Student attainment of affective objectives in rural China

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Little empirical research is available on the evaluation of affective objectives under the New Curriculum Reform in China. This study investigated 1563 volunteers from three lower secondary school students in Gansu Province, China, to explore the factor structure of affective objectives and to assess students’ affective attainments in the context of western rural China. The final affective objectives questionnaire was able to put forth a statistically valid three-factor model that provides solutions for nine affective objectives: bravery, self-confidence, independence, fairness, integrity, forgiveness, gratitude, love of learning and aesthetic. The affective objectives with the best performance in these rural students were gratitude, independence and integrity, while the three lowest rated were forgiveness, bravery and confidence. Male students rated themselves statistically higher on confidence, bravery and love of learning, whereas female students rated themselves statistically higher on independence, fairness and aesthetic. Comparing different grade groups revealed that seventh-grade students reported higher scores than eighth- and ninth-grade students for confidence, integrity, love of learning and aesthetic, whereas ninth-grade students rated slightly higher than eighth-grade students on bravery and gratitude.

Keywords: attainment, affective objectives; New Curriculum Reform; lower secondary school students; rural education

The World Conference on Education for All, held in 1990 in Jomtien, Thailand, put forth the aims of meeting basic learning needs and expanding high-quality basic education. To meet these global challenges, China has recently taken on the task of improving the quality of its basic education (Zhou & Zhu, 2006). The Basic Education Curriculum Reform Outline was promulgated in 2001, marking the official launch of a new round of basic education curriculum reform in mainland China (Wang & Zhao, 2011). This reform has successfully facilitated a fundamental shift from a one-sided focus on discipline-based basic knowledge and has resulted in a redefinition of ‘basic skills’ according to three dimensions of curriculum content, representing a major breakthrough in curriculum content redesign or reorganisation. The new basic education curriculum has defined the three-dimensional objectives as (1) knowledge and skills, (2) process and approaches and (3) affect/attitude and values (affective objectives). However, scholars in China have criticised the three-dimensional objectives as being both too idealistic and only partially interpreted by educational practitioners (Wei, 2011; Zhang, 2009). In particular, the term ‘affective objectives’ was originally introduced from the foreign concept and its definitions were broad and unclear, with teachers reporting confusion over how to teach and evaluate affective objectives in the classroom (Zhang, 2009). Among the few empirical studies that have focused on the evaluation of affective objectives, most have...
concentrated on the theoretical level, for instance, on the relationships and meanings among three affective objectives (Wei, 2011). To fill in the current research gaps, Fu (2014) attempted to define the affective objectives within the Chinese concept and to design an appropriate assessment tool to examine students’ affective development. Although the results of this study failed to find a clear pattern in the factor structure of affective objectives, they suggested that future studies should take a different factor grouping method into consideration to perfect an assessment tool for affective objectives.

As China is a developing country, >60% of its population lives in rural areas. Although rural primary and secondary schools, particularly those in the central and western regions, have overcome the difficulties of their poor conditions to steadily push the new curriculum forward and have achieved significant results (Wang & Zhao, 2011), educational development has remained characterised by large disparity between rural and urban areas.

The New Curriculum Reform lacks a number of objective and subjective conditions, and requires further improvement – a problem that must be studied and addressed (Hao, 2006; Ma, 2000). However, very few studies in China focus on curriculum reform in the rural setting, especially in poorer western areas. Therefore, this study was conducted to examine the factor structure of affective objectives based on Fu’s (2014) study and to assess rural students’ affective attainments. In the ‘Affective domain’ section, affective objectives in both the Chinese and foreign concept were compared and information on affective assessments currently being utilised in China are discussed. The ‘Method’ section analyses the factor structure of affective objectives, gives the demographic characteristics of students in the western rural area and compares the differences in affective attainments by gender and grade groups. The ‘Results’ section discusses the affective factor structure based on the existing literature and differences in rural students’ affective development.

**Affective domain**

The importance of affect was first raised in the mid-twentieth century. After Zajonc’s (1980) instigation of widespread discussion about the relationship between affect and cognition, psychologists in America began to recognise that affect had a specific contribution to cognition and inevitably influenced the cognition process, especially cognitive strategy. The significance of affect was also definitively observed in fields other than cognitive interaction; for instance, Fredrickson (2001) argued that positive affect could help to increase problem-solving ability, creativity and motivation to study. Other researchers also showed that affect played a crucial role in acquisition of knowledge, moral education and a good personality. Binet and Simon (1916) stated that children’s development of non-intellectual characteristics in schools was at least as important as the development of intellectual characteristics. Countries such as the USA show strong public support for affective outcomes of education, as shown in a 1994 Gallup poll.

**Affect in the foreign education concept**

As Anderson and Bourke (2000) argued, well-conceived and clearly communicated definitions are the key to understanding affect. Bills (1976) also stated that educators will never be able to deal with affect in either a classroom or research context without a better conceptual understanding of it. However, the affective domain poses a unique set of
problems that make it difficult to clearly define its unfocused and broad concept. After comparing and discussing various definitions given by different researchers, Martin and Briggs (1986) defined the affective domain as a category term that catalogues a class of behaviours having both an emotional tone and a cognitive component. Furthermore, educators such as Krathwohl, Bloom, and Masia (1964), Gephart and Ingle (1976), Hoepfner et al. (1972), Foshay (1978) and Brandhorst (1978) developed several taxonomies within the affect domain to facilitate the teaching and learning process in the classroom. For instance, Gephart and Ingle’s taxonomy provides an excellent overview of the scope and breadth of the affective domain. This taxonomy includes physiological responses and behaviours as well as psychosocial responses and behaviours, these two major branches separately addressing the fields of medicine and of educational psychology. The best-known and most often used taxonomy was developed by Krathwohl, Bloom, and Masia (1964), who divided development of the affective domain into five levels: receiving, responding, valuing, organisation and characterisation. The prescriptive nature of this taxonomy is useful for research purposes and is also useful at the curriculum construction level.

Although taxonomies such as the ones aforesaid have provided a sufficient set of guidelines for researchers studying the affective domain, Martin and Briggs (1986) listed two important and striking criticisms of existing affective taxonomies. First, they argued that the taxonomies are too general and abstract, and second, that taxonomic coverage of affective constructs is limited. To address this second point, most arguments suggest that affective domain should cover not only a category of attitudes, values and morals, but also a category of behaviours related to self-development.

Affect in the Chinese education concept

In comparison to the complete theories and studies of affective domain seen in foreign countries, most Chinese literature have been written based on theoretical description, lacking empirical analysis of affective objectives in the new curriculum. Yang (2008), Sun (2009), Ren (2009) and Zhong (2011) have discussed the meaning of emotion, attitude and value of affective objectives and the relationships of three-dimensional objectives. However, they gave the definitions of affective objectives from only their literal meanings, missing the detailed analysis related to the new curriculum. For instance, emotion was defined as the direction of affect and emotional experience, which included study enthusiasm, interests, love, happiness and aesthetic, among others. Attitude has been defined as study attitude, study responsibility, optimistic life attitude, scientific attitude and life attitude (Ren, 2009). These unclear definitions not only made it difficult for researchers to conduct relative studies, but also presented difficulties to educational practitioners to teach and evaluate affective objectives in the classroom (Zhang, 2009).

However, most empirical studies in China have suggested that affective objectives under the New Curriculum Reform are quite similar to the taxonomy proposed by Krathwohl and colleagues, and accordingly made their evaluations based on that taxonomy (Lu, 2012; Lu, Liu, & He, 2007; Wei, 2012; Zhou, Lu, & Lu, 2002). This taxonomy might not be sufficient for both formative and summative evaluation purposes due to its overly general and limited coverage of affective constructs.

To clearly and concisely capture affective objectives in China, Fu (2014) performed qualitative analysis of subject-specific curriculum standards (grades 7–9) under the new curriculum. The summarised results showed a relatively broad concept of affective objectives in China compared to those in the foreign education concept. This broad
Chinese concept was not solely affect oriented, but was instead characterised more by strengths and virtue-building. For instance, according to the Moral Character Building subject standards, several traditional Chinese virtues such as gratitude, forgiveness and integrity were also considered as key affective targets. From the summary of the affective objectives, one could conclude that most affective objectives overlap the Values in Action (VIA) Classification, which includes primary cultures from around the world, and there are 6 virtues and 24 character strengths (Peterson & Seligman, 2004). For further assessing purpose, 16 main affective factors under the New Curriculum Reform were extracted and defined using the VIA Classification of character strengths (Park, Peterson, & Seligman, 2004) as a reference (see Table 1), comprising creativity, open-mindedness, love of learning, bravery, integrity, kindness, forgiveness, citizenship, fairness, social intelligence, self-esteem, self-confidence, independence, aesthetics, gratitude and hope. Among these 16 factors, three affective objectives (self-esteem, self-confidence and independence) were summarised from subject-specific curriculum standards but not included in the VIA Inventory of Strength (VIA-IS) Classification. A self-report questionnaire was utilised because it has more advantages for better assessing these complex affective characteristics, when compared to observational methods (Anderson & Bourke, 2000).

Table 1. Definitions of the 16 main affective objectives under the New Curriculum Reform.

1. Creativity: thinking of novel and productive ways to do things; includes artistic achievement but is not limited to it
2. Open-mindedness: thinking variously referred to as judgment, critical thinking, rationality or open-mindedness
3. Love of learning: mastering new skills, topics and bodies of knowledge, whether on one’s own or formally, obviously related to the strength of curiosity but goes beyond it to describe the tendency to add systematically to what one knows
4. Bravery: not shrinking from threat, challenge, difficulty or pain; speaking up for what is right even if there is opposition; acting on convictions even if unpopular; includes physical bravery but is not limited to it
5. Integrity: speaking the truth but more broadly presenting oneself in a genuine way, being without pretense; taking responsibility for one’s feelings and actions
6. Kindness: doing favours and good deeds for others; helping them; taking care of them
7. Forgiveness: forgiving those who have done wrong; giving people a second chance; not being vengeful
8. Citizenship: working well as a member of a group or team; being loyal to the group; doing one’s share
9. Fairness: treating all people the same according to notions of fairness and justice; not letting personal feelings bias decisions about others; giving everyone a fair chance
10. Social intelligence: being aware of the motives and feelings of other people and oneself; knowing what to do to fit in to different social situations; knowing what makes other people tick
11. Self-esteem: respecting oneself; not kowtowing to other people; not allowing other people’s discrimination
12. Self-confidence: having the confidence to do things and to deal with other people; not being arrogant
13. Independence: accomplishing a task by one’s own ability; not relying on other people
14. Aesthetic: noticing and appreciating beauty, excellence, and/or skilled performance in all domains of life, from nature to art to mathematics to science to everyday experience
15. Gratitude: being aware of and thankful for the good things that happen; taking time to express thanks
16. Hope: expecting the best in the future and working to achieve it; believing that a good future is something that can be brought about

Source: Fu (2014).
Questions were carefully selected and designed by three sources. First, appropriate questions for the study purpose were selected from the original VIA-IS questionnaire. Second, to adapt the questions to Chinese culture and the special age group, relevant questions were chosen from a Chinese virtue questionnaire (Duan et al., 2012) and a positive psychological quality questionnaire of Chinese primary and middle school students (Guan, Meng, & Keller, 2009); these two questionnaires were revised and developed by Chinese researchers to examine Chinese adolescents’ character strengths and virtues based on the VIA-IS. Third, questions were designed by Fu (2014) to better reflect students’ affective development status (e.g. self-esteem, self-confidence, independence). However, Fu’s study also failed to find a clear and unified pattern of factor structure as in character strength studies conducted in other countries (Brdar & Kashdan, 2010; Duan et al., 2012; Furnham & Lester, 2012; Littman-Ovadia & Lavy, 2012). Therefore, to enhance the modelling setting and structural validity, this study continues to explore more effective factor grouping methods to capture students’ affective development in rural China.

Method

Participants
The participants were recruited from two rural counties in the Baiyin Region in northwest Gansu Province, China. Gansu is one of China’s poorest provinces, ranking second to last among all provinces in rural per capita income in both 2000 and 2004. The province encompasses 390,000 km², including the flat Loess Plateau, the Gobi Desert, mountainous and hilly areas, and vast grasslands. According to the 2000 census, among the region’s population of 25.6 million, 75% lived in rural areas (Leng & Park, 2010). The total sample of this study consisted of 1900 seventh-, eighth- and ninth-grade lower secondary school students. The collection rate was 94% (1786 students) and the valid response rate was 88% (1563 students). Mean participant age was 14.65 years [standard deviation (SD) = 1.43 years; range 11–18 years; see Table 2].

Measurements
The affective objectives questionnaire (Fu, 2014) contains 64 items (16 scales, as shown in Table 1) for the self-assessment. Twenty-four of the items are reverse scored. The scale consisted of two main parts. The first included basic information (items 1–10), where all participants were asked to provide information on their school, gender, age, grade, class, number of siblings, parents’ working place and the frequency of parents visiting home (for the students whose parents working in other counties or cities); the second part contained

| Table 2. Demographic characteristics. |
|-----------------|-----------------|-----------------|-----------------|
|                | Overall         | Seventh grade   | Eighth grade    | Ninth grade     |
| N               | 1563 (100%)     | 542 (34.7%)     | 430 (27.5%)     | 591 (37.8%)     |
| Gender          |                 |                 |                 |                 |
| Male            | 787 (50.4%)     | 276 (35.1%)     | 191 (24.3%)     | 320 (40.7%)     |
| Female          | 776 (49.6%)     | 266 (34.3%)     | 239 (30.8%)     | 271 (34.9%)     |
| Age (M ± SD)    | 14.65 ± 1.43    | 13.45 ± 0.83    | 14.38 ± 0.90    | 15.95 ± 1.04    |

Source: Computed based on primary data.
the affective questionnaire (items 11–74). The scale used a four-point Likert-scale format ranging from 1 (very unlike me) to 4 (very like me). An example item is ‘My family usually helps me wash clothes and clean my bedroom at home’ (independence). Cronbach’s α coefficient was calculated.

Data analysis

We used the following steps in choosing items for final analysis in the affective objectives questionnaire. First, item analysis was conducted by identifying two groups in the total sample (top 27% and bottom 27%) according to total score. An independent sample t-test was then used to identify and remove non-significant items. Second, exploratory factor analysis (EFA) was employed to construct and revise a model of affective objectives, proceeding by principal component analysis. For exploring the factor grouping method, we used six-factor models (Peterson & Seligman, 2004), five-factor models (Ruch et al., 2010; Singh & Choubisa, 2010), four-factor models (Brdar & Kashdan, 2010; Macdonald, Bore, & Munro, 2008) and three-factor models (Khumalo, Wissing, & Temane, 2008; Shryack, Steger, Krueger, & Kallie, 2010) as references. EFA included two steps: model construction and model revision. In model construction, factors were extracted by principal component analysis and rotated by the maximum variation method; the obtained factors were confirmed to have eigenvalues > 1. In model revision, test items were deleted when the loading value was < 0.30 on any factor and when the loading value was > 0.30 on many factors. Third, we randomly selected 436 students to create subsample 1 (n = 436) for confirmatory factor analysis (CFA). The average age of subsample 1 was 14.69 years (SD = 1.46 years; range 12–18 years). CFA with the maximum likelihood method was used to examine the structural validity and model fitting of the factors extracted by EFA. The final model was confirmed by checking the modification indices and each item’s loading in the revised model. Finally, analysis of variance (ANOVA) was employed in the constructed model to compare the differences in students’ affective development by gender and grade group. Post hoc comparison was conducted according to the least significant difference criterion. All statistical analyses were performed using Statistical Product and Service Solutions 22.0 and Amos 22.0.

Results

Factor structure of the affective objectives questionnaire

Exploratory factor analysis

To provide a preliminary guide in specifying the number of factors, a second-order factor grouping analysis of the 16 affective objectives was performed following the recommendation of existing studies (Brdar & Kashdan, 2010; Khumalo, Wissing, & Temane, 2008; Peterson & Seligman, 2004; Ruch et al., 2010). Comparisons were made between the five-, four- and three-factor models. A three-factor solution was chosen because it was more interpretable and accounted for a greater degree of total variance. Based on the highest loading items, fortitude, interpersonal strength and vitality were named as factors.

The Kaiser–Meyer–Olkin (KMO) measure of sampling adequacy is a statistical index to determine whether data are appropriate for factor analysis. KMO values > 0.70 are considered ‘good’ and suggest that the data are well suited for EFA (Hutcheson & Sofroniou, 1999). The KMO value of the first factor, fortitude, was 0.742 and three affective objectives were extracted. After the rotation, these three factors accounted for
44.94% of the total variance. According to each item’s content, these three affective objectives were confidence, independence and bravery. The KMO value of the second factor, interpersonal strengths, was 0.774, also showed that data were suitable for EFA. Three affective objectives – integrity, fairness and forgiveness – were extracted after the rotation, and explained 46.52% of the total variance. The third factor, vitality, had a KMO value of 0.775 and included three affective objectives – gratitude, love of learning and aesthetic – after the rotation, accounting for 45.26% of the total variance (see Table 3).

Confirmatory factor analysis
CFA was conducted among 436 participants to examine the structure validity and model fitting. In the study, model fit was assessed by a combination of fit indices of $\chi^2$, degrees of freedom (df), $\chi^2$/df, goodness-of-fit index (GFI), incremental fit index (IFI), comparative fit index (CFI) and the root mean square error of approximation (RMSEA). Here, with the minimum of discrepancy function (CMIN), CMIN/df < 5 is considered acceptable; GFI,

| Factors          | Items | Loadings |
|------------------|-------|----------|
| Fortitude        | 69    | 0.828    |
|                  | 66    | 0.630    |
|                  | 60    | 0.612    |
|                  | 41    | 0.761    |
|                  | 54    | 0.622    |
|                  | 15    | 0.524    |
|                  | 22    | 0.378    |
|                  | 32    | 0.756    |
|                  | 47    | 0.726    |
|                  | 19    | 0.476    |
| Interpersonal strengths | 45    | 0.719    |
|                  | 40    | 0.635    |
|                  | 50    | 0.591    |
|                  | 63    | 0.549    |
|                  | 39    | 0.816    |
|                  | 51    | 0.600    |
|                  | 58    | 0.573    |
|                  | 70    | 0.757    |
|                  | 71    | 0.624    |
|                  | 52    | 0.524    |
| Vitality         | 61    | 0.758    |
|                  | 67    | 0.636    |
|                  | 55    | 0.588    |
|                  | 42    | 0.536    |
|                  | 18    | 0.703    |
|                  | 62    | 0.645    |
|                  | 56    | 0.635    |
|                  | 12    | 0.501    |
|                  | 48    | 0.795    |
|                  | 36    | 0.651    |
|                  | 73    | 0.552    |

Source: Computed based on primary data.
IFI and CFI $> 0.90$ is an acceptable fit index and $> 0.95$ is an excellent fit index. An RMSEA $\leq 0.06$ indicates a close fit and $\leq 0.08$ indicates a reasonable fit (Hu & Bentler, 1999; Kline, 2005; MacCallum, Browne, & Sugawara, 1996). Four potential models were proposed for comparison including three-factor model and the complete model, which combine all factors. After testing the three-factor model fitting separately, we retained 31 items under nine affective objectives. Each of the three factors was calculated against the total score. CFA was used again, treating the nine affective objectives as observed variables and the three factors as latent variables. These three latent variables were set as being interrelated with each other, and the residuals of the nine observed variables were set independently (see Figure 1). It can be observed from Table 4 that all four hypothesised models were statistically valid.

**Reliability**

After CFA, Cronbach’s $\alpha$ coefficients of the three factors were 0.604 (fortitude), 0.612 (interpersonal strengths) and 0.644 (vitality), and that of the complete model was 0.794. As has been previously indicated, scale Cronbach’s $\alpha$ should be $> 0.60$ in exploratory research (Hair, Anderson, Tatham, & Black, 1998; Wu, 2003). Results showed that the scale’s consistency and reliability reached the acceptable level.

Finally, the final three-factor model, comprising fortitude, interpersonal strength and vitality, consisted of nine affective objectives: confidence, independence, bravery, integrity, fairness, forgiveness, gratitude, love of learning and aesthetic.

![Figure 1](image-url)  
**Figure 1.** Structure model of the affective objectives questionnaire with standardised path coefficients.
Students’ attainment of affective objectives

Mean scores

Table 5 shows the mean scores of students’ affective attainments. Among the nine affective objectives, the top three rated objectives were gratitude (12.74), independence (11.87) and integrity (11.79) and the bottom three were forgiveness (8.96), bravery (8.45) and confidence (8.09).

Gender differences

Table 6 presents the results for the ANOVA comparisons between boys and girls. The six affective objectives other than integrity, forgiveness and gratitude showed significant differences. Male students rated themselves statistically higher on confidence, bravery and love of learning, whereas female students rated themselves statistically higher on independence, fairness and aesthetics. The higher rated affective objectives yielded a significant difference.

Grade differences

After comparing the students’ affective attainments among grade groups, the results showed that confidence, independence, bravery, integrity, gratitude, love of learning and aesthetic objectives had significant differences (see Table 7). Post hoc comparison revealed that seventh-grade students reported higher scores than eighth- and ninth-grade students for confidence, integrity, love of learning and aesthetic, whereas ninth-grade students rated slightly higher than eighth-grade students on bravery and gratitude. Grade comparison revealed a significant effect on students’ affective attainment. Younger students generally rated themselves higher than older students.

Table 5. Means and SDs for self-reported affective objectives (N = 1563).

| Objectives       | M     | SD  |
|------------------|-------|-----|
| 1. Gratitude     | 12.74 | 1.87|
| 2. Independence  | 11.87 | 1.90|
| 3. Integrity     | 11.79 | 1.83|
| 4. Love of learning | 10.23 | 1.90|
| 5. Fairness      | 9.53  | 1.48|
| 6. Aesthetic     | 9.40  | 1.68|
| 7. Forgiveness   | 8.96  | 1.55|
| 8. Bravery       | 8.45  | 1.48|
| 9. Confidence    | 8.09  | 1.76|

Source: Computed based on primary data.
Discussion

As curriculum reform has stressed the importance of affective objectives and set them as a goal to improve students’ overall development, there is a need to understand both what affective objectives are and how to evaluate them. To address this issue, Fu (2014) analysed subject-specific curriculum standards (grades 7–9) and summarised the situation, stating that affective objectives under the Chinese concept are not purely affect oriented, but intended to build students’ character, strengths and virtues. For this reason, a 64-item self-report questionnaire measuring 16 affective objectives was developed based on the VIA Classification, which includes primary virtues and character strengths in cultures worldwide (Peterson & Seligman, 2004).

The primary aim of this study was to explore the factor structure of the affective objectives under the Chinese New Curriculum Reform and to examine rural students’ affective attainments. Two main conclusions can be drawn from the results of the data analysis. First, for exploring a more effective factor grouping method to specify the 16 objectives, a second-order factor grouping analysis was performed, according to the procedure recommended by existing studies. In this process, the six-factor framework (Peterson & Seligman, 2004), and the five- (Ruch et al., 2010; Singh & Choubisa, 2010),

Table 6. Gender differences on affective objectives attainments.

| Objectives    | Male (N = 787) | Female (N = 776) | F  |
|---------------|---------------|-----------------|----|
|               | X             | SD              | X  | SD  |    |
| 1. Confidence | 8.24 ± 1.75   | 7.94 ± 1.76     | 11.39*** |
| 2. Independence| 11.72 ± 1.89  | 12.02 ± 1.91    | 9.40**  |
| 3. Bravery     | 8.59 ± 1.43   | 8.30 ± 1.51     | 14.70*** |
| 4. Integrity  | 11.76 ± 1.82  | 11.83 ± 1.84    | 0.58    |
| 5. Forgiveness| 8.91 ± 1.49   | 9.00 ± 1.60     | 1.15    |
| 6. Fairness   | 9.44 ± 1.52   | 9.63 ± 1.43     | 6.28*   |
| 7. Gratitude  | 12.70 ± 1.85  | 12.78 ± 1.90    | 0.59    |
| 8. Love of learning| 10.34 ± 1.89 | 10.12 ± 1.90 | 5.47*  |
| 9. Aesthetic  | 9.09 ± 1.69   | 9.70 ± 1.62     | 53.25***|

Source: Computed based on primary data.

***p < 0.001; **p < 0.01; *p < 0.05.

Table 7. Grade differences on affective objectives attainments.

| Objectives    | Grade 7 (N = 542) | Grade 8 (N = 430) | Grade 9 (N = 591) | F   | Post hoc comparison |
|---------------|-------------------|-------------------|-------------------|-----|---------------------|
|               | X ± SD            | X ± SD            | X ± SD            |     |                     |
| 1. Confidence | 8.38 ± 1.75       | 7.98 ± 1.68       | 7.90 ± 1.79       | 12.14*** | 7 > 8, 9            |
| 2. Independence| 12.02 ± 1.94    | 11.87 ± 1.84      | 11.73 ± 1.92      | 3.26*  | 7, 8 > 9           |
| 3. Bravery     | 8.58 ± 1.52       | 8.34 ± 1.47       | 8.40 ± 1.44       | 3.40*  | 7, 9 > 8           |
| 4. Integrity  | 12.01 ± 1.95      | 11.69 ± 1.84      | 11.68 ± 1.69      | 5.67** | 7 > 8, 9           |
| 5. Forgiveness| 9.04 ± 1.52       | 8.91 ± 1.51       | 8.91 ± 1.59       | 1.28  |                     |
| 6. Fairness   | 9.53 ± 1.55       | 9.49 ± 1.48       | 9.57 ± 1.40       | 0.37  |                     |
| 7. Gratitude  | 12.96 ± 1.90      | 12.53 ± 1.82      | 12.69 ± 1.87      | 6.85** | 7, 9 > 8           |
| 8. Love of learning | 10.58 ± 1.99 | 10.17 ± 1.93 | 9.95 ± 1.74 | 16.42*** | 7 > 8, 9         |
| 9. Aesthetic  | 9.61 ± 1.70       | 9.21 ± 1.72       | 9.34 ± 1.62       | 7.38** | 7 > 8, 9           |

Source: Computed based on primary data.

***p < 0.001; **p < 0.01; *p < 0.05.
four- (Brdar & Kashdan, 2010; Macdonald, Bore, & Munro, 2008) and three-factor models (Khumalo, Wissing, & Temane, 2008; Shryack, Steger, Krueger, & Kallie, 2010) were taken as references in the factor-exploring process. The EFA results showed that evidence for a statistically valid solution comprising nine affective objects in a three-factor model, comprising fortitude, interpersonal strengths and vitality. Fortitude can signify an individual’s qualities such as the affective objectives of bravery, self-confidence and independence. Interpersonal strengths indicate positive cognition, affect and actions through social interaction, and this category includes fairness, integrity and forgiveness. Vitality mainly indicates positive qualities of perceiving the world and society, such as gratitude, love of learning and aesthetic. The factor structure failed to confirm to the original six-virtue framework reported by Peterson and Seligman (2004).

This is not the first study to find evidence for a three-factor solution of character strengths. The Chinese virtues questionnaire put forth by Duan et al. (2012) has some similarities to our results, as it includes attributes of interpersonal strengths (kindness, teamwork, fairness, love, authenticity, leadership, forgiveness and gratitude), vitality (humour, curiosity, zest, creativity, perspective, hope, social, beauty, bravery and belief) and cautiousness (judgement, prudence, regulation, perseverance, love of learning and modesty). However, the unique nature of affective objectives under the Chinese education concept means that this study would be different from other character strength studies, for numerous reasons.

First of all, the number of 16 affective objectives is 8 elements less than the original 24 character strengths. As mentioned before, the 16 affective objectives were summarised from the subject-specific curriculum standards, and there were some character strengths that were not included in the Chinese culture and education concept. For instance, religiousness and humour in the original strengths concept were not regarded as targets of students’ affective development. Guan et al. (2009) also excluded these two strengths in their study of developing Chinese primary and secondary students’ positive psychological qualities. Second, there was an unexpected number of missing affective objectives after the EFA process, which might be due to the relatively strong connection between the original 16 affective objectives. For example, item 18, ‘I always raise different opinions during class discussion,’ is categorised under the objective open-mindedness but had a stronger connection to love of learning. Third, there were three affective objectives (self-confidence, self-esteem and independence) added but not included in the character strengths’ framework. Self-esteem and independence, for instance, were two important affective objectives under the moral character building class, as stated in the curriculum standards ‘Love your life, develop self-esteem and independence and form a diligent and optimistic attitude’ (Ministry of Education, 2011b). Upon examination with CFA, the results showed good validity and reliability indicators when the three-factor model was applied. The findings demonstrated that a structured questionnaire for nine affective objectives could serve as a promising assessment tool for investigating the affective characteristics of future lower secondary school students.

After examining rural lower secondary students’ affective objectives attainments, that the objectives that performed best were gratitude, independence and integrity, while the three lowest rated objectives were forgiveness, bravery and confidence. Among the best-performing objectives, gratitude was essentially the same as reported in previous studies (e.g. Littman-Ovadia & Lavy, 2012; Ruch et al., 2013). However, the findings did not show aesthetic and love of learning as the highest rated objectives, which is a departure from previous studies. Thus, rural students may have a relatively low aesthetic sense and study motivation because of the limited study resources in their remote area.

There were gender differences for six of the affective objectives: confidence, independence, bravery, fairness, love of learning and aesthetic. Male students reported
higher confidence, bravery and love of learning, whereas female students reported higher independence, fairness and aesthetic. Similar to the previous character strength study, female students had a higher score on aesthetic while male students were higher on bravery (Furnham & Lester, 2012; Mao & Gao, 2013). The traditional cultures of rural China, which place strong preference for sons over daughters, may cause female students to be more independent and have a greater desire for fairness than male students.

Of the nine objectives measured with comparison of different student year groups, seven affective objectives showed statistical differences (confidence, independence, bravery, integrity, gratitude, love of learning and aesthetic objectives). Forgiveness and fairness had no significant changes among grade groups and no affective objectives were increased with the increase in the grade. Five objectives’ (confidence, independence, integrity, love of learning and aesthetic) ratings declined with increasing grade, whereas seventh- and ninth-grade students rated slightly higher than eighth-grade students on bravery and gratitude. This finding was different with Yu et al.’s (2009) study, in which they found bravery, integrity and aesthetic stayed at the same level in middle school students. The declining trend in students’ affective attainments may reveal a potential negative influence from family, school and society (Lu & Wang, 1999). The results argued that rural students’ affective development may not meet the policy statements of educational aims for the ‘all-around development of all individual learners’ (Zhou & Zhu, 2006).

Several potential limitations of this study are worth noting. First, despite the efforts to ensure the representativeness of the sample, the participants were conveniently chosen from two rural counties in China, thereby limiting the generalisation of our findings to other areas of the country. Second, the questionnaire utilised in this study only has four items under each affective objective, to maintain a controlled length of the examination tool. Some objectives may not be extractable through EFA because of these deleted items. Finally, using self-reporting for information gathering may not be adequate to fully extract the details of adolescents’ affective development, and classroom observation and interviews could be considered for further research. Despite these potential limitations, the main contribution of this study is the design of a reliable and valid assessment tool of affective objectives evaluation, and the study has significant suggestions for promotion of affect, intended for curriculum development in rural students. Further research is needed to explore the factors from both family and school influencing rural students’ affective attainment, clarifying what kind of problems may exist and how to improve them.

**Disclosure statement**

No potential conflict of interest was reported by the authors.

**Notes on contributor**

Qianqian Fu is a Ph.D. student majored in educational development. Her research interests focus on educational psychology, and the role of family processes and school function in adolescents’ development.

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