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Values Characteristics of Chinese College Students with Upper-Level Learning Engagement

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ABSTRACT

Current research on learning engagement has predominantly emphasized individual factors that influence the levels of engagement among college students. However, relationships between individual value preferences and learning engagement remain inadequately explored. This research aims to reveal the relationships between individual values preferences and degrees of learning engagement, and mainly focuses on the individual values preferences of Chinese college students with upper-level learning engagement. Data from 360 first-year Chinese college students majored in foreign languages in Northeast China supported a two-cluster of students based on different learning engagement levels. Comparing values preferences of students with upper-level learning engagement and those with lower-level learning engagement, the results showed that students with upper-level learning engagement assigned more importance to "Social Focus" values, "Openness to Change" values, benevolence, hedonism, which presents a promising opportunity for future research to explore the potential impact of values education on students' learning engagement.

Keywords: Learning engagement, Values, Chinese college students, Upper-level, Cluster analysis

1. INTRODUCTION

Students' learning engagement is an essential component of teaching activities, which has been regarded as the fundamental framework of quality education. In general, learning engagement is characterized as: a positive, satisfying, and persistent state of learning that is, in which learners can devote themselves to a deep involvement in learning tasks through a collection of mindfully goal-directed behaviors and reflections (Schaufeli et al., 2002; Yin et al., 2022). An abundance of literature has explored different dividing dimensions of learning engagement (Maican et al., 2021). Several studies considered learner engagement as a multidimensional concept with three characteristics. A four-factor measure of classroom engagement (including the performance factor, the skills factor, the participation/interaction factor, the emotional factor) was adapted to assess college students' learning engagement in English courses (Lin, 2020). A three-factor model of engagement, including vigour, devotion, and absorption, was identified by Schaufeli et al. (2002) as a useful instrument to measure students' learning engagement.

During the past decades, much importance was attached to students' learning engagement. Evidence suggests that this engagement is a crucial variable affecting students' performance, academic success, and their development for future endeavors (Lin, 2020). Participating actively in upper-level learning can greatly improve students' satisfaction and support their development , while lower-level learning engagement might lead to academic failure and unhealthy behaviors (Pedrero & Manzi, 2020).

In Global Learning Qualifications Framework, upper-level learning engagement is approximately defined from the following five aspects: the knowledge identification, skills and abilities, actively participation, feedback utilization and adjustment on their behaviors and learning needs. In terms of the students with upper-level learning engagement, many studies showed that they exhibited superior interpersonal skills, more academic success, less behavioral problems, and lower dropout rates and so on (Pedrero & Manzi, 2020). The positive effects of engagement on learning suggest that such involvement can drive students to seek out educational resources and opportunities, thereby enhancing their motivation and dedication to their academic pursuits. Also, there was s a significant potential for a strong connection between deep engagement in learning and authentic motivational orientations. Students highly engaged in their learning experiences are often seen as self-regulated and motivated, demonstrating

more effectiveness, pursuing higher intrinsic goals, experiencing less anxiety, and exhibiting greater growth mindset.

To explore how to effectively improving students' learning engagement, previous studies have discussed various factors (external and internal factors) that were related to upper-level learning engagement. When considering external factors, investigations have examined the impact of students' family socioeconomic status, the influence of social elements (including teachers, peers, and parents), and the significant role of task characteristics on student engagement in learning. On the other hand, internal factors influencing learning engagement have been studied as well. Research shows that students' gender, age, self-regulated learning and prior knowledge were related to learning engagement. Chai et al. (2023) found that a proactive personality positively influences many aspects of online learning engagement. It is worth mentioning that nowadays, research has more emphasized the individual factors (e.g., personal learning features, personal physical characteristics and personal psychological characteristics) related to college students' learning engagement.

Individual values play a significant role in individuals' learning. The concept of values encompasses the core beliefs, behaviors, and attitudes that societies have traditionally upheld as correct and beneficial. Individual values are personal principles that influence a person's behavior and actions. Certain scholars have enhanced our comprehension of the role that recognizing values plays in shaping the learning process. Besides, social mobility beliefs, which pertain to how individuals perceive their potential for upward social progress, might also be a key predictor of learning engagement, influencing it through the formation of achievement goals. Ku et al. (2022) explored whether high-level life values could serve as predictors for engagement in educational settings through a longitudinal study involving 345 Chinese university students, finding that intrinsic life values had a positive impact on learning engagement beyond mere materialistic concerns.

As mentioned above, there has been increasing interest among researchers in studying individual characteristics of students with upper-level learning engagement. However, there is limited literature that deals specifically and explicitly with individual values from the perspectives of students with upper-level learning engagement. Overall, our study contributes to reveal the relationships between learning engagement levels and individual values preferences and excavate the common characteristics of individual values from students with upper-level learning engagement to provide inspirations and reflections for improving students' learning engagement.

2. HYPOTHESIS

First, this study separately analyzes Chinese college students' learning engagement characteristics and values characteristics. Subsequently, this approach sheds light on the typical individual value traits of students with different levels of learning engagement, in order to explore the potential link between learning engagement and preferences for individual values. Finally, it compares the values characteristics of students with different learning engagement levels and highlight the common individual values characteristics of those with upper-level learning engagement, so as to infer what kind of value orientation the students with upper-level learning engagement have. In line with the outlined theoretical framework, the hypothesis of this study is that students can be segmented into various clusters based on their different levels of learning engagement, and there would be differences in the values characteristics among different clusters of students. In detail, the following study hypothesis is proposed:

H1: Chinese college students can be clustered into two clusters: the Upper-Level of Learning Engagement cluster and the Lower-Level Learning Engagement cluster.

H2: A significant variation can be observed in the value preferences of Chinese college students between those in the Upper-Level Learning Engagement cluster and those in the Lower-Level Learning Engagement cluster.

H3: Chinese college students with upper-level learning engagement attached more importance to social-focus values.

H4: Chinese college students with upper-level learning engagement attached more importance to benevolence values.

4. MATERIALS AND METHODS

4.1 Participants

For this study, 360 first-year foreign language majors from a private university in Northeast China were chosen through whole-group convenience sampling for the survey. The questionnaires were administered by the researchers and the student instructor during class. Prior to completing the questionnaires, all participants would receive notification regarding the confidentiality of the questionnaires and the research survey's exclusive use for academic purposes. No rewards or inducements were provided during the process of gathering data. Participants of this study aged from 18-22 years old upon surveying (M= 19.26; SD= 0.66). Among the responses, 62 (17.2%) were from boys, and 298 (87.8%) were from girls. The educational qualifications of the participants' parents showed that 77.8% of fathers and 80.6% of mothers had completed high school or lower education, 10.6% of fathers and 11.4% of mothers had specialized training, 10.8% of fathers and 7.5% of mothers held bachelor' degrees, and 0.8% of fathers and 0.6% of mothers had attained a master's degree or higher. Concerning their place of origin, 63.6% of the students were from urban areas while 36.4% were from rural locations.

4.2 Measures

4.2.1 Learning Engagement

Learning engagement was measured by the Utrecht Work Engagement Scale — Student (UWES-S). The 17 items in the measure are clustered into three dimensions including vigor, dedication, and absorption. A Likert scale, with scores from 0

(Never) to 6 (Every Day) was used to measure respondents' learning engagement levels.This instrument is extensively utilized as a self-administered assessment designed for students to gauge the frequency of their experiences of feelings, beliefs, or actions.

Some Chinese scholars (Fang et al., 2008) adapted the Chinese version of UWES-S to evaluate students' self-reported learning engagement. In their version of scale, the amended items exhibited high reliability and validity in the context of China. However, Li and Huang (2010) argued that "work" and "learning are totally different concepts and the concept of "learning" in western culture and Chinese culture are also different. Hence, the word substitution of " work " and "learning" in the Chinese version of UWES-S is problematic. They advised and polished the items of the Chinese version scale to make it conform Chinese language habits and mindset. Their adapted version has been widely used for accessing Chinese students' learning engagement levels (Yin et al., 2022). This study used Li and Huang (2010)'s adaptation of UWES-S has and the Cronbach's alpha coefficient was 0.959.

4.2.2 Portrait Values Questionnaire

Schwartz's (1992) theory of human values presents a framework consisting of ten principal value, along with four higher-order dimensions that reflect different motivational goals. Figure 1 provides a visual representation of Schwartz' s value survey's structure. The theory proposes that values are organized along a fundamental continuum and that opposing value types are distinguished by two primary higher-order dimensions. The first of these dimensions contrasts self-enhancement versus self-transcendence: self-enhancement focuses on self-interest and authority over others, while self-transcendence emphasizes concern for others' well-being. The second of these dimensions contrasts openness to change and conservation: the former is associated with personal independence, pleasure, and novelty, whereas the latter is linked to stability, adherence to norms, and resistance to change.

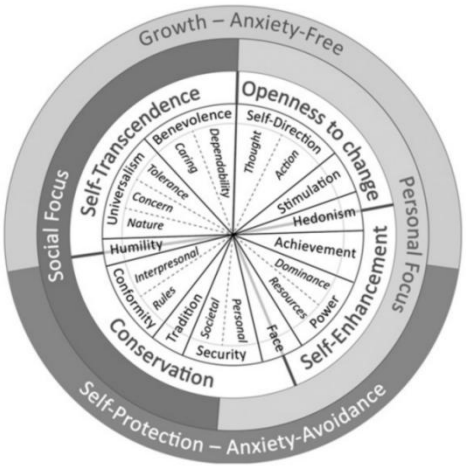

Fig. 1. *Circular motivational continuum of 19 values in the refined value theory*
Source. From Cieciuch et al. (2014) and Schwartz (2012).

Schwartz created two tools for assessing the ten fundamental values, with one instrument being more abstract (Schwartz Values Survey, SVS) and the other being less abstract (Portrait Values Questionnaire, PVQ). PVQ inquires about the resemblance to an individual with goals and aspirations (values) as opposed to the resemblance to an individual with specific characteristics. Each portrait delineated an individual's goals, aspirations, or desires, which tacitly underscore the significance of a particular value. Davidov (2008) evaluated the appropriateness of the 21-item Portrait Values Questionnaire, which was derived from the original PVQ. Gao et al. (2016) revised the 21-item PVQ in Chinese version and analyzed its reliability and validity. Our study used 21-item PVQ in Chinese version and the Cronbach's alpha coefficient in the current study was calculated to be .898.

4.3 Analysis

Initially, we used principal component analysis to verify the assignment of items on both the UWES-S and PVQ-21 scales, which allowed us to delineate the primary dimensions of learning engagement and values among Chinese college students. Subsequently, we applied a cluster analysis with K-means algorithm to cluster the participants based on their learning engagement levels. Then, we examined the values of different clusters to explore the potential connections between Chinese college students' learning engagement levels and value orientations. Ultimately,

One-Way Analyses of Variance (ANOVAs) were conducted to explore the differences on value orientations among clusters, focusing mainly on the individual values characteristics of college students with upper-level learning engagement.

5. RESULTS

5.1 EFA of the Utrecht Work Engagement Scale-Student (UWES-S)

UWES-S is widely known for assessing students' engagement in their academic environment. Numerous studies examined the UWES-S scale's measurement invariance across different cultures through the confirmatory factor analysis (CFA) to support its original three-factor framework, that is, vigor, dedication, and absorption. Besides, exploratory factor analysis (EFA) would

allow researchers to evaluate the concept validity and measurement invariance of the cross-culturally adapted UWES-S in a more accurate approach. For example, Li & Huang (2010) surveyed approximately 300 Chinese college students and performed EFA with Oblimin rotation to confirm the three-factor structure for the Chinese adaptation of the UWES-S. In their study, they named the three subscales as motivation, enemy and absorption based on Chinese students' language habits, mindset and learning characteristics.

In our study, we employed Exploratory Factor Analysis (EFA) with a principal component approach to investigate the assignment of items on this scale and to uncover the core subscales of Chinese college students' learning engagement. Exploratory factor analyses for all variables were conducted using SPSS (Version 22.0). The standardized deviations for the 17-item UWES-S scale were all within ±2, suggesting the absence of heteroscedasticity.

Using the three-factor model of the UWES-S from Schaufeli et al. (2002) and further adapted by Li & Huang (2010), we employed a fixed number of factors method for extraction. We assessed the factor structure of learning engagement, with results from the varimax (orthogonal) rotation detailed in Table 1. The final 17-item model demonstrated a Cronbach's alpha of 0.959 and accounted for more than 70% of the total variance (KMO = 0.954; Bartlett's test $p < 0.001$), which validated its suitability for exploratory research. Our findings confirmed that the Chinese version of the UWES-S effectively fit the three-factor structure (motivation, energy, and absorption) for our sample of Chinese college students.

Through the exploratory factor analysis, our results were generally consistent with previous studies and we named the three subscales as Li & Huang (2010) did. In our result, **the Motivation factor** (α = .911) contains five items. **The Energy factor** (α = .909) contains six items. **The Absorption factor** (α = .913) contains six items.

Table 1

Factor structure of the 17-Item categories of the Utrecht Work Engagement Scale-Student.

Learning Engagement	Communalities	Factor loading (Rotated)		
		Factor1	Factor2	Factor3
I find my studies challenging.	.706	**.723**		
My studies inspire me.	.755	**.820**		
I am enthusiastic about my studies.	.804	**.866**		
I am proud of my studies.	.647	**.747**		
I find my studies to be full of meaning and purpose.	.743	**.829**		
When I get up in the morning, I feel like going to class.	.664		**.402**	
When I study, I feel like I am bursting with energy.	.760		**.246**	
Even if the study is not successful, I can persevere.	.683		**.251**	
I can continue for a very long time when I am studying.	.719		**.415**	
When I'm studying, I feel mentally strong.	.724		**.367**	
When studying I feel strong and vigorous.	.778		**.220**	
When I am studying, I forget everything else around me.	.722			**.426**
Time flies when I'm studying.	.694			**.159**
When I study, I only think about studying.	.760			**.212**
It's hard for me to let go of my study.	.683			**.277**
I can get carried away by my studies.	.788			**.244**
I feel happy when I am studying intensively.	.685			**.098**
Percent of common variance explained		25.229%	24.906%	22.306%
Total common variance explained		72.440%		

Note. N = 360. Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization; Rotation converged in 8 iterations.

5.2 EFA of the Portrait Values Questionnaire (PVQ-21)

PVQ-21 has been studied extensively worldwide. Several research has examined the measurement invariance of the PVQ-21 scale to evaluate fundamental human values across different cultural and national contexts (Davidov, 2008). Davidov (2008) employed the multi-group confirmatory factor analysis to examine the effectiveness of the PVQ-21 in capturing values and examined value consistency across 25 countries by assessing configural, metric, and scalar invariance.

Several studies also investigated Schwartz' value orientations in East Asian nations, including China. For example, Heim et al. (2017) compared the individual value orientations of Chinese students, individual value orientations of German students and those of Russian students by using Schwartz's value scales. This study performed CFAs for each cultural sample and conducted a multi-group CFA to simultaneously assess the fit of the four higher-order value dimensions across the three groups. The results showed that the four factors model fit well with all groups.

EFA was conducted with the principal component method in this study. The extracted factors were identified through the varimax rotation to reveal the core values dimensions of the participants. For the 21 items on the Portrait Values Questionnaire (PVQ), the standardized data processing confirmed that the standard deviations for all items fell within ±2, thus indicating no issues of heteroscedasticity. The analysis identified four factors with eigenvalues exceeding the Kaiser criterion of 1, collectively accounting for 56.869% of the variance. The fourth factor was excluded from the final model as it was represented by only one item: "Tradition is important to him. He tries to follow the customs handed down by his religion or his family," which was not pertinent in the largely secular Chinese context. Consequently, a three-component structure for the 21-item scale was retained, with a Cronbach's alpha of .898, and this structure explained more than 50% of the total variance (KMO = .903; Bartlett's Test $p < .001$). The final three components identified were "Social Focus" (Factor 1) (α =.866), "Openness to Change" (Factor 2) (α = .813), and "Self-Enhancement" (Factor 3) (α = .724).

Our results were slightly different from previous studies. Items in the component "self-transcendence" and items in the component "conservation" in Schwartz's original classification were combined into one component (10 items) in our results. In

the study, "Social Focus" was defined as a composite factor that integrates five key values: security, conformity, tradition, benevolence, and universalism. Schwartz's value theory (Schwartz, 2012) describes "social focus" as a "concern with outcomes for others or for established institutions." Within the context of our study, this component captures dimensions such as ensuring societal security, adhering to social norms, upholding cultural and religious traditions, providing care for in-group members, and addressing broader societal concerns. Conversely, the "Openness to Change" reflects a value orientation that prioritizes the acceptance of novel ideas, experiences, and actions (Schwartz, 2012). Our findings demonstrated that the values associated with "Openness to Change" were entirely consistent with Schwartz's original framework. Lastly, the "Self-Enhancement" dimension focuses on values that promote the pursuit of personal interests and self-improvement. Same as the previous one, the items in component "Self-Enhancement" in our results were totally consistent with those in Schwartz's original classification and the component "Self-Enhancement" encompassed two individual values: power and achievement.

Table 2

Factor structure of the 21-item categories of the Portrait Values Questionnaire.

Values	Communalities	Factor loading (Rotated)			
		Factor1	Factor2	Factor3	Factor4
He thinks it is important that every person in the world be treated equally. He believes everyone should have equal opportunities in life.	.532	**.607**			
It is important to him to live in secure surroundings. He avoids anything that might endanger his safety.	.604	**.493**			
He believes that people should do what they're told. He thinks people should follow rules at all times, even when no one is watching.	.450	**.553**			
It is important to him to listen to people who are different from him. Even when he disagrees with them, he still wants to understand them.	.551	**.706**			
It is important to him to be humble and modest. He tries not to draw attention to himself.	.485	**.694**			
It's very important to him to help the people around him. He wants to care for their well-being.	.613	**.489**			
It is important to him that the government insures his safety against all threats. He wants the state to be strong so it can defend its citizens.	.436	**.463**			
It is important to him always to behave properly. He wants to avoid doing anything people would say is wrong.	.586	**.603**			
It is important to him to be loyal to his friends. He wants to devote himself to people close to him.	.630	**.668**			
He strongly believes that people should care for nature. Looking after the environment is important to him.	.615	**.669**			
Thinking up new ideas and being creative is important to him. He likes to do things in his own original way.	.588		**.684**		
He likes surprises and is always looking for new things to do. He thinks it is important to do lots of different things in life.	.593		**.738**		
Having a good time is important to him. He likes to 'spoil' himself.	.571		**.525**		
It is important to him to make his own decisions about what he does. He likes to be free to plan and not depend on others.	.418		**.561**		
He looks for adventures and likes to take risks. He wants to have an exciting life.	.635		**.747**		
He seeks every chance he can to have fun. It is important to him to do things that give him pleasure.	.611		**.682**		
It is important to him to be rich. He wants to have a lot of money and expensive things.	.587			**.748**	
It's important to him to show his abilities. He wants people to admire what he does.	.544			**.641**	
Being very successful is important to him. He hopes people will recognize his achievements.	.618			**.609**	
It is important to him to get respect from others. He wants people to do what he says.	.685			**.591**	
Tradition is important to him. He tries to follow the customs handed down by his religion or his family.	.591				**.756**
Percent of common variance explained		19.231%	17.858%	12.785%	6.996%
Total common variance explained		56.869%			

Note. N = 360. Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization; Rotation converged in 6 iterations.

5.3 Chinese college students' clusters on learning engagement

To address the second hypothesis, which aimed to investigate whether a meaningful clustering of college students could be achieved based on their learning engagement levels, we implemented a K-means cluster analysis. This method was applied to the scores from the learning engagement components identified through an exploratory factor analysis (EFA). We evaluated a range of cluster solutions, specifically K = 2 through 9, and assessed these solutions through detailed analyses of ANOVA p-values, multiple comparison tests, and examination of iteration tables. The analysis identified a two-cluster solution as the most effective, as indicated by the ANOVA results: Motivation F (2, 357) = 722.738, p < .001; Energy F (2, 357) = .588, p = .444; Absorption F (2, 357) = 1.946, p = .164. Table 3 presents the ANOVA findings for the three dimensions of learning engagement across the clusters.

Table 3

ANOVA on the three components of learning engagement by cluster.

		Sum of Squares	df	Mean Square	F	Sig.
Motivation	Between Groups	240.079	1	240.079	722.738	.000
	Within Groups	118.921	358	.332		
	Total	359.000	359			
Energy	Between Groups	.589	1	.589	.588	.444
	Within Groups	358.411	358	1.001		
	Total	359.000	359			
Absorption	Between Groups	1.941	1	1.941	1.946	.164
	Within Groups	357.059	358	.997		
	Total	359.000	359			

Table 4 lists means of Chinese college students' ratings on different aspects of learning engagement by cluster. The means on all components (Motivation component, Energy component and Absorption component) of learning engagement in Cluster 2 were obviously higher than those of Cluster 1. Thus, we labeled Cluster 1 as Lower-Level of Learning Engagement cluster (LLLE), Cluster 2 as Upper-Level Learning Engagement cluster (UPLE).

Table 4

Means of Chinese college students' learning engagement by cluster.

Component	Cluster1 (n=169)	Cluster2 (n=191)
Motivation	4.11	5.59
Energy	3.95	4.72
Absorption	4.25	5.11

Lower-Level of Learning Engagement cluster (LLLE, n=169)

We labeled Cluster 1 as *lower-level of learning engagement cluster*. The number of participants in this cluster is above half of the total number. Mean values on the three dimensions of learning engagement of Cluster 1 are all lower than those of Cluster 2. This shows that participants in this cluster have the lower level of learning engagement and low engage in all aspects of learning. Therefore, this cluster is determined as a lower-level of learning engagement cluster.

Upper-Level Learning Engagement cluster (ULLE, n=191)

Based on the mean values exhibited in Table 4, we labeled Cluster 2 as *upper-level of learning engagement cluster*. The number of participants in this cluster is over half of the total number and is a little higher than that of Cluster 1. Comparing with the Cluster 1, mean ratings of this cluster on the three components of learning engagement are all higher. The above indicates that participants in this cluster have a higher degree of learning engagement and highly engage in all aspects of learning. Hence, this cluster is determined as an upper-level of learning engagement cluster.

5.4 Differences in values by cluster

To explore potential differences in individual value orientations among Chinese college students at varying levels of learning engagement, we computed the average scores for the "Social Focus," "Openness to Change," and "Self-Enhancement" values for each cluster individually. The means of these value dimensions across the different clusters are summarized in Table 5.

Table 5

Means on the three types of values by cluster.

Component		Lower-Level of Learning Engagement (Cluster 1, n=169)	Upper-Level Learning Engagement (Cluster 2, n=191)
Social Focus Values	Security	3.53	3.86
	Conformity	3.36	3.70
	Tradition	3.41	3.64
	Benevolence	3.52	4.08
	Universalism	3.47	3.95
	Total	**3.47**	**3.88**
Openness to Change Values	Self-direction	3.31	3.81
	Hedonism	3.59	4.11
	Stimulation	3.31	3.69
	Total	**3.41**	**3.87**
Self-Enhancement Values	Power	3.24	3.35
	Achievement	3.37	3.68
	Total	**3.31**	**3.52**

To examine the differences in the means of three distinct value types across three separate clusters, a series of ANOVAs was conducted. The results of the ANOVA tests for these value ratings, segmented by cluster, are detailed in Table 6.

Table 6

ANOVA on the three values ratings by cluster.

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
Social Focus Values	Between Groups	32.932	1	32.932	36.156	.000
	Within Groups	326.068	358	.911		
	Total	359.000	359			
Openness to Change Values	Between Groups	39.178	1	39.178	43.855	.000
	Within Groups	319.822	358	.893		
	Total	359.000	359			
Self-Enhancement Values	Between Groups	.145	1	.145	.145	.704
	Within Groups	358.855	358	1.002		
	Total	359.000	359			

Table 6 demonstrates that there are significant differences on all examined 3 types of values between two clusters. By looking at means and ANOVA results, we analyzed the inter-cluster differences by values respectively. As for "Social Focus" values, there are significant differences on students' ratings among three clusters ($F(2, 357) = 36.156$, $p = .000$). Table 5 shows that on "Social Focus" values, Upper-Level Learning Engagement cluster (ULLE) have higher means than Lower-Level of Learning Engagement cluster (LLLE) (ULLE, $M=3.88$, $SD=0.85$; LLLE, $M=3.47$, $SD=0.75$, $p = .000$). It is evident from the data that Chinese college students with high levels of learning engagement demonstrate a robust involvement in all facets of learning engagement and place a greater value on "Social Focus" principles compared to students with lower levels of engagement. Analysis of "Social Focus" values shows that the mean scores for these values are all significantly higher in ULLE cluster compared to LLLE cluster. In particular, the high mean value for Benevolence ($M > 4$) in the ULLE group indicates a stronger emphasis on the importance of supporting ingroup members among highly engaged students.

The examination of " Openness to Change " values demonstrates significant disparities between the two clusters, as confirmed by statistical analysis ($F(2, 357) = 43.855$, $p < .001$), with the results displayed in Tables 6 and 7. Students from the ULLE cluster show a higher valuation of "Openness to Change" compared to those in the LLLE cluster (ULLE: $M = 3.87$, $SD = 0.88$; LLLE: $M = 3.41$, $SD = 0.80$, $p < .001$). Additionally, mean scores for Self-direction, Hedonism, and Stimulation are consistently higher among ULLE students. The particularly high mean for Hedonism ($M > 4$) in the ULLE cluster indicates a pronounced emphasis on seeking pleasure and sensory experiences among these students.

As for "Self-Enhancement" values, the differences between two clusters ($F (2, 357) =.145$, $p = .704$) were not so significant. However, similar to the above two types of values, students in ULLE cluster reported higher ratings than students in LLLE cluster (ULLE, $M=3.31$. $SD=0.95$; LLLE, $M=3.52$, $SD=0.78$, $p=.704$). Considering two individual values of "Self-Enhancement" values, means on Power and Achievement of students in ULLE cluster were just a little higher than those in LLLE cluster.

The above data and analysis proved that students with different learning engagement levels attached different degrees of importance to "Social Focus", "Openness to Change", "Self-Enhancement" values. Our results came to a conclusion that Chinese

college students with upper-level of learning engagement attached more importance to these three values, especially for "Social Focus" values and "Openness to Change" values. Also, it is worth noting that for concrete individual values, Chinese college students with upper-level of learning engagement highly value benevolence and hedonism (respectively rating 4.08 and 4.01, meaning almost completely agree to this type of value).

6. DISCUSSION

The previous discussion highlighted that substantial learning engagement is essential for enhancing students' academic performance, learning outcomes, and personal development. This study aimed to explore how learning engagement correlates with individual values and to uncover which specific values are more prominent among students with upper-level of learning engagement.

To address this, we initially performed EFA to uncover the core characteristics of learning engagement and values for Chinese college students. The EFA revealed that learning engagement encompasses aspects such as motivation, energy, and absorption, while the students' values can be categorized into "Social Focus," "Openness to Change," and "Self-Enhancement." Then, we applied K-means clustering to classify the students into two distinct clusters based on their learning engagement levels. The two distinct clusters were named the Upper-Level Learning Engagement cluster (ULLE) and the Lower-Level Learning Engagement cluster (LLLE).

6.1 Upper-level learning engagement and social focus values

One significant finding from our research is that students with upper-level learning engagement attach more importance to social focus values compared to personal focus values. Consistent with previous studies, our results support that social focus values are positively associated with behavioral, emotional, and cognitive dimensions of learning engagement. For instance, educational programs aimed to enhance medical students' social concern have been shown to contribute to students' individual expertise development (Park et al., 2017). Also, the research has confirmed that students who struggle to interact with others experience lower academic performance, whereas the contrary is true of those who are good at establishing interpersonal relationships tend to perform better in academics.

In our research, placing greater emphasis on social focus values may, to some extent, fulfill individual psychological needs. From the perspective of self-determination theory (SDT), Intrinsic goals are known to fulfill fundamental psychological needs, including the need for autonomy (Deci & Ryan, 2000). For instance, prioritizing social concern could lead to a greater fulfillment of psychological needs among medical students (Park et al., 2017). The observed link between high levels of learning engagement and social focus values can be partially explained by the satisfaction of the need for autonomy. Research shows that fulfilling the need for autonomy is important to engagement and that the relationship between values such as reciprocal filial piety and academic development can be partly understood through the satisfaction of autonomy needs, a concept that holds across diverse cultural contexts. Furthermore, in collectivist cultures, the motive for socially oriented achievements, such as meeting the expectations of important others, may be particularly pronounced. For example, studies on Filipino culture reveal strong motivations for social acceptance and group affiliation. Bernardo (2008) explored the framework of social and individual achievement motivation orientations and their associations with the academic performance of Filipino university students and revealed revealed two dimensions of social-focus motivation (parent-focus and teacher-focus) related to academic performance. This research confirmed that social factors played a relatively significant role in the learning processes of students.

In Chinese culture, Confucian values play a crucial role in emphasizing harmonious interpersonal relationships and a collective sense of identity, which serve as key elements for understanding social duties and personal meaning. Confucian ethics advocate for a harmonious social order and stability through a hierarchical social system focused on familial bonds and clan-based ideals. The ultimate social ideal in Confucianism envisions the creation of a harmonious commonwealth where the world functions as a unified society. This concept of a benevolent society parallels the ideals of Pax Romana, where individuals coexist in mutual trust and social harmony. Beyond merely fulfilling filial duties to one's parents and nurturing one's children, this ideal encompasses broader societal responsibilities. It advocates for a supportive environment where the elderly receive care, the youth contribute productively, and all children have opportunities for growth. Additionally, it emphasizes societal support for widows, widowers, orphans, and individuals with disabilities, ensuring a just and compassionate community.

The logical conclusion from the above discussion is that, rather than viewing the self as a distinct, rational, and competitive entity, Confucian thought perceives the individual as relational, fulfilling specific roles within a network of social interactions. It is within this regulated community that personal growth into a virtuous individual occurs. By focusing on the responsibilities towards the group, Confucian values suggest that such an approach may help meet the psychological needs of Chinese students.

6.2 Upper-Level learning engagement and openness to change values

Parallel to the above finding, we confirmed that students with upper-level learning engagement attach more importance to openness to change values, including self-direction, hedonism, stimulation. This indicates that students more engaged in learning are more inclined to be open to embracing new concepts, behaviors, and opportunities. Nevertheless, since this assertion has been rarely mentioned in previous research, further investigation and argumentation are still needed.

6.3 Upper-level learning engagement and benevolence

Current study uncovers the relationship between upper-level learning engagement and benevolence. Previous studies affirmed the relationship between benevolence and learning. Gázquez et al. (2015) proved that students who showed high benevolence had better academic performance. The present study furthermore substantiates students with upper-level learning engagement show higher prevalence of benevolence.

Chinese students' high prevalence of benevolence is inextricably linked to the influence of traditional Confucian culture. Confucian benevolence contains the connotation of Schwartz's benevolence. Schwartz's benevolence is defined as the preservation and strengthening of others' well-being. In Confucian system, "benevolence" (Ren) is not only one of the most major concepts of virtues, but is considered as the highest moral principle. In the Xue Er portion of the Analects of Confucius, benevolence is conceptualized as a principle where a youth is expected to be dutiful to their family and respectful to seniors. This definition also encompasses an overarching affection for everyone and an effort to form friendships with morally commendable individuals. As a moral principle, benevolence regulates how people study, how they behave and how they handle interpersonal relationships.

6.4 Upper-level learning engagement and hedonism

A notable discovery from the study is the identification of a significant relationship between hedonism and higher levels of learning engagement. Hedonism is generally defined as experiencing sensual pleasures leads to happiness and fulfillment, and that such experiences are considered the central aim of human existence. This study proves that comparing to students with lower-level of learning engagement, students with upper-level learning engagement assigned the higher importance to hedonism.

Existing literature suggests that hedonism may have a negative impact on learning. Hedonistic values were inversely related to effective learning approaches, revealing that students who placed high value on enjoyment and fun were less likely to use achieving or deep learning methods. Evidence from previous research indicates that hedonistic values tend to be negatively associated with the use of effective learning approaches. Specifically, students who value enjoyment and pleasure highly are less prone to employing strategies focused on academic achievement. However, Koscielniak & Bojanowska (2019) found a significant positive correlation between hedonism and tendencies towards academic dishonesty, moderated by academic performance.

Conversely, as outlined earlier, Chinese college students exhibiting higher levels of learning engagement also show a stronger association with the value of hedonism. This observation supports the idea that hedonism serves as a key element in the engagement of effective learners. From a psychological perspective, this phenomenon can be attributed to the idea that students engage in learning not merely for external rewards, but for the intrinsic enjoyment it brings. Often, intrinsic motivation is related to the psychological phenomenon known as flow, a state where an individual is so engaged in an activity that they become oblivious to the passage of time, any feelings of fatigue, and everything outside the activity itself.

7. CONTRIBUTIONS AND LIMITATIONS

This study makes several contributions in the following aspects. First, this study enriches the literature on exploring college students' learning engagement characteristics and values characteristics in Chinese culture. This study broadens current comprehension of relationships between levels of learning engagement and the value preferences of college students and distinguishes the value preferences between those with high levels of engagement and those with lower levels. Furthermore, it sheds light on upper-level learning engagement students assigned more importance to the following values, such as social focus, benevolence, and hedonism. his understanding could inspire college educators and administrators to enhance students learning engagement and performance through values-based approaches.

Despite these contributions, this study also has several limitations. First, the participants in our study are all first-year college students majored in foreign languages in a private higher learning institution in Northeast China. When extrapolating the findings to different cultural contexts or developmental stages, caution should be used. Second, the current study demonstrates that the exploratory factor analysis on UWES-S and PVQ-21 scales is a valid method for assessing degrees of learning engagement and values characteristics among Chinese college students. Influenced by the cultural and societal norms of China, students may interpret certain items in the UWES-S and PVQ-21 scales differently, potentially impacting the scores of these items in the Chinese-language versions of the scales. Subsequent studies may delve deeper into the disparities in the interpretation of individual items on the scale between Chinese individuals and those from other countries. This investigation has the potential to improve the relevance of the Chinese iteration of the scale within China and to ensure its precision in capturing learning engagement levels and individual values characteristics of Chinese college students.

8.CONCLUSION

To summarize, our study reveals that Chinese college students majored in foreign languages exhibit varying levels of learning engagement, which in turn influences their prioritization of "Social Focus", "Openness to Change", and "Self-Enhancement" values. One significant finding from the study is that students with upper-level learning engagement place greater emphasize on "Social Focus" values, "Openness to Change" values, benevolence, and hedonism. Through a detailed examination of the correlation between learning engagement and individual values, this study offers recommendations for future research aimed at investigating the potential of values education to improve student engagement.

Conflict of Interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Author Contributions

All authors listed have made a substantial, direct and intellectual contribution to the work, and approved it for publication.

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