

Studies on adolescent egocentrism in Hong Kong: A review

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Abstract

Based on a systematic review of scientific databases and reports by non-governmental organizations, this paper outlines the contour of studies on adolescent egocentrism in Hong Kong. Results showed that research on adolescent egocentrism in Hong Kong is almost non-existent, with only a total of four papers including three empirical papers and one conceptual paper. Several observations can be highlighted from the review. First, the studies failed to cover a wide array of topics on egocentrism. Second, all empirical studies adopted a cross-sectional design and there was no longitudinal study in the local context. Third, the sample size in the empirical studies was generally large and comparable to Western studies. Fourth, the age range of research participants in the reviewed studies was generally broad. The fifth observation was that quantitative methods were predominately used and there was a lack of use of qualitative and mixed methods approaches. Sixth, most of the studies used indigenous scales and there is a need to develop scales for Chinese adolescents. Lastly, interventions aiming at reducing adolescent egocentrism were sparse. Future research directions are discussed.

Keywords: Egocentrism, Chinese, adolescents, review, Hong Kong

Introduction

Based on Piaget's work on egocentrism, Elkind (1) developed the theory of adolescent egocentrism which was proposed to be the by-product of maturation. There are several characteristics of adolescent egocentrism, such as believing that one's self is special and one's ideas and feelings are superior to those of others (2). Based on these characteristics, Elkind (1) described two apparently distinct but related dimensions of adolescent egocentrism: imaginary audience and personal fable. Imaginary audience refers to the tendency of young people to hold an exaggerated view on the amount of attention that others focus on them. For personal fable, it means the belief that they are unique and exceptional. Arnett

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(3) remarked that the belief of uniqueness is often reflected in the complaints that “no one really knows or understands me” (3) and personal fable makes them believe that they are “immune from the catastrophes that sometimes befall others” (3). The unrealistic belief of one’s invulnerability to harm in adolescents with high egocentrism predisposes adolescents to health-threatening behaviors (4) and risky behaviors such as smoking (5), drunk driving (3, 6) and unprotected sex behavior (7).

Egocentrism changes across adolescence. Although adolescents distort their perceptions of self and others (8) in early adolescence, egocentrism typically declines in late adolescence. Specifically, egocentrism declines with age due to the biological maturation of cognitive structures and accumulation of social experience (9). However, some recent research findings showed the re-emergence of egocentrism in late adolescence (10, 11). Schwartz, Maynard, and Uzelac (12) contended that

“egocentrism may be a powerful influence on behavior each time an individual enters into a new environmental context or dramatically new life situation” (p. 447). Researchers perceived that the re-emergence of egocentrism may be a strategy to cope with transition (10, 11).

Given the relevance of egocentrism to adolescent risky behaviors, it is important to explore the nature of egocentrism as well as its antecedents and consequences. Besides, it is important to examine whether there are any intervention programs on adolescent egocentrism. Hence, a systematic review was carried out to examine studies on adolescent egocentrism in Hong Kong. The study began by reviewing the relevant papers in different scientific databases and on the Internet. Based on the review, observations were highlighted. Discussion of the directions of future research then follows, which provides a road map for future studies on adolescent egocentrism in Hong Kong.

Table 1. Number of studies in different international databases

	Number of studies			
	Search Terms			
	“adolescents” + “Hong Kong” + “egocentrism”	“adolescence” + “Hong Kong” + “egocentrism”	“youth” + “Hong Kong” + “egocentrism”	“young people” + “Hong Kong” + “egocentrism”
International databases				
PsycINFO	2	1	1	0
Sociological Abstracts	0	0	0	0
Social Work Abstracts	0	0	0	0
ERIC (via ProQuest)	0	0	0	0
MEDLINE	0	0	0	0

Methods

We used three keywords including “adolescent” (or “adolescents” or “adolescence” or “youth” or “young people”), “Hong Kong,” and “egocentrism” to search several scientific databases including PsycINFO, Sociological Abstracts, Social Work Abstracts, ERIC, and MEDLINE (see Table 1) in June 2015. We also searched for reports and studies conducted by local non-governmental organizations (NGOs) including Breakthrough, the Hong Kong Council of Social Service and youth agencies such as the Hong Kong

Federation of Youth Groups, Boys’ and Girls’ Clubs Association, Children and Youth Services, and Hong Kong Playground Association. Finally, we conducted an exhaustive search using search engines such as Google Scholar to look for relevant published studies. Another search on PsycINFO in August 2015 using the keywords “Hong Kong,” “adolescents,” and “egocentric” showed that there were three papers, all of which were written by the first author of this paper. In short, there were very few studies in this area.

Four papers were finally included in the review. All four studies were analyzed in terms of: 1) focus of the study (i.e., topic), 2) type (conceptual or empirical

paper), 3) whether the study was an intervention study, 4) cross-sectional or longitudinal study, 5) sample size of the study, 6) use of a random versus non-random sampling strategy, 7) number of waves in the data collection, 8) whether validated measures were used, 9) whether quantitative, qualitative, or mixed methods were adopted, 10) strengths of the study, and 11) weaknesses of the study.

Results and discussion

Adolescent egocentrism studies in Hong Kong

The first study was about the development of the Chinese Adolescent Materialism Scale (CAMS) (13) in 1,658 Chinese secondary school students. The scientific literature suggested that there is an intimate relationship between materialism and egocentrism (14-17). As such, Shek et al. (13) hypothesized that there would be a positive relationship between materialism and egocentrism. Results found that materialism is positively linked to egocentrism, suggesting that materialistic people are more egocentric.

Another example was a conceptual paper which covered four developmental issues among university students in Hong Kong. These developmental issues included problems related to lifestyle, mental health issues, personal goals, self-determination, self-confidence, materialism of the students, and students' connection to society, including egocentrism and civic engagement (18). The review showed that the egocentric tendency of university graduates is a source of concern for employers.

The absence of an appropriate measurement to examine egocentrism among Chinese adolescents in Hong Kong has severely hindered the development of research in this area. With a dearth of validated Chinese measures of adolescent egocentrism, Shek, Yu, and Siu (19) developed the Chinese Adolescent Egocentrism Scale (CAES) and examined its psychometric properties. Based on 1,658 Chinese secondary school students, factor analyses showed that two factors are intrinsic to the scale. The related sub-scales and the overall scale indicated high internal consistency. There were significant linkages between CAES scores and measures of empathy, egocentrism,

spirituality, and morality. Results also showed that many respondents displayed egocentric attributes.

Finally, based on the responses of 260 undergraduate students, Pillutla and colleagues (20) investigated the relationship between egocentrism and group cohesion and explored whether Chinese values would have an impact on such relationship. Findings indicated that the students rated themselves in a more favorable light than their groupmates, suggesting that there is a development of egocentric bias among university students. Participants with more egocentric behavior perceived lower group cohesion and that Chinese values had no direct impact on egocentrism. This is consistent with the view of Shek and Cheung (18) that "given the trend that university students in Hong Kong are relatively westernized, it is highly probable that they will develop more signs of egocentric behavior" (p. 348).

General observations

Results from the literature search indicated that three out of four papers (75%) were empirical papers, with one (25%) being a conceptual paper. All three empirical studies used a cross-sectional design. There were several observations based on the current review. First, compared with studies in the West, the topics covered in the three empirical papers were narrow. Second, the sample size of those empirical studies was generally large, with two studies having a sample size of more than 1,000 adolescent participants. However, all empirical studies used non-random sampling methods. Fourth, quantitative approaches were a widely used methodology, and none of them used qualitative or mixed methods approaches. Fifth, while all reviewed empirical studies used appropriate statistical data analyses such as factor analysis and regression, no complex statistical data analyses such as structural equation modeling were performed. The last observation showed that two out of three ($N=2$; 66.67%) empirical studies adopted indigenous measurement tools with one of them (33.33%) using the scale by Staw (21) and Price and Mueller (22) to measure group cohesion (see Tables 2 and 3).

Table 2. Summary of studies on adolescent egocentrism in Hong Kong

Study no.	Focus of the study (topic)	Conceptual or empirical paper	Intervention study	Cross-sectional or longitudinal study	No. of waves	Initial sample size	Random versus non-random sampling
1	Chinese Adolescent Materialism Scale	Empirical	No	Cross-sectional	No	1,658 secondary school students	Non-random sampling
2	Developmental issues of university students	Conceptual	No	-----	No	-----	-----
3	Chinese Adolescent Egocentrism Scale	Empirical	No	Cross-sectional	No	1,658 secondary school students	Non-random sampling
4	Traditionality as a moderator of reward allocation	Empirical	No	Cross-sectional	No	260 university students	Non-random sampling

Note: ¹ Shek, Ma, & Lin (2014); ² Shek & Cheung (2013); ³ Shek, Yu, & Siu (2014); ⁴ Pillutla, Farh, Lee, & Lin (2007).

Table 3. Summary of studies on adolescent egocentrism in Hong Kong

Study no.	Use of validated measures	Methods (Quantitative, qualitative, or mixed methods)	Strengths	Weaknesses
1	Yes	Quantitative	<ul style="list-style-type: none"> Developed the instrument Chinese Adolescent Materialism Scale (CAMS) to examine materialism in Chinese adolescents in Hong Kong Provided a youth profile and psychosocial correlates of materialism in Hong Kong 	<ul style="list-style-type: none"> The findings cannot be generalized because the participants were recruited from a day camp and they were Chinese so representativeness is limited The CAMS is a self-report measure and responses were likely to be susceptible to social desirability response bias
2	-----	-----	-----	-----
3	Yes	Quantitative	<ul style="list-style-type: none"> Developed the instrument Chinese Adolescent Egocentrism Scale (CAES) to examine materialism in Chinese adolescents in Hong Kong Provide a descriptive profile on egocentrism in Hong Kong adolescents 	<ul style="list-style-type: none"> The findings cannot be generalized because the participants were recruited from a day camp and they were Chinese so representativeness is limited The CAES is a self-report measure and responses were likely to be susceptible to social desirability response bias
4	No	Quantitative	<ul style="list-style-type: none"> Provided information pertaining to egocentric behavior among university students in Hong Kong 	<ul style="list-style-type: none"> Use of self-reports which may result in common methods bias Use of student sample so the results cannot be generalized Role obligations were not measured

Note: ¹ Shek, Ma, & Lin (2014); ² Shek & Cheung (2013); ³ Shek, Yu, & Siu (2014); ⁴ Pillutla, Farh, Lee, & Lin (2007).

Specific observations

The first specific observation is that the foci of the existing studies were rather narrow. When it comes to the studies on adolescent egocentrism in the West, it is observed that a broad array of research topics is covered, such as contributions of egocentrism to adolescent risky behaviors and testing of Elkind's theory of adolescent egocentrism. Nevertheless, it seems that there is a general lack of studies on adolescent egocentrism in the scientific literature. As commented by Arnett (3), "there has been little research on the personal fable" (p. 542) though relatively more research has been done on the area of imaginary audience. After roughly two decades, Galanaki (9) pointed out that "the imaginary audience and the personal fable phenomenon are rather neglected research topics in the last decade" (p. 458). In the same vein, Shek, Yu and Siu (19) asserted that "the study of adolescent egocentrism in different Chinese contexts is almost non-existent" (p. 297).

The second specific observation is that all the empirical studies adopted a cross-sectional research design. As Frankenberger (5) noted, a limitation of most research on adolescent egocentrism is the use of a cross-sectional research design. Since the data was collected at a single point in time, this raises questions about the direction of causality (23). Comulada, Muth, and Latkin (24) pointed out that the problem of cross-sectional data is that the information to "establish temporal precedence and a more causal framework" (p. 691) is lacking. Vartanian (25) asserted that there is an urgent need for researchers to adopt a longitudinal design in order to advance our knowledge in this area.

The third specific observation is on the sampling of the studies. Regarding the sample size, two studies by Shek, Yu, and Siu (19) as well as Shek, Ma, and Lin (13) used the same sample (1,658 secondary school students from 62 schools in Hong Kong) to develop two indigenous scales on materialism and egocentrism. The sample size can be considered as huge, far exceeding many Western studies (9, 26). In the study of Lapsley and colleagues (26), there were only 183 high school students. Galanaki's (9) study had 314 students only. Obviously, a large sample size is more representative of the population (27) which limits the influence of outliers. With a larger sample

size, findings can be generalized and more sophisticated statistical data analysis can be conducted to test hypotheses or theoretical models.

The fourth specific observation is on the randomness of the samples used in the empirical studies. It is noteworthy that all reviewed studies used non-random sampling. The present review is in line with the general observation that random sampling techniques are rarely used in adolescent development research in Hong Kong. One of the purposes of using random sampling is to "yield samples that are broadly representative of the population from which they are drawn" (28) (p. 345). Therefore, if more broadly representative samples are recruited, findings from the studies can be generalized (29).

The fifth specific observation concerns the participants' age range which was not broad enough in the reviewed studies. Obviously, recruiting participants with a broad age range is imperative. Galanaki (9) pointed out that "in many studies the sample was seriously restricted as to the age range" (p. 458). Therefore, he used a broad age range (11-18-year-old adolescents) in his study, which he regarded as one of the contributions of the study. In Greene et al.'s (6) study, students from junior high schools, high schools, and colleges were sampled in order to enable cross-sectional comparisons across adolescents.

The sixth specific observation is on the type of research method adopted. All empirical studies under review used quantitative research methods. The scientific literature shows that there is a growing trend of using qualitative and mixed-method studies. Jick (30) commented that "qualitative and quantitative methods should be viewed as complementary rather than as rival camps" (p. 602). Creswell (31) also noted that incorporating of different methods in a single study can help provide a more holistic view of the problem area and cancel out the biases of using one single research method. Galambos and Leadbeater (32) also highlighted that some of the powerful studies have attempted to use the mixed methods approach.

The seventh specific observation is the statistical analyses used in the studies. It can be commented that appropriate data analysis strategies were performed in the three empirical studies such as regression analysis and factor analysis (exploratory factor analysis and

confirmatory factor analysis). Nevertheless, it is also important to use more sophisticated data analysis techniques such as structural equation modeling as this allows researchers to obtain "more valid answers in research questions and more importantly, to conceptualize and answer questions that could not be considered through traditional approaches" (33) (p. 299).

The final specific observation is related to the lack of objective Chinese measures on adolescent egocentrism. Elkind's Imaginary Audience Scale (IAS) (34), Enright's Adolescent Egocentrism-Sociocentrism Scale (AES) (35), Lapsley and Rice's New Imaginary Audience Scale (NIAS) (26), and New Personal Fable Scale (NPFS) (26) are measures commonly used for examining adolescent egocentrism in the West. However, Shek, Yu and Siu (19) identified five weaknesses of the assessment tools of egocentrism in the existing literature. The first weakness is that the construct validity of all four scales is not supported (25, 36). In Dolcini et al.'s (4) study, the authors justified the weak association between the IAS and the perceptions of low vulnerability for girls and the lack of association between IAS scores and perceptions of risk for boys as being due to "the somewhat low reliability of the IAS," suggesting that the scale may be problematic. The second weakness is that although adolescent egocentrism is a developmental phenomenon that gradually decreases with age, different scales yield inconsistent findings across studies (37). The third weakness is that there is no tool assessing the general egocentric tendency. Fourth, there is also no assessment tool measuring egocentrism conceptualized as a trait-like self-centered propensity found in both adults and youths. Lastly, studies on egocentrism in the Chinese population were limited.

Implications of the review for future research

The present review showed that studies related to adolescent egocentrism are almost non-existent in Hong Kong. Clearly, there is an urgent need to fill this knowledge gap. Shek (38) argued that as Chinese adolescents constitute about one-fifth of the adolescents in the world, there is a need to collect data

from Chinese people for any theory to be generalizable.

Compared with the studies conducted in the West, the breadth and depth of scientific information about adolescent egocentrism among young Chinese people is far from adequate. There are several lines of research that researchers can conduct in future. First, although the relationship between egocentrism and risky behaviors in Western contexts has been well documented (5, 37), the relationship between adolescent risky behaviors and egocentrism has not been investigated among Chinese adolescents. As Alberts and colleagues (39) pointed out, "understanding the egocentric basis of risk-taking behavior may have important implications for identification and for preventive educational programs" (p. 72).

Second, although theories suggest that adolescent egocentrism is a developmental phenomenon that declines with age, inconsistent results from studies in the West were revealed. For example, while Vartanian and Powlishta (40) found that there is a decline of egocentrism with age, there are also findings showing an increase of egocentrism with age (11). Similarly, some studies found that young adults experience heightened egocentrism (5, 12) but some studies could not find any association with age (41).

Third, because of the inconsistent findings, gender differences in the dimensions of imaginary audience and personal fable is another area for future research. For instance, while more studies found that females display more imaginary audience ideation than males (11, 41), few studies report males having higher imaginary audience (42) and personal fable scores than females (36). Some recent studies found that females experience invulnerability to harm more frequently than males, whereas males score higher on uniqueness and extraordinary self (37). In another study, contrary findings were reported (i.e., males were found to experience invulnerability more frequently than females) (39). Some even reported that there are no gender differences (26, 40). Obviously, results generated from studies in the Chinese context can allow researchers to make cross-cultural comparisons so as to identify cross-cultural similarities and differences.

Lastly, Galanaki (9) suggested that "the original hypothesis formulated by Elkind, including both

pubertal and cognitive development has not been tested yet" (p. 458). Some researchers (43, 44) also proposed that the role of puberty in adolescent egocentrism should be included in future research. Clearly, studies in Hong Kong with reference to this suggestion would be exciting.

Methodologically speaking, to address the lack of longitudinal studies, more research efforts should be devoted to using a longitudinal design with the collection of several waves of data. Frankenberger (5) suggested that to have a complete understanding of adolescent invulnerability to harm, future research can be conducted to compare adolescents both before and after they engage in risky behavior. With regard to the number of data points, Card and Little (33) explained that "the number of data points depends on the substantial questions the researcher wishes to answer" and "the number of time points may constrain analytic approaches" (p. 299). Therefore, the number of waves of data collection can vary from study to study, depending on the research questions and data analysis strategy for the study.

As young people are over-represented in almost every type of risky behavior (3), it is essential to have a valid and reliable measure of personal fable which "would aid assessment of risk-taking potential and inform preventive interventions" (39) (p. 71). Therefore, using appropriate indigenous measurement tools to examine adolescent egocentrism is essential. The development of the Chinese Adolescent Egocentrism Scale (19) can help researchers examine Chinese adolescents' egocentrism. In addition, researchers are also encouraged to use the mixed methods approach in the future as this approach allows them to answer questions that cannot be answered by either qualitative or quantitative methods alone.

Intervention in adolescent egocentrism

It is important to help adolescents develop a healthy, but not egocentric, self-concept. Based on the literature on positive youth development, Shek and colleagues (19) proposed two directions which researchers can consider: (1) strengthening the psychosocial competencies of adolescents such as

social competence and cognitive competence which can help adolescents develop a healthy self-representation system; and (2) encouraging young people to serve others and the community in order to cultivate a healthy self. These two directions are in fact rooted in positive youth development programs. Shek, Yu and Siu (19) proposed the implementation of positive youth development programs for the promotion of psychosocial competence and pro-social involvement in order to develop a healthy self-representation system. Project P.A.T.H.S. as the key positive youth development program in Hong Kong has been implemented in secondary schools for almost a decade, aiming at promoting the psychosocial competencies of young people.

Regarding university students, Shek et al. (45) suggested that the optimal approach to developing the holistic development of university students is to offer curriculum-based positive youth development programs. Recently, the positive youth development constructs adopted in Project P.A.T.H.S. have been incorporated into a general education course entitled "Tomorrow's Leaders" which aims to train university students to develop and reflect on their intra- and interpersonal qualities. Evaluation studies showed very positive results (46, 47). In addition, credit-bearing service leadership subjects have been developed at a university in Hong Kong to promote students' mature behavior and civic responsibility (45). Along this line, other qualities such as moral character, psychosocial competence, and caring disposition are also promoted through serving the community.

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References

- [1] Elkind D. Egocentrism in adolescence. *Child Dev* 1967;38:1025-34.
- [2] Yamamoto M, Tomotake M, Ohmori T. Construction and reliability of the Japanese version of the adolescent egocentrism-sociocentrism (AES) scale and its

- preliminary application in the Japanese university students. *J Med Invest* 2008;55:254-9.
- [3] Arnett J. Drunk driving, sensation seeking, and egocentrism among adolescents. *Pers Individ Differ* 1990; 11:541-6.
 - [4] Dolcini MM, Cohn LD, Adler NE, Millstein SG, Irwin Jr CE, Kegeles SM, et al. Adolescent egocentrism and feelings of invulnerability: are they related? *J Early Adolesc* 1989;9:409-18.
 - [5] Frankenberger KD. Adolescent egocentrism, risk perceptions, and sensation seeking among smoking and nonsmoking youth. *J Adolesc Res* 2004;19:576-90.
 - [6] Greene K, Krcmar M, Walters LH, Rubin DL, Hale JL. Targeting adolescent risk-taking behaviors: the contribution of egocentrism and sensation-seeking. *J Adolesc* 2000;23:439-61.
 - [7] Parsons JT, Halkitis PN, Bimbi D, Borkowski T. Perceptions of the benefits and costs associated with condom use and unprotected sex among late adolescent college students. *J Adolesc* 2000;23:377-91.
 - [8] Passer M, Smith R. *Psychology: the science of mind and behavior*. Boston, MA: McGraw-Hill Higher Education, 2004.
 - [9] Galanaki EP. The imaginary audience and the personal fable: a test of Elkind's theory of adolescent egocentrism. *Psychology* 2012;3:457-66.
 - [10] Peterson KL, Roscoe B. Imaginary audience behavior in older adolescent females. *Adolescence* 1991;26:195-200.
 - [11] Rycek RF, Stuhr SL, McDermott J, Benker J, Swartz MD. Adolescent egocentrism and cognitive functioning during late adolescence. *Adolescence* 1998;33:745-9.
 - [12] Schwartz, PD, Maynard AM, Uzelac SM. Adolescent egocentrism: a contemporary view. *Adolescence* 2008; 43:441-8.
 - [13] Shek DTL, Ma CM, Lin L. The Chinese Adolescent Materialism Scale: psychometric properties and normative profiles. *Int J Disabil Hum Dev* 2014;13:285-95.
 - [14] Belk RW. Three scales to measure constructs related to materialism: reliability, validity, and relationships to measures of happiness. *Adv Consum Res* 1984;11:291-7.
 - [15] Kasser T, Ryan RM. Further examining the American dream: differential correlates of intrinsic and extrinsic goals. *Pers Soc Psychol Bull* 1996;22:280-7.
 - [16] Roberts BW, Robins RW. Broad dispositions, broad aspirations: the intersection of personality traits and major life goals. *Pers Soc Psychol Bull* 2000;26:1284-96.
 - [17] Richins ML, Dawson S. A consumer values orientation for materialism and its measurement: scale development and validation. *J Consum Res* 1992;19:303-16.
 - [18] Shek DTL, Cheung BP. Developmental issues of university students in Hong Kong. *Int J Adolesc Med Health* 2013;25:345-51.
 - [19] Shek DTL, Yu L, Siu AM. The Chinese Adolescent Egocentrism Scale: Psychometric properties and normative profiles. *Int J Disabil Hum Dev* 2014;13:297-307.
 - [20] Pillutla MM, Farh J, Lee C, Lin Z. An investigation of traditionality as a moderator of reward allocation. *Group Organ Manage* 2007;32:233-53.
 - [21] Staw BM. *Intrinsic and extrinsic motivation*. Morristown, NJ: General Learning Press, 1975.
 - [22] Price JL, Mueller CW. *Handbook of organizational measurement*. Marshfield, MA: Pitman, 1986.
 - [23] Morrison EW. Newcomers' relationships: the role of social network ties during socialization. *Acad Manage J* 2002;8:1149-60.
 - [24] Comulada WS, Muth SQ, Latkin CA. The analysis of multiple ties in longitudinal egocentric network data: a case study on bidirectional relationships between trust and drug use. *Soc Networks* 2012;34:691-700.
 - [25] Vartanian LR. Revisiting the imaginary audience and personal fable constructs of adolescent egocentrism: a conceptual review. *Adolescence* 2000;35:639-61.
 - [26] Lapsley DK, FitzGerald DP, Rice KG, Jackson S. Separation-individuation and the "new look" at the imaginary audience and personal fable: a test of an integrative model. *J Adolesc Res* 1989;4:483-505.
 - [27] Patel MX, Doku V, Tennakoon L. Challenges in recruitment of research participants. *Adv Psychiatric Treat* 2003;9:229-38.
 - [28] Hultsch DF, MacDonald SW, Hunter MA, Maitland SB, Dixon RA. Sampling and generalizability in developmental research: comparisons of random and convenience samples of older adults. *Int J Behav Dev* 2002;26:345-50.
 - [29] Zaslow MJ, Takanishi R. Priorities for research on adolescent development. *Am Psychol* 1993;48:185-92.
 - [30] Jick TD. Mixing qualitative and quantitative methods: triangulation in action. *Adm Sci Q* 1979;24:602-11.
 - [31] Creswell JW. *Research design: qualitative, quantitative, and mixed methods approaches*. 2nd ed. Thousand Oaks, CA: Sage, 2003.
 - [32] Galambos NL, Leadbeater BJ. Trends in adolescent research for the new millennium. *Int J Behav Dev* 2000; 4:289-94.
 - [33] Card NA, Little TD. Longitudinal modeling of developmental processes. *Int J Behav Dev* 2007;31:297-302.
 - [34] Elkind D, Bowen R. Imaginary audience behavior in children and adolescents. *Dev Psychol* 1979;15:38-44.
 - [35] Enright RD, Shukla DG, Lapsley DK. Adolescent egocentrism-sociocentrism and self-consciousness. *J Youth Adolesc* 1980;9:101-16.
 - [36] Goossens L, Reyers W, Emmen M, van Aken MA. The imaginary audience and personal fable: factor analyses and concurrent validity of the "new look" measures. *J Res Adolesc* 2002;12:193-215.

- [37] Aalsma M, Lapsley DK, Flannery D. Narcissism, personal fables, and adolescent adjustment. *Psychol Sch* 2006;43:481-91.
- [38] Shek DTL. Assessment of perceived parental psychological control in Chinese adolescents in Hong Kong. *Res Soc Work Pract* 2006;16:382-91.
- [39] Alberts A, Elkind D, Ginsberg S. The personal fable and risk taking in early adolescence. *J Youth Adolesc* 2007;36:71-6.
- [40] Vartanian IR, Powlishta KY. Demand characteristics and self-report measures of imaginary audience sensitivity: implications for interpreting age differences in adolescent egocentrism. *J Genet Psychol* 1996; 162:187-200.
- [41] Montgomery MJ. Psychosocial intimacy and identity: from early adolescence to emerging adulthood. *J Adolesc Res* 2005;20:346-74.
- [42] Greene K, Rubin DL, Hale JL, Walters LH. The utility of understanding adolescent egocentrism in designing health promotion messages. *Health Commun* 1996; 8:131-52.
- [43] Goossens L. Imaginary audience behavior as a function of age, sex, and formal operational thinking. *Int J Behav Dev* 1984;7:77-93.
- [44] Lapsley DK. Toward an integrated theory of adolescent ego development: the "new look" at adolescent egocentrism. *Am J Orthopsychiatry* 1993;63:562-71.
- [45] Shek DTL, Sun RC, Chui YH, Lit SW, Yuen WW, Chung YYH, et al. Development and evaluation of a positive youth development course for university students in Hong Kong. *Scientific World Journal* 2012; 2012. Article ID 263731.
- [46] Shek DTL, Sun RC. Promoting prosocial competencies in university students: evaluation based on a one-group pre-test/post-test design. *Int J Disabil Hum Dev* 2012; 11:229-34.
- [47] Shek DTL, Wu FK. Reflective journals of students taking a positive youth development course in a university context in Hong Kong. *Scientific World Journal* 2012;2012. Article ID 131560.

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