and direction of influences of the categories of each predictor upon the criterion variable. The positive signs mean facilitating influences, while the negative signs exhibit inhibitory ones. The range is a difference between the maximum value and the minimum value of the vectors that are given to the categories of each predictor, and the partial correlation signifies an independent effect of each predictor on the criterion variable, excluding effects of the other predictors. The relative influence is the percentage of the range of each predictor in the total ranges of all predictors, and it is understood from this how much each predictor influences the criterion variable. The multiple correlation ( $R$ ) is related to the extent to which the criterion variable can be accounted for by all of the five predictors which were adopted here, and the square of " $R$ " multiplied by a hundred makes an accountable percentage of this extent, which amounts to the accuracy of analysis.

In all data analyses introduced later, male and female subjects were treated together, because there were no significant sex differences at all on the vocational maturity scores as the criterion variable in the present study.

First of all, our attention should be paid to the relative influence in Table 5. We can understand that the first influential variable is sex role self-concept, and life fulfillment sentiment comes next. In fact, these two psychological variables occupy 70.5% of all influences of *the five adopted predictors* upon vocational maturity. From the square of multiple correlation, however, it is inferred that the five predictors occupy 30.0% of influences of all possible variables on vocational maturity, including influences which were ignored in this study. The third influential factor is concerned with siblings. It seems that effects of sex and academic grades are hardly important. Examining interrelations between the two variables of all comparable pairs among the five predictors in terms of Cramer's coefficient of contingency, there was obtained a rather high correlation of 0.49 ( $\chi^2 = 78.36$ ,  $p < 0.001$ ) between sex role self-concept and life fulfillment sentiment. Hence, these two predictors influence vocational maturity keeping close relations mutually.

Concerning the vector, the two types of MFN and Mfn in sex role self-concept, the high fulfillment sentiment group, and the two cases of the opposite sex and both sexes in siblings have facilitating effects on vocational maturity, while inhibitory effects are observed in the two types of mFN and mfn in sex role self-concept, the low fulfillment sentiment group, and the two cases of the same sex siblings and no siblings.

We now turn to analyzing differences in vocational maturity between the categories within each of the five predictors. (See Table 6.) First, there were always significant differences between the two types of all comparable pairs among the four categories in sex role self-concept. The mean category scores were higher in MFN than in Mfn, in Mfn than in mFN, and in mFN than in mfn. Secondly, the high fulfillment sentiment group scored significantly higher than the low fulfillment sentiment group. Thirdly, it is important to note that those subjects who had siblings of both sexes were

Table 6. Means ( $M$ ), standard deviations ( $SD$ ), and  $t$  statistic of vocational maturity scores between item-categories in Results (1).

Item	Category	$M$	$SD$	$t$ -value
Sex role self-concept	① M F N type	83.73	7.89	① ② : 3.16**      ② ④ : 3.75***
	② M f n type	79.33	8.47	① ③ : 6.03***      ③ ④ : 1.97*
	③ m F N type	76.27	7.43	① ④ : 8.86***
	④ m f n type	73.58	8.91	② ③ : 2.00*
Fulfillment sentiment	High	82.35	7.92	8.70***
	Low	74.28	8.75	
Sex	Male	79.50	9.55	1.86
	Female	77.59	8.92	
Grade	1-2	78.16	9.06	1.13
	3-4	79.61	9.94	
Sibling	① Same sex	76.81	9.11	① ② : 1.91      ② ④ : 0.30
	② Opposite sex	79.11	9.40	① ③ : 2.18*      ③ ④ : 0.78
	③ Both sexes	80.13	8.79	① ④ : 0.93
	④ Non	78.55	9.38	② ③ : 0.68

\*\*\*  $p < 0.001$     \*\*  $p < 0.01$     \*  $p < 0.05$

significantly higher on the mean vocational maturity scores than those who had siblings of the same sex. Fourthly, sex and academic grades did not yield any significant differences between categories.

#### RESULTS (2): ANALYSIS USING SEX ROLE SELF-CONCEPT TYPES BASED ON MASCULINE AND FEMININE SCORES

Based on the sample mean scores of 33.44 for the masculine scale (10 items) and 17.95 for the feminine scale (5 items) described before, a mean split method was used to determine subjects' sex role self-concept types. The masculine scale in Results (1) was common to that in Results (2). Those subjects, who scored above the mean on the masculine scale (high masculine), but below the feminine scale mean (low feminine), were designated masculine (Mf). Those subjects, who scored below the mean on the masculine scale (low masculine), but above the feminine scale mean (high feminine), were designated feminine (mF). Androgynous subjects (MF) were those scoring above the mean on both scales (high masculine and high feminine), while undifferentiated subjects (mf) scored below both means (low masculine and low feminine). Nonmasculinity is replaced by femininity in Results (2). "M" and "F" refer to high masculine and high feminine, respectively, and "m" and "f" refer to low masculine and low feminine, respectively.

For analyzing influences of sex role self-concept and life fulfillment sentiment,

Table 7. Analysis of vocational maturity by quantification method I in Results (2).

Item	Category	<i>N</i>	Vector ( $\times 10^{-2}$ )	Range	Partial correlation	Relative influence (%)
Sex role self-concept	M F type	102	340	696	0.323	39.6
	M f type	58	196			
	m F type	81	-207			
	m f type	82	-356			
Fulfillment sentiment	High	167	270	559	0.312	31.8
	Low	156	-289			
Sex	Male	147	57	105	0.066	6.0
	Female	176	-48			
Grade	1-2	257	-28	136	0.071	7.7
	3-4	66	108			
Sibling	Same sex	108	-157	260	0.150	14.8
	Opposite sex	132	103			
	Both sexes	52	84			
	Non	31	-32			

Multiple correlation  $R=0.547$ .

Table 8. Means (*M*), standard deviations (*SD*), and *t* statistic of vocational maturity scores between item-categories of sex role self-concept in Results (2).

Item	Category	<i>M</i>	<i>SD</i>	<i>t</i> -value	
Sex role self-concept	① M F type	83.36	8.08	① ②: 1.94	② ④: 4.95***
	② M f type	80.74	8.46	① ③: 6.33***	③ ④: 1.84
	③ m F type	75.79	7.97	① ④: 8.00***	
	④ m f type	73.37	8.83	② ③: 3.52***	

\*\*\*  $p < 0.001$

together with those of sociostatistical variables, upon vocational maturity, a quantification method of the first type was used again. The results are shown in Table 7. Here were adopted exactly the same four predictors as in Results (1) except the sex role self-concept types whose results are also exhibited in Table 8 to show differences between the types using masculinity and femininity. Thus, we can learn the following facts when we see the two tables, together with Table 6 which shares, with Results (2), the results about fulfillment sentiment, sex, academic grades and siblings.

As in the previous results, the first influential variable is sex role self-concept, and the second one is fulfillment sentiment. These two psychological variables occupy 71.4% of all influences of the five adopted predictors on vocational maturity. As seen from the square of multiple correlation, however, the five predictors occupy 29.9% of overall influences. Cramer's coefficient of contingency indicated a rather high correla-

tion of 0.41 ( $\chi^2=53.05$ ,  $p<0.001$ ) between sex role self-concept and fulfillment sentiment.

In Results (2), it should be noted that there were not significant differences between some item-categories in sex role self-concept: between MF and Mf, and between mF and mf. Significant differences were found in all other comparative cases in sex role self-concept.

#### CONSIDERATION

What is masculinity? What is femininity? In our factor analysis of the 10 masculine, the 10 feminine and the 10 neutral items proposed to measure sex role self-concept, the feminine items and the neutral items were not clearly differentiated, while the masculine items were immediately extracted as one factor. Hence, it would be legitimate to deal with those feminine and neutral items together, which satisfy such criteria as pointed out in the section on Examination of Instruments. This leads to considering a new nomenclature for sex role self-concept types against the conventional classification using masculinity and femininity since Bem's sex role inventory in 1974. It appears that we have come to the stage to accept a concept of nonmasculinity instead of femininity as contrasted with masculinity. In this context, Azuma and Ogura (1982) already questioned the adequacy for the traditional usage of the terms of masculinity and femininity.

It should be noticed here that the neutral personal qualities amount to the socially desirable qualities for both man and woman (e.g. Bem, 1974), but that these characteristics are associated with femininity, but not with masculinity in our study. As a way of partial explanation for this, it may be considered that a trend towards psychological *defeminization* of our subjects is appearing in present-day Japanese society. In fact, masculinity and femininity would be largely formed, whether consciously or unconsciously, in accordance with cultural conditioning (Mead, 1953).

Our attention should then be directed to the fact that significant differences are more likely to appear on the vocational maturity scores between the item-categories in sex role self-concept when nonmasculinity is used than when femininity is used. Therefore, we may say that our sex role self-concept scale is more discriminative with nonmasculinity than with femininity.

In classifying the types using nonmasculinity, there are statistically significant differences between the two types of all comparable pairs in sex role self-concept. The vocational maturity scores decrease with the order of MFN, Mfn, mFN and mfn. Thus, the importance of influence of masculinity on vocational maturity is understood from the comparison between MFN and mFN, between Mfn and mfn, and between Mfn and mFN. In other words, vocational maturity is high when masculinity is high. This is also supported by evidence that the vector is positive when masculinity is high (MFN and Mfn), but negative when masculinity is low (mFN and mfn).

On the other hand, the importance of nonmasculinity is understood from the comparison between MFN and Mfn, and between mFN and mfn. The high degree of nonmasculinity would play a role for preventing vocational immaturity. The comparison between MFN and mfn seems to support the importance of both masculinity and nonmasculinity, i.e., a new type of psychological androgyny. However, the effect of the high degree of nonmasculinity appears rather supplementary, and it cooperates only with the high degree of masculinity for facilitating vocational maturity.

In the sex role self-concept types with femininity, significant differences are observed in the following four comparative cases. The vocational maturity scores are higher (1) in MF than in mF, (2) in Mf than in mf, (3) in Mf than in mF, and (4) in MF than in mf. The first and second cases would suggest that the degree of masculinity is responsible for enhancing vocational maturity because the degree of femininity is equivalent in either comparative case. The third case would indicate that the high degree of masculinity facilitates vocational maturity even if femininity is low. In the fourth case, the greatest differences are found on the vocational maturity scores among all occasions of comparison, and the scores decrease with the order of MF, Mf, mF and mf. Hence, we may rather say that the high degree of femininity cooperates only with the high degree of masculinity for facilitating vocational maturity. This supplementary effect of femininity appears to be evidence in support of the significance of the traditional concept of psychological androgyny in the formation of vocational maturity. We can confirm that psychological androgyny is effective not only in the new concept with nonmasculinity, but also in the traditional concept with femininity.

After all, significant differences are observed on the vocational maturity scores between almost all comparative cases of the sex role self-concept types. To the contrary, there are no sex differences on the scores in the present study. These results are apparently in accordance with the findings by Barrett and Tinsley (1977) who reported that male and female college students were quite similar in their vocational decision-making behavior, and by Lunneborg (1978) who concluded that there were no sex differences in high school and college samples for vocational self-concept crystallization, or self-rated vocational decisiveness. Thus, differential career counseling, based on sex role self-concept rather than sex itself, appears to be indicated. However, it must be remembered that sex role self-concept is associated with vocational maturity in connection with fulfillment sentiment, which should accordingly be taken into account as an important clue for differential career counseling.

Regarding siblings, the fact that both sexes scored on the vocational maturity scale significantly higher than the same sex may signify that human relations with both male and female siblings would contribute to the formation of androgynous character. In this respect, however, further empirical studies should be called for.

To sum up directly along the hypotheses we set up at the outset of this study, first of all, androgynous and masculine subjects were superior to nonmasculine (or feminine) and undifferentiated subjects on their vocational maturity scores. Especially,

androgynous subjects proved to be most advanced in vocational maturity among all sex role self-concept types classified in this study. This is perfectly in accordance with our first hypothesis. Next, life fulfillment sentiment of university students was positively related to vocational maturity. That is to say, the high fulfillment sentiment group was more advanced in vocational maturity than the low fulfillment sentiment group. This supports our second hypothesis. Finally, sex role self-concept was highly connected with life fulfillment sentiment for facilitating vocational maturity. This provides support for our third hypothesis.

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