SUNY New Paltz
Electronic Thesis (ET) Approval Form

Student Information:

Printed Name: ____________________________

(Last Name) (First Name) (Middle Name)

Mailing Address: ____________________________________________

___________________________________________________________

Email address: ____________________________ Phone: ____________

Degree: ____________________________ Planned graduation date: ____________

School: ____________________________________________

Department: ____________________________________________

Thesis title: ____________________________________________

___________________________________________________________

Review and Acceptance of thesis: The thesis listed above has been reviewed and accepted by the student’s committee.

Signature Printed Name Date Signed

(Committee Chair) ____________________________ ____________________________

(Committee Member) ____________________________ ____________________________

(Committee Member) ____________________________ ____________________________

(Committee Member) ____________________________ ____________________________

Review and Acceptance of ET: I have reviewed the final electronic version of the thesis listed above and determined that it is an accurate representation of the document reviewed and accepted by the committee.

(Committee Chair) Printed Name Date

______________________________ ____________________________

______________________________ ____________________________

______________________________ ____________________________

______________________________ ____________________________
Student Agreement

Part A: Copyright
I hereby certify that, if appropriate, I have obtained and attached hereto written permission statements from the owners of each third party copyrighted matter to be included in my thesis, allowing distribution as specified below. I certify that the version I submitted is the same as that approved by my committee.

I hereby grant to the State University of New York at New Paltz and its agents the non-exclusive license to archive and make accessible, under the conditions specified below, my thesis, in whole or in part in all forms of media, now or hereafter known. I retain all other ownership rights to the copyright of the thesis. I also retain the right to use in future works (such as articles or books) all or part of this thesis.

Signed: ____________________________ (Student) ____________________________ (Date)

Part B: Access
In addition to the unrestricted display of the bibliographic information and the abstract, I agree that the above-mentioned document be placed in the State University of New York Digital Repository with SUNY New Paltz campus access. Any additional access is given below (Choose one):

☐ 1. Release the entire work to all State University of New York campuses.
☐ 2. Release the entire work for access Worldwide.

The undersigned agrees that this ET Access statement updates any and all previous statements submitted heretofore.

Signed: ____________________________ (Student) ____________________________ (Date)

CHECKLIST for submission of Electronic Thesis. (Note: the ET is submitted IN ADDITION to the regular print thesis, which must meet all department requirements.)

____ Completed and signed ET Approval Form on pages 1 and 2. Be sure to obtain the signatures of your thesis committee on the first page.

____ Include an unsigned version of the Signature Page in your ET. (Signatures will not be posted on the Internet.)

____ Your ET is in the form of a single PDF (Portable Document Format) file on one CD, DVD, or flash drive. Convert your thesis to PDF if it is written in Microsoft Word. You are responsible for making sure that the conversion is free of formatting errors.

____ If material copyrighted by others is included in your thesis, attach the copyright permission letter(s) from the copyright owner(s).

____ If your thesis contained executable software owned by another party, attach the letter from the owner of the software license granting permission to use it.
USING THE IPSQ-SORT TO EXAMINE IDENTITY OF MANDARIN SPEAKING ADOLESCENTS

By

Hai-Yun Yang, BA

In Partial Fulfillment of the Requirements for the Degree of

Master of Art

In

Department of Psychology

State University of New York at New Paltz

December, 2010
USING THE IPSQ-SORT TO EXAMINE IDENTITY STYLE

OF MANDARIN SPEAKING ADOLESCENTS

Hai-Yun Yang

State University of New York at New Paltz

We, the thesis committee for the above candidate for the Master of Art degree, hereby recommend acceptance of this thesis

_______________________________________
Douglas C. Maynard, Thesis Advisor
Department of Psychology, SUNY New Paltz

________________________________________
Tabitha Holmes
Department of Psychology, SUNY New Paltz

________________________________________
Greta Winograd
Department of Psychology, SUNY New Paltz

Approved on _________________________

Submitted in partial fulfillment of the requirements for the Master of Art degree in Psychology at the State University of New York at New Paltz
Acknowledgement

I thank my thesis advisor, Dr. Douglas C. Maynard, and both my committee members, Dr. Tabitha Holmes, and Dr. Greta Winograd.

I also thank Dr. Joe F. Pittman, Jr. and his graduate student, Yanling Ma from the Auburn University for sharing their resources to help me complete this study.

Last but not least, I want to thank my translation team: Meng-Ching Ko, Meng-Hsuan Hsieh, Tim Chen, Yu-Chun Shen, Yun-Jung Su, Yu-Chun Chen for their great work.
Using the IPSQ-Sort to Examine Identity Style of Mandarin speaking Adolescents

Hai-yun Yang

State University of New York at New Paltz
Abstract

Berzonsky (1992) described three identity processing styles (informational, normative, and diffuse/avoidant) which people use to manage identity challenges. Different people can utilize different styles to deal with identity crisis, but tend to favor one over the others. In this study, I translated a measure of identity processing style, the Identity Processing Style Q-sort (IPSQ-sort; Pittman, Kerpelman, Lamke, & Sollie, 2009) from English to Mandarin. A back translation technique was used to translate the items; this also included a review by the original author of the IPSQ-sort. Then, I evaluated the validity of the Mandarin version with college students from several universities in Taiwan.

*Keywords*: identity development, identity processing style, Q methodology
Using the IPSQ-Sort to Examine Identity Style of Mandarin speaking Adolescents

The formation of one’s identity has been considered a major developmental task during adolescence. According to Erikson (1968), in each stage the person confronts, and hopefully masters, new challenges. Throughout adolescence, individuals need to establish their own identity and to overcome the crisis of role confusion.

In order to better understand identity formation, researchers began to consider the various styles that individuals have in handling the task of identity processing. According to Berzonsky (1992), there are three different styles of identity processing; informational, normative, and diffuse/avoidant style, and different people may utilize different approaches when developing their identity. Individuals who employ the informational processing style are more likely to actively seek out for information they need and exhibit more openness (Berzonsky, 1999; Soenens, Berzonsky, Vanteenkiste, Beyers, & Goossens, 2005). People who employ the normative processing style are more likely to consider significant others’ opinion as their own. Individuals who use the diffuse/avoidant processing style are more likely to procrastinate and delay work.

There are two measures that developmental psychologists have used to measure Berzonsky’s identity process styles. The Identity Style Inventory (ISI;
Berzonsky, 1992), uses a traditional Likert-style approach. More recently, the Identity Processing Style Q-sort (IPSQ-sort; Pittman, Kerpelman, Lamke, & Sollie, 2009) has used a Q methodology approach, in which participants review a series of 60 cards with statements about various identity processing strategies printed on them, and sort the cards into a quasi-normalized distribution according to their preferences.

With the sorting strategies of the identity processing style measurement, researchers may better explore and understand identity development.

However, the IPSQ-sort is currently available in only two languages: English and Turkish. It would help researchers to understand the identity development of people who speak Mandarin as their first language to have a Mandarin version of this measure. Therefore, the main purpose of this study is to translate a measure of identity processing style from English to Mandarin. The validity of the Mandarin version measurement will also be examined. To begin, I will give a brief literature review on identity development and identity processing style in the following section.

**Overview of Identity Development Research**

When people are asked to introduce themselves, some may begin to talk about their occupation, some may begin with their family, and some may begin with their ethnic story. These different aspects of oneself compose one’s very own values and
beliefs which comprise one’s identity. Different people will weigh different facets of their selves differently. For example, some may think their work is the most important aspect of their self-concept, while others may feel that family is the most important quality of their identity, or consider sexuality to be a particularly important quality to them. People see themselves through different identities and make decisions based on their self-beliefs. People form who they are through different life domains, such as career, romantic preferences, religious philosophy, and political preferences (Schwartz, 2001).

Despite the importance of identity to a variety of developmental outcomes, scholars have struggled to arrive at a single, useful definition. For example, it is unclear whether the identity construct is unidimensional (applied to a variety of domains, such as sexuality, ethnicity, or occupation) or truly multi-dimensional.

The Merriam-Webster dictionary defines identity as a sameness of essential or generic character in different instances, underscoring the relative stability of one’s identity. Waterman (1984) defined identity as “having a clearly delineated self-definition comprised of those goals, values, and beliefs to which the person is unequivocally committed” (p. 331). In contrast, Baumeister (1986) provided a definition that is roughly consistent with the conceptualization of many other psychologists, arguing that “whatever differentiates one from others and makes one
the same across time creates identity” (p. 26). The former conceptualization focuses
upon the substantive content of one’s identity, whereas Baumeister’s definition of
identity focuses upon its individualizing nature, in other words, that it is one’s
identity that makes him or her special and unique. Both types of definitions, however,
suggest that is important for everyone to develop their own identity.

The process of developing an identity has been studied since the publication of
Erik Erikson’s life span theory of human psychosocial development in 1968. Erikson, a
pioneer of identity development theory in adolescence, proposed a psychosocial
development stage theory which indicates that during adolescence, teenagers have
to deal with the basic conflict (or crisis) of identity versus role confusion (Kroger,
2007; Dunkel & Sefcek, 2009). According to Erikson, teenagers need to develop a
sense of self and personal identity. Successful development at this stage should lead
to an ability to stay true to the self, while failure leads to role confusion and a weak
sense of self. Erikson saw this identity crisis as a key turning point in one’s identity
development (Kroger, 2007). It is a crucial moment when people organize resources
of growth, recovery, and further differentiation into his/her view. During an identity
crisis, one will search to integrate or adjust earlier interest, talents, values, and
beliefs into a coherent personality structure that can find suitable forms of social
expression and recognition. Relatedly, Marcia identified two dimensions of identity
development (Marcia, 1966; Mullis, Graf, & Mullis, 2009), exploration/crisis and commitment. *Exploration/crisis* is a period of searching of one’s own beliefs, values, and goals. *Commitment* is the acceptance of values, beliefs, and goals you find through exploration. According to Marcia’s (1966) operational definition, an adolescent’s identity development could be classified by four statuses: *identity achieved* (a person who has experienced deliberate self-exploration and is committed to an occupation and ideology); *identity diffusion* (a person who may or may not experience exploration and is not committed to anything); *identity foreclosure* (a person who hasn’t experienced exploration but expresses commitments); and *identity moratorium* (a person who currently experiences self-exploration, and yet is not making commitments or holding only vague commitments).

**Identity Processing Style**

In order to understand the journey of forming one’s identity, researchers have more recently begun to discuss the processing of identity formation. In 1992, Berzonsky proposed the construct of identity processing orientation. According to Berzonsky, individuals use different strategies to deal with identity conflict and daily life experience. Individuals form and maintain their sense of self-identity by utilizing a variety of social-cognitive processes. Individuals’ identity processing style can be categorized into three types: informational, normative, and diffuse/avoidant.
Individuals who use an informational style actively seek out, elaborate, and utilize self information when making identity-relevant decisions and solving personal problems (Berzonsky 1992, 2004; Berzonsky, Nurmi, Kinney, & Tammi, 1999; Eryigit & Kerpelman, 2009). When dealing with information that is not coherent with one’s existing identity, a person who tends to use an informational style will be more likely to revise and accommodate relevant self-constructions. The informational style has been related to openness to experience and ideas, problem-focused coping strategies, and a high need for cognition, which lead individuals to be more likely to consider potentially disconfirmatory information (Berzonsky, 1999). Moreover, the informational style is also associated with Marcia’s (1996) identity achieved and moratorium status (Berzonsky, 1992; Berzonsky & Neimeyer, 2004).

An adolescent using a normative oriented approach is more concerned with the prescriptions, standards, and expectations of significant others (e.g., parents) and reference groups in making his/her decisions. When new information conflicts with one’s current identity, a normative approach involves defending against and/or reformulating this information to validate the previously internalized identity. People using a normative style tend to have a high need to maintain structure and attain cognitive closure (Berzonsky, 1999). They have a tendency to seek information which is consistent with their original beliefs and are more likely to display confirmation
biases (Berzonsky, 1992). This style is also associated with Marcia’s (1966) identity foreclosure status (Berzonsky, 1992; Berzonsky & Neimeyer, 2004). Foreclosed individuals tend to endorse authoritarian submission and conventionality, and report a relatively conflict-free, idealized relationship with their parents.

Finally, the diffuse/avoidant processing style is used when individuals are more reluctant, effort-avoidant, and have a tendency to procrastinate regarding personal identity concerns. When facing identity conflicts, a person using this style will delay as long as possible to before dealing with them. Research has found that the diffuse/avoidant processing style is associated with identity diffusion status (Berzonsky, 1992; Berzonsky & Neimeyer, 2004). According to Marcia, diffused individuals are generally apathetic and disinterested and are often at risk for a number of maladaptive outcomes, including academic or drug problems (Schwartz, 2001). Research has also found that diffuse/avoidant oriented American youth rely on maladaptive strategies in a cognitive achievement task (Berzonsky et al., 1999).

Causality orientation, the ways that people understand the causes of their own behavior, also seems to be related to identity processing style (Soenens et al., 2005). For example, Soenens and colleagues found that autonomous causality orientated individuals are more likely to embrace an informational processing style. Autonomous causality orientated individuals’ actions are based on an awareness of
their own personal standards and goals. They feel that their behavior is freely chosen and self-regulated. Individuals who employ a normative processing style are often found to have a controlled causality orientation (Soenens et al., 2005). People with a controlled orientation often internalize external forces, demands, or expectations into their own intention to the behavior. Finally, individuals who employ a diffuse/avoidant style were found to have an impersonal causality orientation. The impersonal causality oriented people tend to believe that they lack the ability and resources to regulate their actions. They are more vulnerable to problems or crises than those who employ informational or normative processing style.

In terms of relationship with personality traits, individuals with the informational style score higher on openness than others (Berzonsky, 1992). They also utilize more problem-focused coping strategies, and score higher on both need for cognition and autonomy (Berzonsky & Ferrari, 1996; Berzonsky & Kuk, 2000; Soenens et al., 2005). In contrast, adolescents with a normative style are firmly committed, possess a well-defined sense of educational purpose, and have a high need for structure and cognitive closure (Berzonsky & Kuk, 2000; Berzonsky, 2004a; Soenens et al., 2005). Adolescents with a diffuse/avoidant style were found to be maladaptive in situations requiring decisions, and scored high on neuroticism and low on agreeableness and conscientiousness (Berzonsky & Ferrari, 1996; Soenens et
Finally, it is important to note that most adolescents are capable of using all three of the identity strategies, and a person’s choice of strategy may depend on situational variables such as the particular identity domain (Pittman et al., 2009). However, each person is likely to use one of the styles more frequently and widely than the other two styles.

**Measurement of Identity Processing Styles**

To measure identity style, Berzonsky (1989) developed the Identity Style Inventory (ISI). The ISI focuses on classifying commitments and styles (Pittman et al., 2009), contains 29 items, and utilizes a 5-point Likert-style response scale, ranging from *not at all like me* to *very much like me* (Berzonsky, 1999). It has been used to investigate the style one uses when dealing with identity problems, and produces three different scores to represent *information*, *normative*, and *diffuse* styles respectively (Berzonsky, 1992, 1996; Xu, 2009). Because it is a standard Likert-scale measure, respondents may answer each question independently of all other items.

This independence prevents a full understanding of the respondents’ preference for particular processing strategies, relative to each other. A measure which takes into account the subtle differences of the relative priority of each item for that individual would aid in better understanding his/her processing style. Q methodology
offers such an approach (van Exel & de Graaf, 2005), by providing participants with a
task environment where any possible order of preference may be specified when
dealing with problems, attitudes, or opinions. Therefore, using a Q methodology to
measure one’s identity processing style is more appropriate than a standard
Likert-style measure when the relative importance or endorsement of items is crucial,
as is the case with identity style preferences. Before describing a recent identity
processing style measure that utilizes Q methodology, I explain the basics of this
measurement approach.

**Q Methodology**

William Stephenson, a British physicist and psychologist, invented the Q
methodology in 1935 (Brown, 1996), which was later reinvigorated by Brown
(McKeown, Hinks, Dave, Mercer, & Foster, 1999). The Q methodology is designed to
study a person’s viewpoint, beliefs, and attitudes (van Exel & de Graaf, 2005). It is
also a tool to supplement a researcher’s qualitative research in a systematic and
quantitative approach. As compared to the traditional Likert-style measurement
approach, Q methodology enables the respondent to display a particular viewpoint
on an issue of subjective importance without being excessively constrained by the
viewpoint of the researcher. The task of the participants is to rank the statements
according to their preference and place the statements into a quasi-normal
distribution blank form ranging from statements with which they most agree to those
with which they most disagree. Moreover, it only requires that a relatively small
number of subjects be involved in the development of a Q-sort, relative to the
psychometric requirements of a Likert-style approach.

Researchers begin by generating a set of statements which are believed to be
representative of the population of potential opinions or attitudes on the subject of
interest. Then, participants are asked to sort the set of statements on cards according
to their own preference, as noted above. Researchers then use exploratory factor
analysis to decide what the factors or “Q sets” are, based on the inter-correlations
between pairs of subjects. Each Q set represents a particular holistic attitude,
approach, or opinion that people may adopt. Next, researchers obtain an idealized
prototype Q sort with particular order of statements for each factor. Finally,
researchers use these prototypical Q sets to describe the attitudes or styles that
seem to exist in the population.

The IPSQ-sort

Recently, Pittman et al. (2009) adapted the items on the ISI to develop the
Identity Processing Style Q-sort (IPSQ-sort). In general, they followed the general Q
methodology approach described above. However, the researchers used a subject
matter experts (SME) approach to (a) create the statements from a team of identity
researchers, (b) identify “criterion sorts” for the three styles mentioned above, based on SMEs’ understanding of the constructs (Pittman et al., 2009). Also, instead of having participants complete the Q-sort as part of a face-to-face interview setting, Pittman et al. (2009) developed an Internet-based version of the IPSQ-sort. One recent study has shown that there is no difference in terms of reliability and validity of a Q-sort collected in an in-person setting versus a computer-based setting (Reber, Kaufman, & Cropp, 2000).

In conclusion, the IPSQ-sort requires respondents to examine 60 different descriptions and then organize these descriptions into a fixed array with items “most like me” at one end and items “least like me” at the other (full explanation of the IPSQ-sort procedure is provided in the Method section). This method allows respondents to sort items based upon their own priority and provides a better approach to measuring identity processing style. By the process of sorting concepts into different levels of one’s concern, we get a result which is more similar to one’s own set of preferences in terms of dealing with identity conflicts.

**Goals of the Current Study**

The main purpose of this study is to translate the IPSQ-sort from English to Mandarin and obtain some initial evidence of its validity. The IPSQ-sort is currently so new that it only exists in English and Turkish (Eryigit & Kerpelman, 2009). No research
in Taiwan or in mainland China on identity development has incorporated the
construct of identity processing style. The reason may be because there was no
adequate instrument that researchers could use to examine one’s identity style in
Mandarin. Since identity style has been related to several aspects of adolescence as
described above, it would be useful to have a Mandarin version of an identity style
measure. As a Taiwanese researcher, it would be very useful to have a Mandarin
version of the identity processing style in the future and to see more identity
development research that could be done with a tailored measurement for people
who speak Mandarin as their first language.

The ISI was in fact recently translated into Mandarin by Xu (2009), in order to
examine the relationship between identity style and adolescence’s academic
achievement. However, the items from the translated ISI may not measure the same
construct as the English version, as the translated items were not reviewed by the
original author to ensure that the construct was still the same as the English version.
Also, Xu only had two people to do the back translation, which might not be
adequate to have full confidence in a translated measure. Along with all the
advantages of the IPSQ-sort described above, it would be preferable for researchers
to have the Q-sort based measure available in Mandarin.

In terms of validity evidence, I will draw on three sources. First, I will examine
the interrelationships of the three identity processing styles (informational, normative, and diffuse/avoidant) to see if they are consistent with findings on the IPSQ-sort from the United States and Turkey. Second, I will explore gender differences in identity processing styles, again using past research as a standard of comparison. Finally, I will examine relationships between identity processing style scores and self-aspect scores, as there are reasons to expect that a person’s view of him- or herself would have a connection with the way in which they approach identity issues and conflicts.

**Self-aspects.** The self is how a person sees him- or herself. When constructing one’s identity, one is also constructing one’s self. The nature of one’s self is considered to be part of one’s identity. Kashima and Hardie (2000) developed a scale which measures one’s self-aspect. They identified three major components of self-aspect- individual, relational, and collective.

The *individual self* involves the conception of oneself as autonomous and unique, and having a clear boundary from others. This self-view is characterized by independence from others and one’s social context, and represents a belief that the self is generally separate from others. The *relational self* reflects one’s self-definitions derived from ties with specific others, the quality of these relationships, one’s interpersonal roles, and characteristics shared with significant others. It is generally
associated with an emphasis of interpersonal relatedness, intimacy, and interdependence. Finally, the collective self refers to self-definitions derived from one’s membership in groups or social categories.

**Hypotheses**

In addition to translating the IPSQ-sort into Mandarin, I will examine some of the psychometric properties of the new version. Specifically, I will assess the construct validity of the measure in several ways. This research will not examine the reliability of the new measure for several reasons. First, I am not able to assess its reliability due to insufficient information about the actual criterion scores of the IPSQ-sort. Second, traditional internal consistency measures of reliability may not apply to measures where items are interrelated and ranked, rather than independently rated (van Exel & de Graaf, 2005). Finally, time and resources do not permit a test-retest reliability analysis.

**Gender differences.** In past research (Berzonsky, 1992; Pittman et al., 2009), females were classified as more information-oriented than males, while males were classified as more diffuse/avoidant-oriented than females. Therefore, I would expect the results with the Mandarin version of the IPSQ would also show that females will have significantly higher informational style scores and lower diffuse scores than males do.
Hypothesis 1a: Females will have significantly higher informational style scores and than males.

Hypothesis 1b: Females will have significantly lower diffuse style scores than males.

Inter-correlations among IPSQ-sort dimensions. Based on the past research (Pittman et al, 2009; Eryigit & Kerpelman, 2009), the informational-oriented style and diffuse/avoidant-oriented style should be strongly and negatively intercorrelated. And the normative-oriented style was not significantly correlated with diffuse/avoidant-oriented style. Last, in these two studies, they found significant moderate negative relationships between informational-oriented style and normative-oriented style.

Hypothesis 2a: The correlation between informational-oriented style and diffuse/avoidant-oriented style should be strong and negative.

Hypothesis 2b: There will be no association between the normative-oriented style and the diffuse/avoidant-oriented style.

Hypothesis 2c: The correlation between informational-oriented style and normative-oriented style should be moderate and negative.

Relations with Self-Definitions. In order to enhance the convergent validity in the current study, the relationships between identity processing styles and self
aspects will be examined. To assess individuals’ view of the self, Kashima and Hardie (2000) developed the Relational, Individual, and Collective (RIC) Self-Aspects Scale, which has recently been translated into Mandarin by Song (2009). The RIC scale gives people three different scores representing their self-definitions: individual self, relational self, and collective self respectively. Eryigit and Kerpelman (2009) suggest that cultural differences in identity processing style should exist, based on theories of collectivism and individualism. For example, people from a more conservative or collectivistic societies are more likely to have a normative style whereas people from a more individualistic culture are more likely to have an informational style.

These researchers argue that there should be value differences among individuals within the same culture. I feel that it is more salient to examine individual-level differences among adolescents in Taiwan rather than cultural (i.e., national) differences. Therefore, in the current study, I focus on possible differences in identity style based on individual scores on collectivism and individualism, rather than an assessment of Taiwan as a homogeneous national culture. I hypothesize that those who use an informational style will be more likely to use individual self-definitions, while those using a normative style will be more likely to use collective self-definitions and relational self-definitions. Concerning the impact of westernization in Taiwan during the last few decades, some core values of Chinese
cultures, such as familialism and filial piety still remain and may stand certain influences among Taiwanese youth (Fei, 1993; Wang & Hsueh, as cited in Cheng, 2004). In other words, the relationships between family members (especially with parents) are considered to be more important for Taiwanese than for Westerners. Thus, I would expect to see that there would be significant positive correlations between (a) informational style and individual self-definition, (b) normative style and collective self-definition, and (c) normative style and relational self-definition, also between informational style and relational self-definition.

_Hypothesis 3a:_ Participants’ use of informational style will positively correlate with their individual self-definition scores.

_Hypothesis 3b:_ Participants’ use of normative style will positively correlate with their collective self-definition scores.

_Hypothesis 3c:_ Both participants’ use of normative style or informational style will positively correlate with their relational self-definition scores.

**Method**

**Translation**

A back translation technique was used to translate the IPSQ-sort from English to Mandarin. This technique has been widely used and accepted for translating psychometric instruments from one language to another (e.g., Cha, Kim, & Erlen,
2007; Smith, Tisak, Todd, & Green, 1991; Yu, Lee, & Woo, 2004). To avoid possible errors that may occur during the translating procedure, the current study used a team-based approach. First, four native Mandarin speaking persons who are fluent in English translated the IPSQ-sort items and instructions into Mandarin. Two of these translators were Taiwanese who have never studied or lived abroad in another country, and the other two were Taiwan international students currently studying in the United States. Then, for each item, an additional native Mandarin speaker combined these four generated Mandarin items into a single Mandarin item in a way that best captured the meaning of the four Mandarin items he was provided.

Next, another bilingual person, also a native Mandarin speaker, who has been studying in the United States since high school, translated the combined version of Mandarin items (as well as the IPSQ-sort instructions) back into English. Finally, I consulted with Dr. Joe Pittman, one of the original creators of the English version of the IPSQ-sort (Pittman et al., 2009) with regard to the wording and meaning of the two English versions of IPSQ-Sort (i.e., the original and back-translated versions) to determine whether the back-translated version represented the same concepts as intended in the original English version. Moreover, one of Dr. Pittman’s graduate students, a native Mandarin speaker from mainland China also participated in the discussion. She shared her opinions on the translated items and, based on these
discussions, we made some (17 out of 60 items) necessary rewording on the
Mandarin sentences to enhance item equivalence while remaining relevant to
Taiwanese culture.

Participants

A total of 142 students (70 females, 71 males, and one transgender) from
twenty universities in Taiwan participated in this research and 137 completed both
surveys. All the participants were native Mandarin speakers who were born in Taiwan.
The age range was from 19 to 28 ($M = 22.04$, $SD = 2.02$). Participants were mainly
recruited from Chung Yuan Christian University (30.3%) and Feng Chia University
(25.4%). Others were recruited with a snowball sampling (social network) technique,
whereby students recommended others to participate in this research, and then they
sent an email to the researcher indicated that they would like to take the surveys.
These participants came from National Taiwan University (19.7% of the total sample),
National Taipei University (10.6%) and others (14%). With this sampling technique, I
was able to recruit more participants than just from the two universities. As an
incentive to participate, I created a drawing for three American Express gift checks
worth 100 US dollars each and nine American Express gift checks worth 50 US dollars
each. Participants were automatically eligible in the drawing for the gift cards when
they finished both surveys.
The majority of participants in the sample (61.3%) were studying at private universities. Nearly half of the participants majored in liberal arts and disciplines (54%), the second highest percentage came from science and engineering majors (40.1%), while others (5.9%) majored in business, law, and education. Participants also reported whether they were from a large, medium, or small cities. The distribution of participants’ origin was quite even (large city = 40.1%, medium = 25.5%, small = 34.3%). There were no differences found across individuals in different majors, from colleges with different features, nor the city size of origin with regard to study hypotheses (i.e., psychometric properties of the IPSQ-sort). Therefore, these variables are not included in any analyses or discussed in future sections.

**Measures**

**IPSQ-sort.** The IPSQ-sort (Pittman et al., 2009), translated into Mandarin before data collection, was used to measure participants’ identity processing style. The IPSQ-sort generates three scores which represent their informational, normative, and diffuse/avoidant styles according to their distribution of 60 cards and the correlation between their distribution and criterion sorts which best represent each style. Test-retest reliability of the original IPSQ-sort was .71 with a one month interval between administrations. In order to make the IPSQ-sort easier for people to use as well as to streamline data collection, Pittman and colleagues have created an online
version. There are 60 virtual “cards” on the computer and each contains one short sentence, such as “I watch how others are acting before I decide how to act,” “I’ m different people in different situations,” “Being part of a group of friends is important to me,” and “Having a job is important to me.”

The IPSQ is completed in several steps. Participants first sort 60 cards into three piles: “like me,” “not like me,” and “in-between.” Next, participants select 4 items from the “like me” pile that they think are most like them and arrange them in column 9. Next, participants pick 5 cards containing items that seem next most like them (from the “like me” pile) and place them into column 8. Then participants select 6 items of next most like them (but less so than those cards placed in column 8 and 9) and then arrange them to the column 7, and so on until all “like me” cards are placed. Next, participants select 4 items that are least like them from the “not like me” pile to column 1, and then chose the 5 next least like me cards to column 2, and so on until all “not like me” cards are placed in columns 1, 2, and 3. Finally, participants place the remaining cards into the remaining spaces between most like me and most not like me (column 4 and 5). They place the cards which describe them more correctly or closely toward the most like me side. Figure 1 shows an illustration of how a completed survey would look in terms of how many cards are placed in each column. Each of the 60 statements is assigned a number from 1 to 9 based on which
column the participant ultimately placed it in. The respondents’ ordering of statements is finally correlated with each of the three criterion sorts – idealized sorts generated by SMEs to best reflect each style- to produce an index of his or her preference for each of the three identity processing styles. In other words, these correlation coefficients for each respondent represent their scores on each of the three dimensions of the measure.

**Relations with self-definition.** The relational, individual, and collective self aspects (RIC) scale (Kashima & Hardie, 2000) consists of 10 items which measure self definition. The coefficient alpha of the original English version scale for the relational, individual, and collective subscales are .81, .72, .78, respectively. Each item has three alternative descriptions, and respondents will give each description a score from 1 *(least like me)* to 7 *(most like me)*, ultimately resulting in three total scores representing the relational, individual and collective self definition scores. For example, one question is, “I regard myself as: Someone with his or her own will” (representing the individual self); “A good partner” (representing the relational self); and “A good member of my group” (representing the collective self). The respondents have to rate each description rather than just choose one. The measure produces three set of scores represent each self-definition. I used a Mandarin version which was recently translated from English by Song (2009). The coefficient alpha
scores in the current study were also found to be acceptable for the three subscale
(relational self $\alpha = .70$, the individual self $\alpha = .76$, and the collective self $\alpha = .76$).

**Demographic information.** Participants were asked about their age, gender, major, and university.

**Procedure**

All the data were collected via the Internet. There were two surveys in this research study; one was conducted via the SurveyMonkey.com website, and the other was conducted on the Q-sort website as described above. The first survey included a consent form, the Mandarin version of the RIC scale and general demographic items. The second survey included the IPSQ-sort items in Mandarin (see the Appendix). Participants received two invitation e-mails from Dr. Pittman and me. The e-mails contained instructions, codenames, passwords, and links for them to log on both surveys. Participants received an e-mail from me first, which included detailed research procedures and instructions, their code name and password to log onto the website and a link to the first survey on SurveyMonkey.com. Each participant used their special code name and password to gain access to both of the surveys. The IPSQ-sort outcome data obtained from the online survey (informational, normative and diffuse/avoidant styles scores) were analyzed and supplied to me by Dr. Pittman. Scores from the two surveys were then merged into a single dataset by
Results

Test of Hypotheses

**Gender differences.** Independent sample *t* tests were used to calculate the mean differences between male and female scores on informational oriented items and diffuse/avoidant orientated items (see Table 1). There was no significant difference between male and female participants on their informational style scores (*t* (134) = -1.78, *p* = .077, *r* = .15). Therefore, Hypothesis 1a was not supported. Likewise, contrary to Hypothesis 1b, there was also no significant gender difference among the diffuse/avoidant oriented items (*t* (134) = 1.60, *p* = .11, *r* = .03). Finally, there was also no significant gender differences on the normative style (*t* (134) = 1.97, *p* = .051, *r* = .17). In sum, the current study found no gender differences for any of the three identity processing styles.

**Inter-correlations between IPSQ-sort scores.** I used correlations to test the validity of the three orientation scores for the Mandarin version of IPSQ-sort. As Hypothesis 2a predicted, a significant strong and negative correlation was found between informational and diffuse/avoidant style scores (*r* = -.96, *p* < .001). This is consistent with the findings for English and Turkish versions of the scale as described in previous studies (Pittman et al., 2009; Eryigit & Kerpelman, 2009). Also, in line with
Hypothesis 2c, a significant moderate and negative correlation was found between the normative style and informational style scores ($r = -.41, p < .001$). Unexpectedly, a small and positive correlation was found between normative style and diffuse/avoidant style scores ($r = .18, p < .05$). Thus, Hypothesis 2b was not supported.

To further explore participant responses to the Mandarin version of IPSQ-sort, box plots were developed, showing the distribution of the three orientations among participants (see Figure 2). Over three-fourths of participants (79.6%) had a negative score on the diffuse/avoidant style scale ($M = -.21, SD = .22$), 53.3% of the participants had a positive score on the normative style scale ($M = .03, SD = .18$), and 85.4% of the participants had a positive score on the informational style scale ($M = .27, SD = .23$). Consistent with past research with Turkish adolescents (Eryigit & Kerpelman, 2009), more participants engaged in the informational style than in the diffuse/avoidant style. Additionally, the mean scores of each style in the current study were generally similar to the Turkish sample.

**Relationship with RIC scale scores.** The results of the relationship between the identity processing styles and self definitions are shown in Table 2. There were some significant relationships found between the three styles and self definitions, and those significant results support the hypotheses in the current study. For example,
Hypothesis 3a predicted that participants’ score on the informational style would positively correlate with their individual self definition score. The relationship between informational style and individual self was significant and positively correlated \( r = .40, p < .01 \). However, there were no significant relationship between normative style and collective self \( r = .13, p > .05 \). Thus, Hypothesis 3b was not supported. Finally, Hypothesis 3c predicted that there would be significant and positive correlations between both normative style and relational self definition, and between informational style and relational self definition. The relationship between relational self definition and normative style was significant and positively correlated \( r = .20, p < .05 \). However, there was no significant relationship between informational style and relational self definition \( r = .14, p > .05 \). Therefore, Hypothesis 3c was partially supported.

To further explore the RIC scale in the current study, a box plot (see Figure 3) shows that participants scored higher on individual self definition \( (M = 5.67, SD = .67) \) than relational \( (M = 5.41, SD = .67) \) and collective \( (M = 4.96, SD = .75) \) self definitions. A one-way within subjects ANOVA was conducted and confirmed that these three styles are significantly different from each other \( (F(2, 272) = 81.783, p < .001) \). The pairwise comparison tests showed that participants’ individual self definition scores were significantly higher than their relational self definition scores and collective self
definition scores ($p < .001$). Also, participants’ relational self definition scores were significantly higher than their collective self definition scores ($p < .001$).

**Discussion**

Since Berzonsky proposed the idea of identity styles in 1990, researchers have examined these constructs and their relationships to age, gender, academic development, parenting style and psychological well-being, especially among adolescents (Adams, Munro, Munro, Doherty-Poirer, & Edwards, 2005; Beaumont, 2009; Berzonsky, 1992, 1999, 2004a, 2004b; Berzonsky & Ferrari, 1996; Berzonsky et al., 1999; Berzonsky & Kuk, 2000, 2005; Boyd, Hunt, Kandell, & Lucas, 2003; Eryigit & Kerpelman, 2009; Kerpelman, Pittman, & Adler-Baeder, 2008; Nurmi, Berzonsky, Tammi & Kinney, 1997; Philips, 2008, Pittman et al., 2009; Smits et al., 2008; Soenens et al., 2005). Despite the number of empirical studies done in the past on identity style, only a few were done in a non-Western culture (Eryigit & Kerpelman, 2009; Xu, 2009). In order to improve our understanding of identity styles among individuals living in Asian culture, the current study was conducted to validate a Mandarin version of the IPSQ-sort, an English-language psychological measure of identity processing styles utilizing a Q-sort methodology.

For the purpose of developing an adequate translated instrument from English to Mandarin, the current study employed a widely accepted translation technique –
back translation (Cha et al., 2007; Smith et al., 1991; Yu et al., 2004). As described above in the method section, multiple strategies were used to avoid possible errors. The process included consulting with one of the original authors of the IPSQ-sort on the original intent of all items and instructions, as well as the content equivalence of the Mandarin version. Also, another bilingual graduate student reviewed the translations and helped correct translation errors and maintain cultural relevance of the items. According to Jones, Lee, Phillips, Zhang, and Jaceldo (2001, as cited in Wang, Lee, & Fetzer, 2006), a team of bilingual translators to review the translated items can decrease possible translation errors. Hence, the Mandarin version of IPSQ-sort can be considered an adequately translated psychological instrument.

There are two types of Chinese characters in the Chinese written language, namely traditional characters and simplified characters. Chinese speakers in different countries use either traditional or simplified characters as their writing system. The Mandarin versions of the IPSQ-sort in the current study used traditional Chinese characters because the participants in Taiwan are more familiar with them. Most Chinese communities use traditional Chinese characters; this occurs in Taiwan, Hong Kong, Macau, and most overseas Chinese communities. However, in some Chinese communities (e.g., Mainland China, Singapore and Malaysia), simplified characters are used. Therefore, having two Mandarin versions of the IPSQ-sort, one using
traditional characters and one using simplified characters would increase the utility of the measure in the various Chinese societies. For that reason, after I finalized the Mandarin version of IPSQ-sort, a simplified characters version was created using the function in Microsoft Word (see Appendix).

**Interpretation of Results**

In general, the results of inter-correlations among three identity processing styles were statistically significant and supported past research findings (Pittman et al., 2009; Eryigit & Kerpelman, 2009). Consistent with the identity formation theory (Berzonsky, 1990; Erikson, 1968), the current study found that the relationship between informational style and diffuse/avoidant style was strong and negative, which suggested that informational style and diffuse/avoidant style can be viewed as two ends of the identity formation dimension. It is clear that an individual cannot both actively seek out information and not seek out information at all when facing identity crisis. Therefore, the current study provided cross-cultural evidence that the informational style and diffuse/avoidant style are at two ends on a continuum when it comes to identity processing.

Hypothesis 2b predicted that there would not be a significant correlation between the normative style and diffuse/avoidant style. Although there was in fact a significant relationship between these two styles, the correlation ($r = .18$) was similar
to the past research done on Turkish young adults ($r = .14$; Eryigit & Kerpelman, 2009)
and on American first-year college students with ISI ($r = .14$; Adams, Berzonsky, &
Keating, 2006). Therefore, the inter-correlations hypotheses with the Mandarin
version of identity processing styles measurement were generally consistent with
past research, providing additional evidence of the equivalence of the Mandarin
version of the IPSQ-sort to the other version. Because not all correlations among the
three styles were strongly negative, the results in the current study support
Berzonsky’s (1990) argument that an individual may not engage in only one identity
processing style.

In 2009, Pittman et al. found that American young adults (college students and
under age 25) endorsed an informational style more than normative style or a
diffuse/avoidant style. Eryigit and Kerpelman (2009) also found that 81.7 % of Turkish
adolescents have positive scores on the informational style. Similar to the American
adolescents and Turkish adolescents in the past research, Taiwanese adolescents and
young adults in this sample tended to primarily endorse the informational processing
style. Interestingly, four out of five of the least endorsed items in the IPSQ-sort were
diffuse/avoidant style items (see Table 3). For example, over 50 percent of
participants felt the description of “I am not concerned with finding out who I am
right now” described them least well than most other items. In contrast, 40 percent
of participants felt the description of “I take responsibility for my choice and behavior” described them more accurately than most other items.

Past research found that Asian college students had significantly higher scores on the identity diffusion status in Marcia’s (1966) operational system of identity-status classifications than other ethnic students (Lewis, 2003; Briones, as cited in Cheng, 2004; Cheng, 2004). In the current study, more Taiwanese college students and young adults endorsed an informational processing style or a normative processing style than a diffuse/avoidant style. This finding may be due to the older mean age of participants in the current study. Although no significant differences based upon age were found, the mean age of participants in this study was 22, which is higher than some identity style research (Adams et al., 2005, 2006; Berzonsky, 2004; Phillips & Pittman, 2007; Smits et al., 2008). A cross-sectional research (Phillips, 2008) found that college students (mean age = 21.8) were more likely to be identified as informational style or normative style than middle/high school students (mean age = 14.77). Additionally, Lewis (2003) found that those who were under age 27 scored significantly higher on the diffusion status than who were 27 or older. Half of the current participants were graduate students, and they may have already experienced more identity crisis and have established founded strategies to use when facing with problems than undergraduate-level students.
The cultural changes in Taiwan may be another possible explanation for the higher tendency to use the informational style than the diffuse/avoidant style among Taiwanese college students in the current study. Taiwan’s educational system has been modeled on the American educational system since the mid-nineties (Chen, 2008; Lee, 2004). It is a trend in Taiwan that people have been adopting the Western culture more and more over the last decade. The way young people think of themselves may have become westernized by the educational changes in the modern society in Taiwan. Some of changes in education practices may affect students’ identities, such as an emphasis on enhancing students’ self-understanding, developing their individual potential, and developing students’ capacities in information acquisition (Lee, 2004). As a result, Taiwanese adolescents and young adults may increasingly endorse and utilize an informational style relative to the normative style or the diffuse/avoidant style.

To further explore the functioning of the Mandarin IPSQ-sort, I also examined relationships between IPSQ-sort scores and self-definitions. Eryigit and Kerpelman (2009) examined these same relationships between identity processing styles and self definitions with Turkish young adults by using the Turkish IPSQ-sort and the Turkish RIC scale. They found that informational processing style scores were positively correlated with individual self aspect, while normative style scores were
positively correlated with relational and collective self aspect.

As expected, results found significant positive correlations between informational style and individual self definitions, and between normative style and relational self definitions. The informational style is more conceptually similar to an individual self definition as compared with other self definitions. Moreover, the definition of normative style is more consistent with the definition of relational self aspect than the definition of collective self aspect. Consequently, while hypothesized that the informational style will significantly and positively correlate with the relational self definition, it was perhaps not surprising that there were no significant correlations found between informational style and relational self definition, and between normative style and collective self definition. Expected relationships between the normative style and collective self definition, and between the normative style and relational self definition were not significant but positive as hypothesized. Therefore, results only partially supported the hypotheses regarding relations with self-concept variables, providing moderate evidence for the validity Mandarin version of the IPSQ-sort.

**Limitations and Future Research Implications**

There were three main limitations in the current study. Although, the current study examined the validity of the Mandarin version of the IPSQ-sort, it was not
possible to estimate its test-retest reliability given the time constraints on the project. An examination of test-retest reliability likewise should be done in the future to solidify the standing of the translated measure and compare its consistency to that of the IPSQ-sort English version’s \( r = .71 \); Pittman et al., 2009).

The second limitation relates to the generalizability of the results to other populations. In the current study the participants were all college students; the identity styles of these students may not be representative of all Taiwanese adolescences or young adults. There has long been a concern about the generalizability of results obtained from college samples to other populations (Sears, 1986). College students do seem to differ from similar-aged non-college students in several ways. For example, Peterson (2001) found that college students’ responses were slightly more homogeneous and display more consistency across scales than non-students. Moreover, Finkelstein and Gaier (1983) found that college students exhibited more emotional dependence, less identity achievement, and less vocational maturity than the non-student subjects. Furthermore, teachers may also serve an important role when adolescents are constructing their identities (Harrell-Levy & Kerpelman, 2010). Adolescents spend a great deal of time in schools while they are finding their own identities. The educational experience they have might have a uniquely significant effect, and nonstudents lack this special experience
when exploring their identities. Alternatively, while identity processing may occur regardless of whether one seeks employment or attends college, but the life roles being played, and the nature of identity-relevant information in one's social environment, may be markedly different based on this choice.

Finally, the sample size in the current study was relatively small \((N = 136)\). Based on guidelines by Cohen (1992), the sample size of the current study met the minimum criterion for detecting a medium effect size with a power of .80. Nevertheless, it would be better to have a larger sample size to allow for examination of possible differences between individuals from different demographic aspects.

One future research suggestion is to study younger adolescents, such as middle school students or high school students. As stated above, there is limited research examining younger adolescents’ identity development. It would be useful to know whether age affects people’s identity development, and how usage of identity processing styles might change across this developmental stage. Moreover, many studies have examined the relationship between academic performances and identity processing style (Berzonsky & Kuk, 2000, 2005; Boyd et al., 2003; Xu, 2009). It would be interesting to examine the relationship between academic performance and identity processing style among Mandarin speaking adolescents and to see if there are any cultural differences.
Additionally, research has found that diffuse/avoidant adolescents reported more criminal behaviors than informational or normative adolescents (Adams et al., 2005). More and more research has suggested that adolescents’ identity development is associated with psychological well-being (McLean & Breen, 2009; Phillips & Pittman, 2007; Smits et al., 2008; Vleioras & Bosma, 2005). Therefore, the examination of the relations between identity processing styles and psychological well-being among Mandarin speakers will help us to understand and help malfunctioning adolescents.

This Mandarin version of identity processing styles will be a useful instrument to use for future research on the identity development of adolescents in Mandarin speaking societies. As stated above, past research has found that identity processing styles are correlated with many important developmental and behavioral outcomes. Therefore, the Mandarin version of identity processing style will allow researchers to examine the relationships between identity styles and other aspects among Mandarin speakers. This Mandarin instrument will also be a helpful research tool for Asian researchers to use to examine the cultural differences among adolescents.
References


Taiwan; 風雲時代.


### Table 1

*MMeans and standard deviations of informational, normative and diffuse/avoidant identity processing styles by gender (N=137).*

<table>
<thead>
<tr>
<th>Variables</th>
<th>Female</th>
<th>Male</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td>Informational style</td>
<td>.24</td>
<td>.25</td>
</tr>
<tr>
<td>Normative style</td>
<td>.06</td>
<td>.17</td>
</tr>
<tr>
<td>Diffuse/avoidant style</td>
<td>-.18</td>
<td>.24</td>
</tr>
</tbody>
</table>
Table 2

*Correlations between identity processing styles and self definitions.*

<table>
<thead>
<tr>
<th>Variables</th>
<th>Informational style</th>
<th>Normative style</th>
<th>Diffuse/avoidant style</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$M = .27$</td>
<td>$M = .03$</td>
<td>$M = -.21$</td>
</tr>
<tr>
<td></td>
<td>$SD = .23$</td>
<td>$SD = .18$</td>
<td>$SD = .22$</td>
</tr>
<tr>
<td>Relational self</td>
<td>.14</td>
<td>.20*</td>
<td>-.18*</td>
</tr>
<tr>
<td>$M = 5.41$</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$SD = .67$</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Individual self</td>
<td>.40**</td>
<td>.05</td>
<td>-.42**</td>
</tr>
<tr>
<td>$M = 5.67$</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$SD = .70$</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Collective self</td>
<td>.16</td>
<td>.13</td>
<td>-.19*</td>
</tr>
<tr>
<td>$M = 4.96$</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$SD = .75$</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*. $P < .05$ (2-tailed)

**. $P < .01$ (2-tailed)
Table 3

**Most and Least favored items of IPSQ-Sort.**

<table>
<thead>
<tr>
<th>First 5 Least Endorse Items</th>
<th>%</th>
<th>First 5 Most Endorse Items</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I am not concerned with finding out who I am right now. (D)</td>
<td>56.2</td>
<td>1. I take responsibility for my choices and behavior. (I)</td>
<td>40.1</td>
</tr>
<tr>
<td>2. When problems arise, I try to avoid dealing with them if at all possible. (D)</td>
<td>54</td>
<td>2. It is important to me to be connected to members in my family than to anyone else. (N)</td>
<td>27.8</td>
</tr>
<tr>
<td>3. I have ended friendships in the past because I discovered we differed in our core beliefs. (N)</td>
<td>43.8</td>
<td>3. Although I consider what other people think, I make the final decision when it comes to important choices about my life. (I)</td>
<td>26.2</td>
</tr>
<tr>
<td>4. How I see myself feels like a roller coaster - changing from day to day (D)</td>
<td>38.7</td>
<td>4. My future is something I think about a lot. (I)</td>
<td>25.6</td>
</tr>
<tr>
<td>5. Often my friends and family are surprised at the choices I make. (D)</td>
<td>37.9</td>
<td>5. Having a sense of belonging with other people is a necessary part of my life. (N)</td>
<td>24.8</td>
</tr>
</tbody>
</table>

**Note.** The top 5 most items presented here were after excluded capital items.

I = Informational item, N = Normative item, D = Diffuse/avoidant item.

\[
\% = \frac{\text{number of participants rated as least or most like me items}}{\text{total number of participants (N=137)}}
\]
<table>
<thead>
<tr>
<th>Least Like Me</th>
<th>Most Like Me</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Column Number</strong></td>
<td>1</td>
</tr>
<tr>
<td><strong>Number of cards in column</strong></td>
<td></td>
</tr>
</tbody>
</table>

*Figure 1. Illustration of complete IPSQ.*
Figure 2. Box plots of the distributions of three styles (N=137).
Figure 3. Box plots of Self definitions using Relational, Individual and Collective self definitions (RIC) scale.
Appendix

IPSQ-sort Mandarin version (Traditional Character)

1. 當遇到問題時，我會投入許多精力去思考可能的解決辦法。
2. 與其花很長的時間解決困難的問題，我寧願做能使自己更舒服的事。
3. 我是那種喜歡收集關於我這個人怎樣資訊的人。
4. 我常常試著用不同的思考和學習去了解我自己。
5. 我認為當志工來幫助他人是件很重要的事。
6. 我覺得我這個人每天都在改變，就像坐雲霄飛車一樣。
7. 在大多數的時候，我感覺自己還不錯。
8. 如果有人跟我的觀點大相逕庭的話，我會努力去了解他們的想法。
9. 對於自己的事情，一旦我做了決定，我就不再接收新的資訊了。
10. 父母的意見是影響我的人生重大決定時”最重要” 的考量之一。
11. 當在做決定的時候，朋友們認為我應該怎麼做會對我的決定有很大的影響。
12. 我認為我是能夠接受新思想的人。
13. 我常常覺得的人生沒有方向或目標。
14. 有自制力對我來說很重要。
15. 我為自己的決定及行為負責。
16. 我真的很喜歡跟和我有不同價值觀及信仰的人聊天。
17. 我比較傾向延遲決策。
18. 想出對於人生抉擇的不同可能性對我來說是件很困難的事。
19. 有困難的時候，我盡可能的逃避問題。
20. 我的家人及朋友可以很容易的預測我在不同情況時的行為。
21. 比起想像我未來會成為怎樣的人，我比較喜歡面對日常生活的事。
22. 我常常深思關於我的未來的事。
23. 我不喜歡他人質疑我的信念或價值觀。
24. 對我而言，與家庭成員間的連結是比與其他人的連結更為重要的。
25. 對我來說，在課業上的努力是重要的。
26. 賺錢對我來說很重要。
27. 對我來說，花時間培養我的技能或專長是重要的事。
28. 對我來說，和我家有著緊密的關係是很重要的。
29. 我喜歡參與有組織性的團體。（例如： 校內外的社團、俱樂部…等等）
30. 獨立自主對我來說是很重要的。
31. 能有歸屬於其他人的感覺對我來說是很重要的。
32. 面臨我人生重大的抉擇的時候，雖然我會參考其它人的意見，但我習慣自己
    做最後的決定。
33. 做決定的時候，我會傾向考慮對我來說重要的人覺得對的意見。
34. 我非常善於察覺任何關於我人生的選擇之結果。
35. 我比較傾向嘗試新的東西並藉此了解我自己。
36. 在新的情境下，我會一直不自在，直到我找出如何行為的規則或標準。
37. 我認為尊敬和我不同想法及生活方式的人是很重要的。
38. 我認為男生要有男生的樣子，女生要有女生的樣子。
39. 我通常會在該做決定時而選擇不做任何決定，直到事以成定局為止。
40. 我認為知道自己的種族背景是重要的。
41. 對於任何我未來可能成為的什麼樣人，我都抱持開放的態度。
42. 對我來說，努力成為一個可令我生命中重要他人感到驕傲的人是重要的。
43. 我很努力的了解我自己。
44. 對我來說和別人解釋什麼對我是重要的是很困難的，因為連我自己也不清楚。
45. 我非常了解我自己，因為我知道哪些事對家人及朋友是重要的。
46. 事情的發生，不必操之在我，因為該發生的就是會發生。
47. 在我決定如何行動之前，我會先觀察其他人的行為。
48. 有時候我會忽略和我信念不符的訊息。
49. 在接收與我的信念不同的訊息時，我會保持開放的態度去質疑我的信念。
50. 我朋友及家人常對我的決定表示驚訝。
51. 我過去曾因為別人與我的主要價值觀不同而結束友誼關係。
52. 在我人生中遭遇到的問題通常是由其他人事物所造成的。
53. 在不同的情境下，我會有不同的性格特質的表現。
54. 我對未來有既定的目標並在努力追尋中。
55. 目前我並不在乎是否要去瞭解自己到底是個怎樣的人。
56. 對我來說，成為一群朋友的一份子是重要的。
57. 儲蓄對我來說是重要的。
58. 有工作對我來說很重要。
59. 至少有一個很要好的朋友對我來說很重要。
60. 有一個親密的伴侶對我來說很重要。
IPSQ-sort Mandarin version (Simplified Character)

1. 当遇到问题时，我会投入许多精力去思考可能的解决办法。
2. 与其花很长的时间解决困难的问题，我宁愿做能使自己更舒服的事。
3. 我是那种喜欢收集关于我这个人怎样信息的人。
4. 我常常试着用不同的思考和学习去了解我自己。
5. 我认为志愿工来帮助他人是件很重要的事。
6. 我觉得我这个人每天都在改变，就像坐云霄飞车一样。
7. 在大多数的时候，我感觉自己还不错。
8. 如果有人跟我的观点大相径庭的话，我会努力去了解他们的想法。
9. 对于自己的事情，一旦我做了决定，我就不敢接收新的信息了。
10. 父母的意见是影响我的人生重大决定时”最重要”的考虑之一。
11. 当在做决定的时候，朋友们认为我应该怎么做会对我的决定有很大的影响。
12. 我认为我是能够接受新思想的人。
13. 我常常觉得我的人生没有方向或目标。
14. 有自制力对我来说很重要。
15. 我为自己的决定及行为负责。
16. 我真的很喜欢跟和我有不同价值观及信仰的人聊天。
17. 我比较倾向延迟决策。
18. 想出对于人生抉择的不同可能性对我来说是件很困难的事。
19. 有困难的时候，我尽可能的逃避问题。
20. 我的家人及朋友可以很容易的预测我在不同情况时的行为。
21. 比起想象我未来会成为怎样的人，我比较喜欢面对日常生活的事。
22. 我常常深思关于我的未来的事。
23. 我不喜欢他人质疑我的信念或价值观。
24. 对我而言，与家庭成员间的连结是比与其他人的连结更为重要的。
25. 对我来说，在课业上的努力是重要的。
26. 赚钱对我来说很重要。
27. 对我来说，花时间培养我的技能或专长是重要的事。
28. 对我来说，我家人有着紧密的关系是很重要的。
29. 我喜欢参与有组织性的团体。（例如： 校内外的社团、俱乐部…等等）
30. 独立自主对我来说是很重要的。
31. 能有归属于其他人的感觉对我来说是很重要的。
32. 面临我人生重大的抉择的时候，虽然我会参考其它人的意见，但我习惯自己
   做最后的决定。
33. 做决定的时候，我会倾向考虑对我来说重要的人觉得对的意见。
34. 我非常善于察觉任何关于我人生的抉择之结果。
35. 我比较倾向尝试新的东西并藉此了解我自己。
36. 在新的情境下，我会一直不自在，直到我找出如何行为的规则或标准。
37. 我认为尊敬和我不同想法及生活方式的人是很重要的。
38. 我认为男生要有男生的样子，女生要有女生的样子。
39. 我通常会在该做决定时而选择不做任何决定，直到事以成定局为止。
40. 我认为知道自己的种族背景是重要的。
41. 对于任何我未来可能成为的什么样人，我都抱持开放的态度。
42. 对我来说，努力成为一个可令我生命中重要他人感到骄傲的人是重要的。
43. 我很努力的了解我自己。
44. 对我来说和别人解释什么对我是重要的是很困难的，因为连我自己也不清楚。
45. 我非常了解我自己，因为我知道哪些事对家人及朋友是重要的。
46. 事情的发生，不必操之在我，因为该发生的就是会发生。
47. 在我决定如何行动之前，我会先观察其他人的行为。
48. 有时候我会忽略和我信念不符的讯息。
49. 在接收与我的信念不同的讯息时，我会保持开放的态度去质疑我的信念。
50. 我朋友及家人常对我的决定表示惊讶。
51. 我过去曾因为别人与我的主要价值观不同而结束友谊关系。
52. 在我人生中遭遇到的问题通常是由于其他事物所造成的。
53. 在不同的情境下，我会有不同的人格特质的表现。
54. 我对未来有既定的目标并在努力追寻中。
55. 目前我并不在乎是否要去了解自己到底是个怎样的人。
56. 对我来说，成为一群朋友的一份子是重要的。
57. 储蓄对我来说是重要的。
58. 有工作对我来说很重要。
59. 至少有一个很要好的朋友对我来说很重要。
60. 有一个亲密的伴侣对我来说很重要。