



## ARTICLE

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# Structure of life satisfaction from the perspective of arts experiences in Japan

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**ABSTRACT** Approximately 40% of elementary school girls have some type of arts experience, such as dancing and playing instruments, as out-of-school activities. However, its effect has not been clearly revealed. This is mainly because the effects of the arts were not a major topic of discussion in Japan so there has been little data about the arts. With the precise knowledge, we could start considering how to take the benefits of the arts. Thus, this paper empirically analyzed the effects of the arts on quality of life in the case of Japan. The aim was to reveal the impacts of arts experiences in order to consider how to support or make use of the arts. It utilized structural equation modeling to reveal the relationships between the number of the arts experience types in elementary school and life satisfaction. The nationwide data from the Preference Parameters Study in 2013 was primarily utilized. The sample size was 1532, including 823 females and 709 males. The results showed significant positive relationships between the number of the arts experience types and life satisfaction through attitudes, present behaviors related to the arts, and leisure satisfaction. The results suggested two issues; arts experience in elementary school years helped to cultivate the mind to enjoy the arts and also the arts played the role to increase one's quality of life.

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## Introduction

This paper focuses on the relationships between elementary school arts experience and life satisfaction. According to the survey taken by Benesse Educational Research and Development Institute (2013), there are about 40% of elementary school girls experiencing arts such as dancing and playing instruments as out-of-school activities in Japan. However, the effects of arts experiences have not been clearly revealed yet. The question is how the number of the arts experience types in elementary school have impacts on life satisfaction. In order to reveal this, structural equation modeling (SEM) is used for nationwide data, the Preference Parameters Study.

Ensuring our well-being is essential factor for our lives. This study focuses on the effects of the arts on subjective well-being (SWB). Analyzing the effects of the arts on life satisfaction has two contributions. First, it clarifies the arts contribution to our quality of life in Japan. Although the researches on life satisfaction have been conducted over the century, the effect of the arts and its system behind it is not fully verified. Nevertheless, all the Japanese elementary school and junior high school students take fine arts and music classes since Japanese government made them compulsory. The reason is to cultivate the sense of satisfaction. This study tries to support the statement by quantitatively analyzing the arts effects. Second, the research field of life and leisure satisfaction will be proceeded from the viewpoints of the arts. The arts and participation of them have not been necessarily the main focus in the field of well-being although it has been said that the arts are closed to our daily lives.

Combining the idea of previous studies, it is reasonable to consider that the arts have impacts on our life satisfaction. First of all, life satisfaction has been analyzed to be influenced by other satisfactions such as leisure satisfaction (e.g., Brown and Frankel, 1993; Neal et al., 2004). Nawijn and Veenhoven (2011) included participating in arts activities as one of the leisure activities and checked the correlation with life satisfaction. Their results showed insignificant but positive relationships between arts participation and life satisfaction. Brown et al. (2015) also found the positive relationships between active-creative activities<sup>1</sup> and life satisfaction by logistic estimation. Another important finding of their research was that “High life satisfaction was associated with engaging in a number of different activities rather than the frequency of participation in each of them” (Brown et al., 2015, p. 135). Thus, number of the arts types have potential impacts on life satisfaction through leisure satisfaction. The purpose of this study is to reveal the structure of the arts effects on life satisfaction by using SEM with the Preference Parameters Study, which contains the information about arts experience, leisure satisfaction, life satisfaction, and other relative factors.

The remainder of this paper is organized as follows. The second section reviews previous research related to the arts and SWB. The third section describes the data and method used in the analysis, and then presents the results. The fourth section closes with a discussion and conclusions.

## Previous studies on the arts and SWB

The research revealing the effect of the arts on life satisfaction with quantitative approach has been increasing in recent years. One of the reasons why its relationship has not been focused until recently is some previous studies such as Nawijn and Veenhoven (2011), Hills and Argyle (1998b) did not find the significant correlation between them. However, more recent estimates of life satisfaction with the arts-related activities found positive relationships between them.

Besides, the research conducted by Brown et al. (2015), Wheatley and Bickerton (2017), and Hand (2018) estimated that

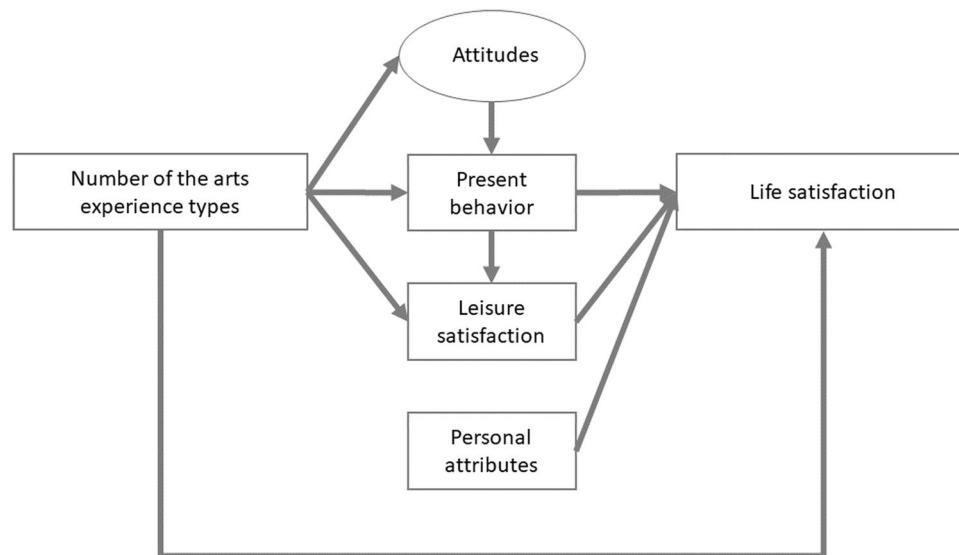
arts experience influenced on life satisfaction or happiness with ordered logit regression and quantile regression. Bell (2006) focused on the cultural and sports activities and revealed their impacts on SWB. Leadbetter and O'Connor (2013) indicated the positive and significant association between attending museums, cinema, and dance performance and increased life satisfaction. In Japan, Suzuki (2018) studied the relationships between performing arts participation and happiness<sup>2</sup> using quantile regression methods with data collected through an internet survey. The findings showed that individuals who began appreciating performing arts at a young age were negatively affected in the lower quantile but positively affected in the higher quantile. However, this study did not use nationwide data. No other statistical research has analyzed the effects of the arts on happiness in Japan because of the lack of data.

In the field of leisure studies, the effects of the arts on well-being are progressively clarified. The discussion about the relationships between leisure satisfaction and life satisfaction has been proceeded since the 1960s.<sup>3</sup> Although leisure is very vast concept, this research follows the idea of Neal et al. (1999). They indicated that leisure satisfaction was one of the domains of life satisfaction. Later, Neal et al. (2004) analytically proved their theory. Beard and Ragheb (1980) found out the six components of leisure satisfaction and their relationships with life satisfaction.<sup>4</sup> Besides, leisure satisfaction is very important factor of life satisfaction because people can make their own decision on what to do in their leisure time (Hills and Argyle, 1998b).

The relationships between leisure activities, leisure satisfaction, and life satisfaction were revealed by Brown and Frankel (1993). They analyzed the relationships between 18 physical activities, leisure satisfaction, and life satisfaction using path model and concluded that leisure activities and leisure satisfaction were major factors of life satisfaction. Lloyd and Auld (2002) determined that both leisure satisfaction and the frequency of participation in leisure activities increased the life satisfaction. Ateca-Amestoy et al. (2008) analyzed other factors influencing on leisure satisfaction with ordered logit model.

Another important factor of arts activities is their characteristics of long-term effects. Caldwell (2001) suggested performing arts consumption theory, which indicated that long-term memory played an important role when consuming performing arts. It related to behavioral triggers and constraints, consumption motives, and buying-consuming activities. Thus, the motivation for those consume the arts were affected by the past experience. Besides, Scott and Willits (1989) and Scott and Willits (1998) continuously analyzed the relationships between adolescence and adult leisure pattern and revealed its similarity. In Japan, Sugiura et al. (2011) investigated the past and present exercise habits and found out the positive association of current exercise habits with that in high school years but not with that in elementary and junior high school years. Therefore, the relationships between past experience and present behavior are partially expected.

One of the important factors affecting leisure and life satisfaction is psychological factor. Hills and Argyle (1998b) argued that “given the wide variety of possible and available leisure activities, personal choice determines which ones are selected. Such choices might be influenced by individual personality differences, and these differences could also affect the degree of happiness which is experienced” (Hills and Argyle, 1998b, p. 525). Boyce et al. (2013) determined that personality, which would not change over lifetime unlike emotion, could be influential to life satisfaction as much as economic factor. Lu and Kao (2009) found out the effects of extrovert personality type on high frequency of participation in leisure activities.



**Fig. 1** Conceptual diagram of relationships describing arts experience and life satisfaction

There are so many discussions point out the relationships between the arts and psychological factors including personality. Schlesinger et al. (1971) claimed that the arts would enrich human personality better than other leisure activities like sports or travel. Kirkcaldy and Furnham (1991) used principle component analysis to categorize 50 activities into 4 factors, one of which named creative/craft included dancing, painting, and so on. They investigated and found the relationships between those activities and extraversion personality. Hills and Argyle (1998a) found the positive relationships between musical experience and sociability by cross-correlation. Naar (2013) indicated the relationships between the arts and emotion. Miu et al. (2016) found out that different types of the arts influence on various emotions. In Japan, it is revealed that preferential behavior is influenced on experience of the arts-related activities. Matsuoka et al. (2015) determined that the participation in extracurricular activities especially academics, high culture, and sports had positive impacts on children's behavior problems and orientation to school in the context of acquiring the non-cognitive skills.

**Structure of the arts experience effects.** Taken together, previous studies reveal that the arts have some effects on one's well-being. However, the reason for this effect is unexplained. In order to contribute to understanding this effect, this study analyzes the relationships between the number of the arts experience types in elementary school years and present life satisfaction. Previous studies reveal various variables related to both arts experiences and life satisfaction. Thus, estimation includes attitudes, present behavior related to arts activities, and leisure satisfaction. The relationships are complicated between variables so that SEM is used to estimate the direct and indirect effects of each variable. As it has been indicated before that the cause of involving in the arts-related activities and the effects of the arts differ by gender (e.g., Kataoka, 1995),<sup>5</sup> the model is analyzed by gender. The conceptual framework for the analysis is illustrated in Fig. 1.

### Estimating arts experience on life satisfaction

The data used for this analysis is part of the Preference Parameters Study conducted by the Institute of Social and Economic Research, Osaka University. The questionnaire has been asked annually from 2003 to 2013 to the adults aged 20 to 60 years. The respondents received the information about the research and only those who consented the information answered the

questionnaires. Therefore, this study uses the data involving the human participants, which is conducted in ethically appropriate way.

The subjects of the analysis are individuals aged 35 to 55 years as of 2013. The analysis primarily uses the questions in the 2013 survey. Therefore, the data is individual cross-sectional data from 2013 combined with questions regarding individual attributes included in the 2011 and 2012 surveys. After dropping those who did not answer all the relevant questions, the final sample size is 1532, including 823 females and 709 males.

The variables used are as follows: life satisfaction, other satisfaction, arts experience in elementary school, present behavior, attitudes, and personal attributes. SWB is commonly measured by asking respondents such as "How satisfied are you with your life in general?" Respondents answer this question using a scale of 1 to 5, where 1 is very unsatisfied and 5 is very satisfied. Satisfaction with leisure is also measured using a scale of 1 to 5. Other related types of satisfactions are also included in the model, such as satisfaction with residential area, family budget, friend, spouse, and other relationships. For the arts variable, the number of the arts experience types during elementary school years are summed up. The types of activities are dancing, playing instruments, chorus, and painting. Thus, the number of the arts experience types variable takes values from 0 to 4.

Three variables are used to measure present behavior: potential savings for leisure dummy (1 if one has some savings for leisure; 0 otherwise), preference for cultural wealth dummy (1 if one chooses cultural wealth as a reason to move when one is able to choose any place to live; 0 otherwise), and frequency of exercise. Questions about attitudes are categorized into six measurements (relax, poor planning, not keeping rules, less anxiety for future, think before act, and poor eating habits) using principle components analysis and oblique promax rotation is adopted. Table 1 shows variances of questions for factors. Last, personal attributes include child dummy (1 if one has a child; 0 otherwise), marital status dummy (1 if one has a spouse; 0 otherwise), and monthly family income. The descriptive statistics are shown in Table 2.

There are three reasons applying SEM to analyze the data. First, one of the purposes of this study is to reveal how arts experiences affect future well-being. SEM is more useful for this purpose than other methods because it allows the appropriate model to be freely constructed and takes complex relationships between variables into consideration. In particular, generalized

**Table 1 Question items and factors as a result of principal component analysis**

	<b>Factor 1</b>	<b>Factor 2</b>	<b>Factor 3</b>	<b>Factor 4</b>	<b>Factor 5</b>	<b>Factor 6</b>
	<b>Relax</b>	<b>Poor planning</b>	<b>Not keeping rules</b>	<b>Less anxiety for future</b>	<b>Think before act</b>	<b>Poor eating habits</b>
I have anxieties about my health	0.46					
I haven't been sleeping well lately	0.73					
I have been feeling stressed lately	0.78					
I have been feeling lonely lately	0.79					
I have been feeling depressed lately	0.87					
My daily life is fulfilling	-0.49					
I am self controlled		0.53				
I plan for job security		0.62				
I plan tasks carefully		0.66				
I always plan things before I actually do them		0.66				
I am a careful thinker		0.69				
I plan trips well ahead of time		0.71				
I always keep my promise			0.82			
I am never late for appointments/deadlines			0.81			
I never cut into a line of people			0.46			
I am so occupied with my daily life that I cannot save much money				0.71		
Work is for making money				0.66		
I have anxieties about my 'life after I am 65 years old'* (For those who are already aged 65 years or above, 'life in future')				0.55		
When I am faced with a problem, I usually act before I think					0.75	
I say things without thinking					0.62	
Behaving similarly to people around me makes me feel comfortable					0.55	
If there is something that I want, I need to buy it					0.47	
I take nutritional content into account when choosing foods						0.75
I take my time to properly chew my food						0.75
I always eat my meals at the same time						0.68

**Table 2 Statistical description**

<b>Variable</b>	<b>Mean/% to be 1 if dummy</b>	<b>SD</b>	<b>Min</b>	<b>Max</b>
Life satisfaction	3.48	0.90	1	5
Number of the arts experience types	0.38	0.64	0	4
Present behavior				
Potential savings for leisure	28.46%		0	1
Preference for cultural wealth	9.20%		0	1
Exercise habits	3.35	6.92	0	30
Satisfaction				
Leisure	3.27	0.96	1	5
Region	3.64	0.96	1	5
Family budget	2.78	1.05	1	5
Job	2.87	1.32	0	5
Friends	3.53	0.87	1	5
Spouse	3.08	1.56	0	5
Other relationships	3.60	1.07	0	5
Personal attributes				
Gender	46.28%		0	1
Child	85.31%		0	1
Marital status	85.05%		0	1
Monthly income	686.46	411.79	50	3000

N = 1532

SEM is available with STATA14, which allows designation of the variable distribution style and function types. In this model, most variables are continuous variables, so no extra techniques are required, whereas all dummy variables, potential savings for leisure, preference for cultural wealth, child, and marital status variables, are designated as having a binominal distribution using a logit function. Second, SEM is able to include latent variable in the model. In the estimation, principle component analysis is used to derive attitudes. Such variables are treated as latent variables. Third, SEM is able to deal with the correlation between error terms of equations. This model contains seven types of satisfaction variables, of which average correlation is 0.29. High correlation makes the estimation results vulnerable because of multicollinearity so that it should be dealt with as much as possible.

In order to estimate, paths from the number of the arts experience types are connected to all variables. On the other hand, the relationships between attitudes, present behavior, and leisure satisfaction are limited. To develop the most appropriate model, paths are first drawn from the arts to each of the other variables, as well as paths that can be rationally thought to be connected. The paths that are insignificant are then dropped from the model.<sup>6</sup> Last, the Akaike Information Criteria (AIC) is checked to confirm the models' goodness of fit.<sup>7</sup>

**Results of the SEM.** The results for females are indicated in Fig. 2, (Table 3).<sup>8</sup> There are two paths connecting number of the arts

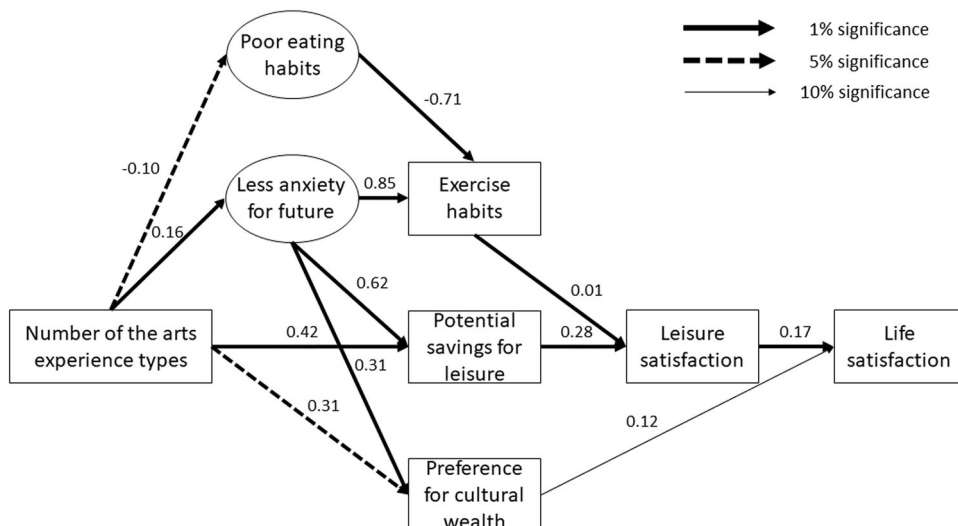


Fig. 2 Female path diagram describing the effects of the arts experiences on well-being

Table 3 Female life satisfaction model results describing variable relationships

Variables	Attitudes		Present behavior		Satisfaction							
	Less anxiety for future	Poor eating habits	Potential savings for leisure	Preference for cultural wealth	Exercise habits	Region	Family budget	Friend	Spouse	Relation ship	Leisure	Life
Number of arts experiences	0.16***	-0.10**	0.42***	0.31**								
Poor planning			-0.35***									
Less anxiety for future			0.62***	0.31***	0.85***							
Think before act			-0.15*									
Poor eating habits					-0.71**							
Potential savings for leisure							0.61***	0.13**	0.27**		0.28***	
Preference for cultural wealth							-0.18*					0.12*
Exercise habits							0.01**	0.01**		0.01***	0.01***	
Region												0.13***
Family budget												0.34***
Job satisfaction												0.05***
Spouse												0.14***
Relationship												0.11***
Leisure												0.17***
Monthly income (log)												0.10***
Marital status												-0.46***
Child												0.23***
Constant	-0.01	-0.28***	-1.29***	-2.41***	2.66***	3.62***	2.53***	3.62***	2.93***	3.56***	3.18***	0.11

\*\*\*p < 0.01, \*\*p < 0.05, \*p < 0.1, N = 823

experience types to attitudes related variables and other two paths to present arts-related behavior, all of which lead to increase life satisfaction. First, as the number of the arts experience types increases, one is less likely to have better eating habits. That path leads to increase the frequency for exercise, then leisure satisfaction, and life satisfaction. Second, as the number of the arts experiences increases, anxiety for future decreases, which leads to increase the frequency for exercise, potential savings for leisure, and preference for cultural wealth. While frequency for exercise and potential savings for leisure increase the life satisfaction via increasing leisure satisfaction, preference for cultural wealth directly increase the life satisfaction. Third, without the intervening attitudes, arts experiences have direct positive effects on potential savings for leisure and preference for cultural wealth. The AIC of the final model for females is 26644.14.

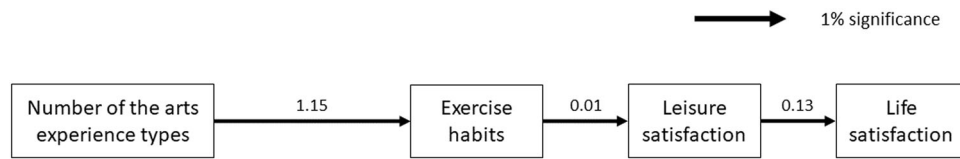
The results for males are indicated in Fig. 3, (Table 4).<sup>9</sup> When the number of the arts experience types increase, the frequency

for exercise increases. It increases the life satisfaction via leisure satisfaction. The AIC of the final model for male is 17263.62.

The model contains some discrete variables such as potential savings for leisure dummy and preference for cultural wealth dummy. They take binomial distribution and the estimated coefficient is the probability to become one. That is, the implication of estimated coefficients is complicated to discuss.

**Discussion**

The results show the relationships between the number of the arts experience types and life satisfaction, with potential savings for leisure, exercise habits, and leisure satisfaction as intervening variables. It seems that those who have various types of the arts experience in their elementary school years take the benefits of leisure and enjoy leisure while living productive lives. Moreover,



**Fig. 3** Male path diagram describing the effects of the arts experiences on well-being. All figures are created by authors

**Table 4** Male life satisfaction model results describing variable relationships

Variables	Present behavior		Satisfaction						
	Potential savings for leisure	Preference for cultural wealth	Exercise habits	Region	Family budget	Job	Spouse	Leisure	Life
Number of arts experiences		0.37*	1.15**						
Relax		-0.29**	1.16***						
Poor planning	-0.30***	-0.27*							
Less anxiety for future	0.35***								
Think before act	-0.24***								
Poor eating habits			-0.91***						
Potential savings for leisure					0.25***		0.29**		
Preference for cultural wealth				-0.23**		-0.30**			
Exercise habits							0.01*	0.01***	
Region satisfaction									0.22***
Family budget satisfaction									0.23***
Job satisfaction									0.13***
Spouse satisfaction									0.10***
Relationship satisfaction									0.15***
Leisure satisfaction									0.13***
Monthly income (log)									0.09**
Child									-0.21***
Constant	-0.98***	-2.66***	4.01***	3.68***	2.75***	2.98***	3.03***	3.17***	0.00

\*\*\* $p < 0.01$ , \*\* $p < 0.05$ , \* $p < 0.1$ ,  $N = 709$

the effects on present exercise is unique. This result differs from Sugiura et al. (2011), indicating that for females, sports experiences in elementary school years are not related to present exercise habits. This can be explained by the gender difference and the number of activities experienced in the past, as the effects for females and males appear to be different. Previous studies have used a dummy variable that equals 1 if the respondent had experienced sports; however, in this study, the question asked is about the number of the arts experience types referring to Brown et al. (2015). If individuals have more experiences, the potential for getting accustomed to spending time for leisure goes up and may also broaden their interests. Those behavioral habits and interests may continue later in life as Caldwell (2001) describes.

In the case of females, not only arts experiences but also attitudes influence behaviors. In this analysis, it turns out that arts experiences have negative effects on anxiety for future and poor eating habits. As for the former effect, the arts allow people to simulate an experience so that it might possible to consider that they might have some ideas about their own future (Hirata, 2013). Those who have less anxiety for future have more possibility to have savings for leisure, preference for cultural wealth, and increase the frequency for exercise. As for the latter effect, it is

rational to think those who are busy requires better eating habits to maintain their health. Some studies related to out-of-school activities reveals the relationships between activities and lifestyle. Shibaki et al. (2010) show that some children experience out-of-school activities at most ten times in a week. They point out the needs for parents' care for their children in order for their health. Okami et al. (2012) show the positive relationships between children's number of out-of-school experience types and mother's dietary education. It is understandable that those who have better eating habits are more health-conscious which lead to have higher exercise frequency in a month. Those who have savings for leisure and exercise habits increase their leisure and life satisfaction.

In the case of males, unlike females case there are no path connecting the number of the arts experience types to attitudes. Instead, two paths directly connect the arts to present behavior. The former path is connecting to preference for cultural wealth, which lead to decrease in satisfaction with region and job and both increase life satisfaction. Thus, not all path from the arts have positive impacts on life satisfaction. It is possible to consider that those who have preference for cultural wealth tend not to be satisfied with their residential areas. However, the reason why it decreases the job satisfaction remains veiled. The latter path is

connecting number of the arts experience types to present exercise habits, which lead to increase in leisure satisfaction and spouse satisfaction and both increase life satisfaction. Again, it is convincing that those who have exercise habits are more satisfied with leisure. However, why it also increases the spouse satisfaction is unexplained.

## Conclusion

This study analyzes both direct and indirect effects of number of the arts experience types in elementary school years on present life satisfaction using SEM by gender. The purpose is to examine the structure of the impacts of the arts, whose complete pictures on satisfaction have never revealed to the best of the author's knowledge. There are some differences in structured model by gender, for example, females' results show more effects of attitudes. However, the results mainly show that for both females and males, number of the arts experience types positively influence on life satisfaction with some paths intervening attitudes, present arts-related behavior and preferences, and leisure satisfaction. Arts activities should therefore be considered in well-being research.

As many previous studies indicate, life satisfaction is surely influenced by financial factors such as income. Moreover, satisfaction from leisure, which is not always related to labor and productivity, also has impacts on well-being. Those paths that lead to satisfaction with leisure are present behavior related to the arts. These elements are also influenced by behavior in elementary school years. Although other effects could be considered in further research, this study illustrates that some aspects of satisfaction can be determined by our own choices and behaviors in leisure time. What we have experienced in the past and the present is linked to our satisfaction with life in general.

There are some limitations in this study. First, current arts experiences could not be considered in this analysis because of data limitations, though the correlation of past and current experiences have been indicated in previous studies. Second, some paths are not fully explained with clear scientific reasoning: for example, why increasing preference for cultural wealth decrease the satisfaction with occupation in males case is unexplained. With this regard, this study is rather a fact-finding study. Third, the possibility of reverse causality cannot be eliminated. No reverse causality exists between past arts experience and present behavior or life satisfaction. However, this model contains the attitudes, present behavior, and satisfactions. The direction of the paths of these variables might be opposite. For example, the results show those who are anxious for future increase the potential savings for leisure. It can be considered that those who have room to save not only for their livings but also for leisure have more financial advantage. As a result, they have less anxious about their future. Unless instrumental-variables estimation is conducted, the problem of endogeneity cannot be solved. Fourth, statistical validity for constructed model cannot be confirmed. The model utilized for this study is constructed according to the results of previous studies, but it is possibility to be better model. These points remain to be resolved in future research. Fifth, the possibility of spurious correlation cannot be eliminated. The results indicate the relationships between arts experiences and life satisfaction, where arts experience might be the reflection of family wealth.

## Data availability

The datasets generated and analyzed during this study are not publicly available since the author is not authorized to publicly share the data. The original dataset is open for those who request with academic reasoning from the Institute of Social and

Economic Research, Osaka University ([https://www.iser.osaka-u.ac.jp/survey\\_data/top\\_eng.html](https://www.iser.osaka-u.ac.jp/survey_data/top_eng.html)).

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## Notes

- Active-creative activities include "dance (including ballet), sing for audience (excluding karaoke), performance in a play/drama, opera or musical theatre, taken part in carnival or street performance, and learned or practiced circus skills" (Brown et al., 2015, p. 143).
- Asking about happiness and life satisfaction is often used as an effective measurement for revealing one's well-being. Previous research (Irwin et al., 1979) has proven that happiness can be measured by asking people how happy they are.
- Bell (2006) and Genc and Genc Gulertekin (2017) provided good reviews of the previous discussion about the relationships between leisure satisfaction and life satisfaction.
- Later, Genc and Genc Gulertekin (2017) used these components to reveal the relationship between leisure and life satisfaction of employers in food and beverage company.
- Kataoka (1995) analyzed the different effect of cultural capital by gender. It was indicated that males were not significantly influenced by cultural capital, where in case of females, both academic achievement and occupational success possibility were increased. The research concluded that cultural reproduction was observed for females. Kataoka (2001) revealed the different role of cultural experience for males and females in a family. It was shown that cultural experience meant the investment for the children in case of males aged from 20–34 years. On the other hand, in case of males aged over 50 years and all the females, it meant cultural reproduction instead of investment.
- Although there is a discussion about whether it is appropriate to drop paths without significance, this study follows previous relative researches. Some insignificant paths remain in the diagram if the AIC indicates it is appropriate.
- AIC is used to check the goodness of the model (Akaike, 1987). The equation of AIC is

$$AIC = -2\ln L + 2k$$

where  $\ln L$  is the maximized log-likelihood of the model and  $k$  is the number of parameters estimated. This way, the smaller the AIC goes, the better the model becomes.

- Fig. 2 is the extracted path diagram and Table 3 presents all the results of the most appropriate model. This paper focuses on the relationships between number of arts experience types, attitudes, present behavior, leisure satisfaction, and life satisfaction. Therefore, although there are other paths connecting from arts to life satisfaction via other satisfaction variables such as satisfaction with regions, it only indicates the path intervening leisure satisfaction.
- Fig. 3 is the extracted path diagram and Table 4 presents all the results of the most appropriate model. Although there are other paths connecting from arts to life satisfaction via other satisfaction variables such as satisfaction with spouse, it only indicates the path intervening leisure satisfaction.

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### Competing interests

The author declares no competing interests.

### Additional information

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