

# **Caring-for-Self of Undergraduates: An Investigation of What Undergraduates Concern<sup>\*</sup>**

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Caring-for-self, which originates from the concepts of Foucault and Noddings, explores the self-concept, self-discovery, self-performance, and self-shaping. This study investigated the current status of undergraduate caring-for-self and explored the differences in caring-for-self of undergraduates with diverse backgrounds. In total, 1,361 undergraduates participated in this study, which used the Caring-for-Self Inventory for Undergraduates as a valid and reliable instrument. The data obtained were statistically analyzed using descriptive statistics and a multivariate analysis of variance. The caring-for-self of the undergraduates surveyed was categorized into 5 dimensions: career, learning, spiritual, physical, and recreational. Among the 5 dimensions, the spiritual dimension was the most cared-for dimension of undergraduates, likely because of the influence of the Sunflower Student Movement which provided active discussion environment for undergraduates. Significant differences in undergraduate caring-for-self were observed for factors of grade, gender, religion, school location, and college. However, school sponsor and socioeconomic status factors revealed no significant difference on students' caring-for-self. Compared with Noddings's 4 vital concerns of peoples' caring-for-self, undergraduate caring-for-self in this study contains an additional learning dimension and excludes religion from the spiritual dimension. The added learning dimension indicated the salient role of undergraduates, whereas the absence of religion from the spiritual dimension may result from the cultural differences between the United States and Taiwan. This study offers 4 suggestions for undergraduates, educators, and university administrators and further researches respectively.

**KEY WORDS:** care, caring-for-self, self, undergraduate

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Undergraduates' caring-for-self refers to completing their self-discovery that plays a crucial role in the educational process, and empowers themselves to assume their societal responsibility of caring-for-others. To determine teaching and learning quality in higher education, the Organization for Economic Cooperation and Development (OECD) conducted the Assessment of Higher Education Learning Outcomes that was aimed at developing criteria for evaluating the quality and relevance of what undergraduates learn (OECD, 2014). Learning outcomes are definitely vital for Undergraduates to become experts. However, experts substantially contribute to society when they possess caring-for-others characteristics, which could be cultivated by an undergraduate caring-for-self educational process (Noddings, 2003). Lewis (2006) emphasized that the fundamental purpose of undergraduate education is to transform young people into mature adults who will assume societal responsibility.

For Taiwanese undergraduates, to cultivate caring-for-self is particularly important because of the Chinese culture that caring-for-self is basic to caring-for-others. A lot of Chinese concepts indicate caring-for-self is the beginning of caring-for-others. Xiao Jing (Chinese Text Project, 2016), an old Chinese document, defines caring for one's bodies as the beginning of filial piety that we won't presume to injure our bodies because our bodies, to every hair and bit of skin, are received from our parents. The filial piety, which is a type of caring-for-others, plays crucial role in the Chinese culture. However, one has to make a good caring for ones' physical aspect to complete this specific type of caring-for-others.

Previous studies have proposed several caring-for-self concepts, such as a real activity (Foucault, 1988), an ethical self (Noddings, 2003), self-understanding (Mayo, 2005; Noddings, 2005), and self-empowerment (Foley, 2008). The first concept of caring-for-self was found in Alcibiades as the phrase *epimeleisthai sautou*. The word *epimeleisthai* is an activity that ensures a person's holdings and health (Foucault, 1988). "The precept to be concerned with oneself was, for the Greeks, a primary principle of cities, a primary rule for social and personal conduct, and for the art of life" (Foucault). The ethical self is an active relation between the actual self and a vision of the ideal self as caring and being cared for. Connecting a person naturally to another person and reconnecting through the other to oneself creates the ethical self from the fundamental recognition of relatedness. When people care for others and are cared for by others, they are able to care for themselves (Noddings). Noddings indicated that "self-understanding is basic to the entire enterprise of caring for self". Caring for the self is the process of considering the effects of the self on others, "as well as problematizing the central discourses and relations through which people understand that the self has meaning" (Mayo). Mayeroff (1990) stated "To care for another person, in the most significant sense, is to help him grow and actualize himself." Thus, the caring, which empowers people beyond their own limits, offers people the opportunity to discover and live life to the fullest (Foley).

Based on the aforementioned studies, the caring-for-self approach includes exploring, recognizing, understanding, and mastering practical activities, which involves personal relationships. Practical activities can also prevent people from becoming a dominated object, guide them through a troubled situation, and create a sense of well-being. Moreover, caring-for-self trains and shapes a person beyond merely knowing themselves. The implications of caring-for-self are summarized as follows:

1. Caring-for-self, which originates from the concepts of Foucault and Noddings, explores the self-concept, self-discovery, self-performance, and self-shaping.
2. Caring-for-self is a practice and a life skill.
3. Caring-for-self exists in personal relationships, not in isolation, and is based on various types of care, such as care for others or the environment. Perfect caring-for-self shapes a person with perfect personal relationships, rather than a selfish person or a person who blindly helps others.
4. Caring-for-self empowers people to master a subject, instead of being a dominated object.

### *Aspects of caring-for-self*

Noddings (2005) indicated that caring-for-self involves four vital concerns: physical life, spiritual life, occupational life, and recreational life. The physical life concerns individual health and safety, such as health management, medical resources, physical exercise, life-style adjustment, automobile safety, safe sex, drug safety, and understanding the life stages from birth to death. Spiritual life refers to peoples'

involvement in religion, literature, art, or music for maintaining and enriching knowledge and activity, whereby people conduct independent critical thinking. The occupational life refers to making a living and any project or task that fully occupies a person. This includes anything that elicits wholehearted energy, which people can combine with learning, understanding their traits, and mastering learning skills for developing adaptive potential. Recreational life refreshes and renews a person. Noddings's elaboration on caring-for-self, which clearly outlines the four vital concerns of a person, is crucial for discussing caring-for-self aspects.

In contrast to Noddings's four vital concerns, Foucault's caring-for-self framework is implicit. However, Foucault described "technologies of the self, which permit people to effect by their own means or with the help of others, a certain number of operations on their own bodies and soul, thoughts, conduct, and sense of being, for transforming themselves to attain a state of happiness, purity, wisdom, perfection, or immortality" (Foucault, 1988). Hwang (2003) summarized Foucault's knowledge of self into three dimensions, i.e., physical knowledge, psychological knowledge, and ethical knowledge. Based on these perspectives, Foucault's caring-for-self included three aspects, the physical aspect of caring for one's own body, the spiritual aspect of caring for one's soul and thoughts, and the ethical aspect of caring for one's conduct and sense of being.

In Taiwan, Guo (2014) found five categories of caring-for-self for Taiwanese undergraduates: physical, spiritual, learning, career, and recreational or environmental aspects. In this study, Guo interviewed 40 undergraduates in Taiwan to investigate their caring-for-self status. Undergraduate caring-for-self events are diverse, from personal beliefs to the environmental ecosystem. The events were divided into 29 subcategories that were further summarized into five categories. The physical aspect of undergraduates' caring-for-self involved their own health and safety. The spiritual aspect referred to their belief and religion. The learning aspect comprised their learning method and academic performance. The career aspect involved their job opportunities and their family responsibility. The recreational/environmental aspect encompassed friendships, social activities, and their local and global environment.

**Table 1 The integrated framework of undergraduate caring-for-self**

aspects	conceptions	literature cited
Physical	Cares for health, safety, appearance, life, and death	Foucault (1988), Guo (2014), Noddings (2005)
Spiritual	Cares for soul, thoughts, belief, religion, and critical thinking	Foucault (1988), Guo (2014), Noddings (2005)
Learning	Cares for learning method and academic performance	Guo (2014)
Career	Care for ways to make a living, job opportunity, and responsibility to family	Foucault (1988), Guo (2014), Noddings (2005)
Recreational and Environmental	Care for friendship, social activities, and their local and global environment	Guo (2014), Noddings (2005)

Based on previous studies, Table 1 shows the integrated framework of undergraduate caring-for-self. The physical and spiritual aspects are vital because both aspects were mentioned by Foucault (1988), Guo (2014), and Noddings (2005). The career aspect proposed by Guo contains the occupational life aspect (Noddings) and the ethical aspect (Foucault). The recreational and environmental aspect consists of the recreational dimension proposed by Noddings, and the environmental dimension suggested by Guo. Furthermore, the learning aspect, proposed by Guo, is also included in the integrated framework because learning is the salient role of undergraduates, who were the subjects in this study.

### *Factors associated with undergraduate caring-for-self*

Based on the studies of peoples' self-conception, it is possible to assume the factors of people that are associated with their caring-for-self. Caring-for-self studies have focused on philosophical approaches, and empirical approaches in this field are scarce. However, empirical studies on peoples' self-conception provide invaluable information on the factors associated with their caring-for-self. Self-conception is peoples' understanding or evaluation of three dimensions: (a) their own thoughts, beliefs, and personality traits, (b) their relationship with others and the environment, and (c) their life objectives (Aronson, Wilson, & Akert, 1997). Comparing the meaning of caring-for-self, self-conception is the basis of caring-for-self. To care for one's self, a person must have a well-developed self-conception for recognizing and understanding the self. Consequently, the factors associated with peoples' self-conception are the factors that are possibly associated with their caring-for-self. The review of previous studies on the factors associated with people's self-conception is invaluable to propose the factors associated with people's caring-for-self.

According to empirical studies (Astin, Astin, & Lindholm, 2011; Lau, Lee, Ransdell, Yu, & Sung, 2004; Lu, 1990; Michelle & Bracken, 1994; Montemayor & Eisen, 1977; Mpofu, 1994; Reynolds, 1998; Tanti, Stukas, Halloran, & Foddy, 2008; Worrell, Roth, & Gabelko, 1998), a person's age and grade in school are associated with their self-conception. Montemayor and Eisen (1977) studied the self-conception development from childhood to adolescence by using an open-ended spontaneous instrument in which subjects responded to the question "Who am I?" Significant differences were found between the representations of children and adolescents. Children used more concrete representations, whereas adolescents used more abstract representations. The concrete-abstract development of self-conception from childhood to adolescence was also found in China (Lu). Both studies revealed that a person's age affects their self-conception. By measuring undergraduates' academic self-concept, Reynolds found that undergraduates with different grades in university had distinct academic self-concepts based on the results of multiple regression analysis. In summary, a literature review indicated that undergraduate age and grade in university are associated with self-concept.

Empirical studies also revealed that gender affects self-concept (Asci, 2002; Karakitapoğlu-Aygün, 2004; Michelle & Bracken, 1994; Mpofu, 1994; Nishikawa, Norlander, Fransson, & Sundbom, 2007; Worrell, Roth, & Gabelko, 1998). To investigate Turkish undergraduates' self-concept, Karakitapoğlu-Aygün indicated that females possessed more social influenceability than did males, which means females are more easily influenced by the views of others and less open and creative. Exploring Zimbabwean undergraduates' self-concept, Mpofu found that females were more collectivistic and moralistic than were males. Both studies implied that gender is associated with self-concept.

Studies also indicated that social class and religion affect self-concept (Bachman & O'Malley, 1986; Olowu, 1986). Olowu found that Nigerian adolescents from middle class homes had more positive self-concepts than did subjects from lower classes, and that lower class adolescents holding religious beliefs had a more positive self-concept than did subjects without religious beliefs. Olowu observed that lower class adolescents holding poor self-concepts were caused by malnutrition, lack of emotional care, and inadequate environmental stimulation. However, Olowu suggested that adolescents who held religious beliefs possessed more emotionally-charged values that encouraged their active agency and provided them with an increased self-concept.

Some studies also reported the relationship between culture and self-concept (Lau et al., 2004; Nishikawa et al., 2007; Watkins & Gerong, 1997). Nishikawa et al. investigated a cross-cultural validation of adolescent self-concept in two cultures, Japan and Sweden. They found that Japanese adolescents typically reported a lower self-concept and higher self-discrepancies than did the Swedish adolescents. The difference in self-discrepancies between the two countries was ascribed to the independent self-characterization in Western culture. However, Watkins and Gerong, as well as Lau et al. depicted that the culture factor has no association with self-concept in their studies. Watkins and Gerong revealed that, despite the supposedly collectivist characteristic of the Filipino culture, far fewer Filipino students than U.S. and Hong Kong Chinese students described themselves in relation to social roles.

Previous studies on self-conception implied that peoples' caring-for-self is associated with their age, grade in university, gender, socioeconomic status, religion, school sponsor, school location, and academic

programs/college. The factors associated with peoples' self-conception are the factors possibly associated with their caring-for-self because self-conception is the basis for caring-for-self. Therefore, peoples' caring-for-self is proposed to be associated with their age, grade in university, gender, socioeconomic status, and religion because these factors are associated with peoples' self-conception. Moreover, Olowu (1986) emphasized that peoples' environmental stimulation is associated with their self-concept, and this stimulation is a crucial factor associated with their caring-for-self. The environmental stimulation for undergraduates is categorized as school sponsor, school location, and academic programs/college. In this study, the subjects were undergraduates in Taiwan, thus the relationship between cross culture and peoples' caring-for-self was not the focus of this study; therefore, the culture factor are not included in this study, although some studies have reported that culture is associated with self-concept. The factors, associated with people's caring-for-self, proposed in this study is reasonable because these factors could be classified into four distinct categories of demographic variables, personal, family, school, and social dimensions.

### ***Study purpose***

This study investigated the current status of Taiwanese undergraduates' caring-for-self and explored how undergraduates' caring-for-self differs according to their backgrounds. The caring-for-self approach is effective for completing the self-discovery process, which plays a crucial role in the educational process. However, studies on caring-for-self are focused on philosophical approaches. Empirical approaches in this field, which provide invaluable information on the current status and factors associated with undergraduate caring-for-self, are scarce. To make suggestion for both Taiwanese educational policy making in the future and further educational researches on Taiwanese university education, it is necessary to survey the current status of Taiwanese undergraduates' caring-for-self.

## ***Methods***

### ***Subjects***

Table 2 shows the participating universities and the valid survey respondents of this study. Twenty-six (37.14%) universities participating in this study were random-cluster sampled from 70 Taiwanese universities, excluding technology universities and independent colleges. The 1,440 participants, who were university undergraduates, were surveyed using the Caring-for-self Inventory for Undergraduates instrument. According to Sudman (1976), the number of participants is adequate for a national survey. The results yielded 1,361 valid survey responses (response rate: 94.51%).

**Table 2 The participating universities and the valid survey responses in this study**

District*	Schools		N	N	Participating schools Name	Responses	
	Public	Private				Survey	Valid
N	18	17	35	12	NTU, NTNU, NCCU, NCU, NTHU, NJCUE, TKU, FJU, SHU, CYCU, MCU, SCU	720	684
C	6	8	14	5	NCHU, NCUE, NCNU, THU, AU	300	281
S	8	8	16	5	NCYU, NUK, KMU, NHU, CJCUC	300	273
E	3	2	5	2	NIU, TCU	120	113
Total			70	24		1440	1361 (94.51%)

Note: \*The labels, N, C, S and E, denote Northern, Central, Southern and Eastern area of Taiwan respectively.

### *Instruments*

The questionnaire, the Caring-for-self Inventory for Undergraduates, used in this study was a self-designed instrument developed in the following two steps. In the first step, the draft of this inventory containing 55 items was designed based on a literature review and a semi structured interview. In the subsequent step, a pretest involving 462 undergraduates was performed to establish the validity and reliability of the final revision of this instrument. In the final revision of inventory, 27 items were removed from the draft to obtain a similar number of items in each dimension and a higher factor loading ( $> .50$ ) for each item except item 23 (.459).

According to the pretest results, the inventory consisted of 28 items, which were merged into five dimensions of career, learning, spiritual, physical, and recreational dimensions, which are described as follows.

1. The career dimension, which comprises 7 items, refers to caring for peoples' job or family life, such as career planning, job opportunities, family responsibilities, and family relationships.
2. The learning dimension, which comprises 6 items, refers to caring for peoples' school learning situation, such as schoolwork, learning methods, and academic performance.
3. The spiritual dimension, which comprises 5 items, refers to caring for peoples' thoughts and soul, such as values, emotion, and belief.
4. The physical dimension, which comprises 5 items, refers to caring for peoples' health, appearance, and personal safety, such as physical exercise, food, nutrition, and drug safety.
5. The recreational dimension, which comprises 5 items, refers to caring for peoples' recreational life, such as school activities, extracurricular activities, romance, and friendship.

**Table 3** Items, percentages of variance, and Cronbach's alpha for each dimension of the questionnaire developed in this study

<i>Dimension</i>	Factor					<i>V<sup>a</sup>(%)</i>	<i><sup>b</sup></i>
<i>Item</i>	<i>F<sub>1</sub></i>	<i>F<sub>2</sub></i>	<i>F<sub>3</sub></i>	<i>F<sub>4</sub></i>	<i>F<sub>5</sub></i>		
<b><i>Career</i></b>						14.423	.872
1. Preparation for my forthcoming job-seeking	.762						
2. Information of my forthcoming job-seeking	.759						
3. My career planning	.749						
4. Preparation for my forthcoming social life	.743						
5. My job opportunities	.710						
6. The fitness of learning for job opportunities	.691						
7. My family responsibilities and relationships	.514						
<b><i>Learning</i></b>						12.344	.848
8. My schoolwork		.814					
9. My learning methods		.725					
10. My academic performance		.721					
11. My academic achievement		.690					
12. My management of time on learning		.637					
13. My preparation to enter the graduated institution		.617					
<b><i>Spiritual</i></b>						11.444	.830
14. My personal characteristics			.819				
15. My judgment-values			.792				
16. My emotion			.784				
17. My self-evaluation			.585				
18. My belief			.557				
<b><i>Physical</i></b>						9.416	.749
19. My physical exercise				.818			
20. My physical capability				.791			
21. My food nutrition				.621			
22. My health				.577			
23. Information of drug-safety and medicine				.459			
<b><i>Recreational</i></b>						9.126	.767
24. My school-activities and extracurricular activities				.729			
25. My school-club activities				.721			
26. My romance				.691			
27. My dressings				.639			
28. My friendship				.570			
<b>Total</b>						56.754	.903

Note: <sup>a</sup>V: Percentages of variance for each dimension and total inventory.

<sup>b</sup>α: Cronbach's alpha coefficients of each dimension and total inventory.

Noddings (2005) emphasized that the recreational life of caring-for-self needs to include mental, emotional, and social recreation as well as physical exercise. It is rational that the recreational dimension in this inventory, which reflects the Noddings' recreational life of caring-for-self, includes items of social activities and social relationships.

Table 3 shows the items for each dimension, percentage of variance, and Cronbach's alpha of this inventory, which has excellent validity and reliability. The total variance was 56.754%. The Cronbach's alpha for the total inventory was .903, and those for the dimensions were all higher than .7 (Nunnally, 1978).

**Table 4 The individual item reliabilities, composite reliabilities of latent variable and average variances extracted**

<i>Dimension</i>	Item	Factor loading	$R^2$	<sup>a</sup> <sub>c</sub>	<sup>b</sup> <sub>v</sub>	<sup>b</sup> <sub>v</sub>
<i>Caring-for-self</i>						
<i>Career</i>				.87	.49	.38
	1	.74***	.55			
	2	.77***	.59			
	3	.77***	.59			
	4	.81***	.65			
	5	.71***	.50			
	6	.52***	.27			
	7	.49***	.24			
<i>Learning</i>				.87	.52	
	8	.78***	.62			
	9	.72***	.51			
	10	.78***	.61			
	11	.75***	.57			
	12	.67***	.45			
	13	.62***	.38			
<i>Spiritual</i>				.86	.55	
	14	.78***	.60			
	15	.78***	.60			
	16	.72***	.52			
	17	.74***	.55			
	18	.68***	.46			
<i>Physical</i>				.81	.48	
	19	.83***	.69			
	20	.84***	.71			
	21	.62***	.39			
	22	.57***	.33			
	23	.52***	.27			
<i>Recreational</i>				.68	.33	
	24	.81***	.66			
	25	.76***	.58			
	26	.38***	.15			
	27	.34***	.11			
	28	.38***	.15			

\*\*\* $p < .001$ Note: <sup>a</sup><sub>c</sub>: Composite reliability<sup>b</sup><sub>v</sub>: Average variance extracted

The second-order confirmatory factor analysis was carried out on the data obtained from survey respondents by the maximum likelihood method using SPSS Amos software (version 23.0). The results shown in Table 4 indicate that the instrument developed in this study is valid and reliable based on the individual item reliabilities, composite reliabilities and average variances extracted. Each latent variable, which is career, learning, spiritual, physical, and recreational dimension, has a good composite reliability ( $\rho_c$ ). All composite reliabilities of latent variables, except that of recreational dimension, are higher than .7. The average variances extracted ( $\rho_v$ ) shown in Table 4 indicate that the instrument is acceptable. All the average variances extracted, except that of recreational dimension, are fair (Bagozzi & Yi, 1988; Huwang, 2004).

The model fit for the instruments developed in this study was assessed based on second-order confirmatory factor analysis, and the results are shown in Table 5. Generally, the model is acceptable according to various fit indicators except  $\chi^2$  and the ratio of  $\chi^2/df$ , which hard to achieve satisfactory values owing to a large sample surveyed in this study.

The stability of model was also assessed by the cross-validation, and the results showed the model has a good stability. The hold-out samples, which are calibration and validation samples, were consisted of approximately 50% survey samples that were formed by the randomly sorting method using SPSS software (V. 21.0). The Chi-square values for calibration and validation samples were 1352.365 and 1297.782 respectively, and both calibration and validation samples had the identical degree of freedom



( $df = 345$ ,  $p = .000$ ,  $N = 406$ ). The Chi-square change (54.538) between calibration and validation samples was insignificant because the value is smaller than the critical value (302.960) according to Chi-square difference test under the 95.5% confidence level. The insignificant Chi-square change reveals that the model of the developed instrument can be adequately applied to the different samples in the population of undergraduates in Taiwan.

The instrument included five dimensions, and statements were rated according to the level of agreement, using a 4-point Likert-type scale. According to absolute divisions, four levels of undergraduates' caring-for-self, which were high, middle-high, middle-low, and low, were determined for each item, dimension as well as the total inventory. For example, the divisions for each level of an item were high (4-3.26), middle-high (3.25-2.51), middle-low (2.50-1.76), and low (1.75-1).

**Table 5 Assessment of model fit for the inventory developed in this study ( $N = 1320$ )**

	Indicators	Ideal values	Observed values
Preliminary fit	error variance	1. absence of negative 2. significant	1. absence of negative 2. significant
	$\chi^2$	nonsignificant	2348.63***
absolute fit measurement	GFI	$\geq .90$	.873
	RMR	$\leq .05$	.035
	SRMR	$< .08$	.075
	RMSEA	$\leq .05$ (good fit) .05-.08 (reasonable fit) .08-.10 (mediocre fit)	.066
Overall model fit	NFI	$\geq .90$	.855
incremental fit measurement	CFI	$\geq .90$	.873
	TLI	$\geq .90$	.861
parsimonious fit measurement	PNFI	$\geq .50$	.780
	PCFI	$\geq .50$	.797
	$\chi^2/df$	1-3	6.810
Fit of internal structure of model	parameter	significant	significant

\*\*\* $p < .001$

### Data analysis

The computer software SPSS 21.0 for Windows was used to statistically analyze the data obtained from both the pretest and survey investigation. The pretest data were analyzed according to item analysis, factor analysis, and internal consistency analysis to develop the inventory for subsequent survey investigation. The survey data were analyzed statistically for clarifying both the current status of undergraduates' caring-for-self and the factors associated with their caring-for-self. To investigate the current status of undergraduates' caring-for-self, the survey data obtained were analyzed for calculating the means, standard deviation, skewness coefficients ( $g_1$ ), and kurtosis coefficients ( $g_2$ ). For exploring the factors associated with undergraduates' caring-for-self, the survey data obtained were analyzed using a multivariate analysis of variance (MANOVA) in which statistical significance, the  $F$  test, the Scheffé post hoc test, and effect size were evaluated. The significance level for each analysis was set at .05. The data from the  $F$  test were evaluated to distinguish which dimensions exhibited significant differences. When a dimension revealed a significant difference, the Scheffé post hoc test was adopted for identifying the pairs of groups exhibiting significant differences. Furthermore, the effect-size was evaluated by the magnitude of Eta-squared ( $\eta^2$ ). According to Cohen (1988), effect-sizes are categorized as small ( $\eta^2 = 0.2$ ), medium ( $\eta^2 = 0.5$ ), and large ( $\eta^2 = 0.8$ ).

## Results and Discussion

### *Undergraduate perceptions of caring-for-self*

Undergraduate perceptions of caring-for-self surveyed in this study were identified and categorized into five dimensions: career, learning, spiritual, physical, and recreational dimensions (Table 6). The results for these five dimensions based on survey data partially support the integrated framework proposed in this study (Table 1). Two discrepancies are found between the integrated framework and the finding from the survey data. The recreational and environmental aspect in the integrated framework (Table 1) was modified to the recreational dimension (Table 6) because of low factor loading of items related to caring for the environmental ecosystem. Moreover, a person's religion, proposed in the integrated framework, was not included in the spiritual dimension based on survey data because of low factor loading. These two discrepancies are illustrated by Noddings' perspectives and culture differences between the United States and Taiwan. Noddings (2005) classified "care" into six aspects: (a) self, (b) intimate others, (c) global others, (d) plants, animals, and the environment, (e) the human-made world, and (f) ideas. Caring for the environmental ecosystem from the integrated framework was excluded because such caring is not included in the inner circle of Noddings' care (Noddings, 2005). Edles (2002) indicated that Americans focus more attention on personal religion than do those in other Western industrialized countries. The absence of religion from the spiritual dimension of Taiwanese undergraduates' caring-for-self may be because of this culture differences between Americans and Taiwanese.

Compared with Noddings' four vital concerns of peoples' caring-for-self, undergraduates' caring-for-self in this study contained an additional learning dimension and did not include religion in the spiritual dimension. Noddings (2005) indicated that "caring-for-self contains four vital concerns: physical life, spiritual life, occupational life, and recreational life". The learning dimension in this study was added because learning is the salient role of undergraduates based on their role expectation (Canaan, 2004; Llamas, 2006). Religion was absent from the spiritual dimension results because of the cultural difference between the United States and Taiwan, as described in the previous paragraph.

**Table 6** Descriptive statistics for each dimension and total inventory of undergraduates' caring-for-self

Dimension	<i>N</i>	<i>M</i>	<i>SD</i>	<i>I</i> <sup>a</sup>	$\bar{x}$ <sup>b</sup>	Level	<i>g</i> <sub>1</sub>	<i>g</i> <sub>2</sub>
Career	1340	23.26	3.087	7	3.23	medium-high	-.227	.345
Learning	1355	18.52	2.987	6	3.09	medium-high	-.188	.744
Spiritual	1354	16.62	2.496	5	3.32	high	-.260	-.296
Physical	1359	15.04	2.764	5	3.01	medium-high	-.184	.120
Recreational	1354	14.96	2.489	5	2.99	medium-high	-.131	-.008
Total	1320	88.43	9.687	28	3.15	medium-high	.126	-.210

Note: <sup>a</sup>*I*: Item number

<sup>b</sup> $\bar{x} = M/I$

The levels of undergraduates' caring-for-self were high level for the spiritual dimension and medium-high level for the other dimensions. The means for each dimension and total inventory are shown in Table 6, and the magnitudes of these means are located at the medium-high level except for that of spiritual dimension which is high level. For discriminating the dimensions to which undergraduates focus more care attention, the magnitudes of  $\bar{x}$  were compared. Table 6 shows that the three dimensions of spiritual, career, and learning have higher values than the other dimensions. The finding that undergraduates care most for the spiritual dimension differs from a previous report in which undergraduates cared most for career, based on the interview approach (Guo, 2014). The survey in this study was conducted during the Sunflower Student Movement which provides an active discussion

environment for undergraduates reflecting their judgment-values, emotion, self-evaluation, and belief. The finding of this study was likely obtained because of the active discussion during that period.

According to the skewness coefficient ( $g_1$ ), undergraduate responses were normal distributions that were slightly left-skewed for each dimension and slightly right-skewed for the total inventory. Moreover, the dimensions of learning and career with a higher magnitude of kurtosis coefficient ( $g_2$ ) revealed a leptokurtic distribution. The magnitudes of  $g_1$  for each dimension and total inventory were close to zero, although a negative and positive value were obtained respectively for each dimension and total inventory (Table 6). The finding of normal distribution revealed midlevel magnitudes of caring-for-self for most undergraduates. Although Table 6 shows positive and negative values of  $g_2$ , most values for each dimension and total inventory were small. The higher magnitudes of  $g_2$  are the values for the learning and career dimensions. Both dimensions had positive  $g_2$  values and revealed a leptokurtic distribution, in which higher frequencies appeared on both extreme values of the 4-point Likert-type scale. Because of increasing economic inequality in recent years in Taiwan, many undergraduates are seeking jobs to make money or are exerting increased efforts to learn for the forthcoming job search after graduation. The leptokurtic distribution observed in the learning and career dimensions may have been caused by the increasing economic inequality in Taiwan (Directorate-General of Budget, Accounting and Statistics, 2016).

### ***Factors associated with undergraduates' caring-for-self***

Data obtained from the MANOVA, which compared undergraduate backgrounds on their caring-for-self, are presented in Table 7. Significant differences were observed in undergraduates' caring-for-self for factors of grade, gender, religion, school location and college according to the  $\lambda$  values. However, factors of sponsor and socioeconomic status revealed no significant difference on peoples' caring-for-self. The results obtained from the MANOVA, the  $F$  test, and the Scheffé post hoc tests are summarized as follows.

#### ***Grade***

According to  $F$  values, a significant difference was found on the recreational dimension. Freshmen are more likely to care for the recreational dimension than are seniors, based on results of the Scheffé post hoc test. A previous study also reported that the first year in university is the crucial point for becoming aware of caring-for-self events (Guo, 2014). Freshmen in Taiwan, who have recently passed their college entrance examination, explore university recreational and social activities for relaxing from examination pressure. However, seniors facing job searches after graduation and applying for institution entrance have little time for enjoying recreational activities.

**Table 7 Comparisons of different undergraduates' backgrounds on their caring-for-self**

In. V. (N)	Dep. V.	$\lambda$	<i>F</i>	$\eta^2$	Post hoc tests
Grade (1320)		.971**		.007	
1. freshman (417)	Job and family		.297		—
2. sophomore (282)	Learning		1.098		—
3. junior (434)	Spiritual		.873		—
4. senior (174)	Physical		2.184		—
5. delay-graduated student (13)	Recreational		4.983**		1 > 4
Gender (1320)		.983***		.017	
1. male (656)	Job and family		1.912		—
2. female (664)	Learning		8.003**		2 > 1
	Spiritual		.178		—
	Physical		3.545		—
	Recreational		6.043*		1 > 2
Socioeconomic status(1279)		.980		.005	
1. low (389)	Job and family		.887		—
2. middle-low (393)	Learning		.602		—
3. middle(278)	Spiritual		1.194		—
4. middle-high(193)	Physical		1.604		—
5. high(26)	Recreational		1.740		—
Region (1328)		.983**		.017	
1. specific (711)	Job and family		9.800**		2 > 1
2. nonspecific (527)	Learning		1.952		—
	Spiritual		13.367***		2 > 1
	Physical		4.885*		2 > 1
	Recreational		9.209**		2 > 1
School sponsor (1320)		.994		.006	
1. public (697)	Job and family		.024		—
2. private (623)	Learning		3.331		—
	Spiritual		2.054		—
	Physical		.078		—
	Recreational		.049		—
School location (1320)		.971**		.010	
1. northern (669)	Job and family		3.573*		2 > 1, 3 > 1, 4 > 1
2. central (271)	Learning		2.699*		2 > 3, 4 > 3
3. southern (270)	Spiritual		1.874		—
4. eastern (110)	Physical		2.194		—
	Recreational		4.204**		2 > 1, 2 > 3
College (1318)		.968**		.008	
1. humanities, social science and art (380)	Job and family		3.113*		—
2. science and engineering (296)	Learning		2.162		—
3. medicine and life science (268)	Spiritual		0.633		—
4. law and business (314)	Physical		4.594**		3 > 1, 3 > 2
5. people live hood (60)	Recreational		0.669		—

\* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ 

### Gender

Significant differences were observed for both learning and recreational dimensions according to the *F* test results. The female obtained a higher score on the learning dimension and a lower score on the recreational dimension. The finding that females preferred learning, whereas the male preferred recreation is consistent with the boy crisis perspective reported in previous studies, in which girls were more successful at learning in core subjects such as reading and writing skills (Helbig, 2012; Pollack, 2006). The gender difference may have been due to the females having more social influenceability, which refers to being easily influenced by the views of others (Karakitapoğlu-Aygün, 2004), and being more moralistic (Mpofu, 1994). Learning is the salient role of students either from their role expectation

(Canaan, 2004; Llamas, 2006) or from their life-career rainbow (Super, 1980). Because females possess more social influenceability and moralistic characteristics than males do, they focus more attention on learning.

### ***Socioeconomic status***

Nonsignificant differences observed for socioeconomic status on the five dimensions revealed that this factor was not associated significantly with undergraduates' caring-for-self. Olowu (1986) reported that the socioeconomic-status factor was associated with Nigerian adolescents' self-concept, which is based on peoples' caring-for-self. The inconsistency between the finding of this study and the previous report may be caused by the variability of socioeconomic-status for the participants. Among the three types of Taiwanese school, the comprehensive university, technology university, and independent college, Chan (1994) reported that students at technology universities and independent colleges carried heavier economic loading. Because of the distinct educational objectives of these three schools, this study focused on undergraduates' caring-for-self in the comprehensive university for empowering them to form a master of subject. However, undergraduates in the comprehensive university were homogeneous, and most of them were from a higher socioeconomic status than were those in the technology university and independent college.

### ***Religion***

Significant differences were found for all dimensions except for the learning dimension, according to the *F* test. Moreover, undergraduates holding religious beliefs focused more attention on their caring-for-self than did those without specific religious beliefs, as shown in Table 7. This finding is similar to the aforementioned study in which Nigerian adolescents holding religious beliefs had a more positive self-concept than those without religious beliefs (Olowu, 1986), which is the basis of peoples' caring-for-self. Based on Olowu, this study suggests that undergraduates who hold religious beliefs accumulate more emotionally-charged values that encourage their active agency and provide them with increased caring-for-self.

### ***School sponsor***

No significant difference was observed for all caring-for-self dimensions. The primary financial support for public and private schools derives from government budgets and private donations, respectively. However, a recent decrease in government budget has forced public schools to seek private donations from companies or citizens. Both private schools and public schools can apply for and obtain government grants for improving their learning environment, such as the Program for Promoting Teaching Excellence of Universities (Ministration of Education, 2016). Consequently, the learning-environment discrepancies between public and private schools caused by financial factors have recently been decreasing. The lower gap in learning-environment discrepancies between both types of schools might result in similar undergraduate caring-for-self in both schools.

### ***School location***

Significant differences were observed for career, learning, and recreational dimensions according to the *F* test. Based on the Scheffé post hoc test, undergraduates in schools located in central, southern, and

eastern districts focused more attention on the career dimension than those in the northern district did. In the learning dimension, undergraduates at central and eastern schools had higher caring-for-self than did those at southern schools. Moreover, undergraduates at central schools focused more attention on the recreation dimension than did those at northern and southern schools. The northern district is the economic center of Taiwan, and has more job-opportunities because of active economic activities. Thus, undergraduates in districts other than the northern district must focus more attention on jobs searching.

Rennis, McNamara, Seidel and Shneyderman (2015) indicate that digital media are the major source for urban community college students to obtain their self-care of personal health information. In Taiwan, popular digital media in schools located in four distinct areas give undergraduates the identical opportunities to obtain the self-care information. The lower gap in digital-media discrepancies among four types of schools might result in similar undergraduate caring-for-self in the physical aspect.

### College

A significant difference was found on the physical dimension according to the *F* test. The Scheffé post hoc analysis indicated that undergraduates in the Medicine and Life Science College (MLSC) focused more attention on the physical dimension than did those in colleges of humanities, social science, and art, as well as science and engineering. The higher magnitude of caring-for-self for undergraduates in MLSC on the physical dimension may have been due to the education objectives of MLSC focusing on caring for the human body. Kavas, Demirören, Koşan, Karahan and Yalim (2015) indicated that the clinical practice program is the main variable determines Turkish medical students' professionalism, in which the attitude on health caring is a major component. The higher magnitude of caring-for-self for undergraduates in MLSC on the physical dimension might result from their receiving the professional education, especially medical clinical practice, to cultivate their health caring attitude.

The pairs of groups revealing significant differences for each dimension are summarized in Table 8. The backgrounds of undergraduates who focused more attention on the career dimension are those schools located in the central, southern, and eastern districts. Students who demonstrated a high magnitude of caring for the learning dimension were females, as well as those at schools in the central or eastern districts. Undergraduates who demonstrated more caring for the physical dimension were those in the MLSC. Students who focused more attention on the recreational dimension were freshmen, males and students at central schools. Moreover, undergraduates who held religious beliefs focused more attention on all dimensions, except for the learning dimension.

**Table 8 The pairs of groups exhibiting significant differences for each dimension**

Dimension	Background						College
	Grade	Gender	ESE	Religion	School sponsor	School location	
Career	—	—	—	yes > no	—	central > northern southern > northern eastern > northern	—
Learning	—	F > M	—	—	—	central > southern eastern > southern	—
Spiritual	—	—	—	yes > no	—	—	—
Physical	—	—	—	yes > no	—	—	MLSC > HSSA MLSC > SE
Recreational	Freshmen > seniors	M > F	—	yes > no	—	central > northern central > southern	—

### ***Conclusion and Suggestions***

The undergraduate caring-for-self survey was categorized into five dimensions: career, learning, spiritual, physical, and recreational. The level of undergraduates' caring-for-self was high for the spiritual dimension, and those were medium-high for the other dimensions. Among the five dimensions, undergraduates cared most for the spiritual dimension, likely because of the influence of the Sunflower Student Movement. Undergraduate responses on their caring-for-self are normal distributions for each dimension and total inventory. Moreover, the learning and career dimensions reveal a leptokurtic distribution, which have been due to the increasing economic inequality in Taiwan.

Compared with Noddings' four vital concerns of peoples' caring-for-self, undergraduates' caring-for-self in this study contained an additional dimension of learning, and religion was absent from the spiritual dimension. The addition of the learning dimension was likely due to learning being the salient role of undergraduates, whereas the absence of religion from the spiritual dimension was due to the cultural difference between the United States and Taiwan.

This study also observed significant differences in undergraduates' caring-for-self for factors of grade, gender, religion, school location, and college. However, factors of school sponsor and socioeconomic status revealed no significant difference in peoples' caring-for-self. Undergraduates focused more attention on the career dimension in those schools located in central, southern, and eastern districts. Students who had a higher magnitude of caring for the learning dimension were females, as well as those schools at the central or eastern districts. Undergraduates who had more care for the physical dimension were those in the MLSC. Students who focused more attention on the recreational dimension were freshmen, males, and students at central schools. Moreover, undergraduates who held religious beliefs focused more attention on all dimensions, except for the learning dimension.

Based on the findings, this study offers four suggestions for undergraduates, educators, university administration, and further researches respectively.

#### ***Dialog with others to determine peoples' caring-for-self in the spiritual dimension***

The spiritual dimension, which represents caring for individual value, thoughts, beliefs, and critical thinking is the one of the dimensions for which undergraduates care most. However, this dimension is abstract; clarifying precisely the personal caring-for-self in this dimension is crucial. This study suggests that undergraduate engage in dialog with others for clarifying their caring-for-self in the spiritual dimension. The more the dimension is discussed, the clearer it becomes according to the value clarification proposed by Rath, Harmin, and Simon (1966). This study recommends several situations for undergraduates to discuss their caring-for-self in the spiritual dimension, such as dialog with family at lunch, discussions or presentations in lectures, interactions with peers in extracurricular activities, or chatting on Facebook or Line communication software.

#### ***Teaching using the issues-centered-approach for promoting undergraduates' caring-for-self reflection***

A social concern may be a catalyst for initiating undergraduates' caring-for-self, such as the belief discussion during the Sunflower Student Movement that enhanced undergraduates' attention on their caring-for-self in the spiritual dimension based on the finding of this study. Therefore, undergraduates' caring-for-self is dynamic and interacts with current social issues they concern. This study recommends that university educators adopt the current social issues that undergraduates concern as teaching material in lecture. In such an issues-centered approach (Hahn, 1996), undergraduates can examine and critically think about social issues for clarifying and reflecting on their caring-for-self.

***Constructing platforms for providing a variety of information that undergraduates require for their caring-for-self***

Based on this study, the dimensions of undergraduates' caring-for-self are diverse. Moreover, undergraduates with various backgrounds, such as religions, grades, genders, school location, and colleges, have different concerns regarding their caring-for-self. Consequently, the information that undergraduates require for clarifying and reflecting on their caring-for-self is abundant and diverse. This study recommends that university administrations construct a caring-for-self information platform for providing sufficient information that undergraduates require for clarifying and reflecting on their caring-for-self.

***Further researches to explore the criterion-related validity, the coefficient of stability, effects of learning, and influences of authority arguments***

The instrument, the Caring-for-self Inventory for Undergraduates, used in this study was valid and reliable according to statistical results obtained from exploratory factor analysis, confirmatory factor analysis and the coefficient of internal consistency. However, the criterion-related validity and the coefficient of stability for the questionnaire are also important for a questionnaire. Comparing the results obtained from both the questionnaire in this study and the other caring-for-self related questionnaires is suggested for further studies to construct the criterion-related validity. Moreover, the test-retest method is recommended in the further study to obtain the coefficient of stability of the questionnaire. In addition, this study focuses on the status of Taiwanese undergraduates' caring-for-self, and the differences in caring-for-self of undergraduates with diverse backgrounds. The relationship between undergraduates' caring-for-self and their learning variables, such as learning performance, attitude and adaptation, is recommended to be explored in the further study. Furthermore, the subjectivation is important for undergraduates during their formation of caring-for-self based on Foucault's perspectives. It is also suggested in the further studies to investigate the awareness and reflection of undergraduates on the influence of various authority arguments, such as textbooks and official documents, during their formation of caring-for-self.

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# 大學生「關懷自身」之調查研究 -大學生關心自己哪些事？\*

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「關懷自身」源自 Foucault 與 Noddings 對自我概念、自我發現、自我實踐、自我形塑等概念。本研究旨在探討大學生關懷自身之現況及其相關因素，以自編「大學生關懷自身量表」對 1,361 位大學生進行調查研究。並以描述性統計、單因子多變項分析、薛費多重比較分析法進行資料處理與分析。研究結果發現：（1）大學生關懷自身之向度包含出路、學習、精神、身體、及休閒五個層面，並以精神層面之關心程度最高，此可能與太陽花學運提供討論氛圍有關。（2）大學生關懷自身之層面因其年級、性別、宗教信仰、學校所在地、及學院別而有顯著差異，但不因就讀學校公私立別及學生社經背景而有顯著性差異。與 Noddings 所提出關懷自身之層面相比較，本研究發現臺灣大學生關懷自身之向度，多了「學習」，且精神層面不含宗教，此可能與學習是大學生的顯著角色及美國、臺灣間文化差異有關。根據研究發現，本研究提出大學生可多與他人對話、大學教師可採取議題中心取向教學、大學可建構資訊平台等建議，來增進大學生對自身之關懷。

**關鍵詞：**大學生、自身、關懷、關懷自身

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