

# Cognitive Schema to Interests for English Learning of Net-Generation College Students: A Basis for English Teaching Design in Sichuan Province, China

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**Abstract:** This study explores the impact of cognitive schemas on English learning interests among college students in Sichuan Province, China. Despite the critical role of English in providing academic and professional opportunities in a globalized economy, many students face challenges such as basic comprehension issues and lack of engagement, often exacerbated by an exam-centric education system. By applying schema theory, the research investigates how language, content, and formal schemas influence students' English learning interests. Utilizing a quantitative approach, data was gathered from 380 students through questionnaires and analyzed using statistical methods. The findings reveal gaps in language schema proficiency and low engagement in English learning, suggesting a need for personalized, interactive teaching strategies. The study provides insights into effective pedagogical practices tailored to the needs of Net-Generation students.

**Keywords:** Cognitive Schemas; English Learning Interests; Net-Generation; Educational Strategies.

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## 1. Introduction

The importance of English Learning in China cannot be overstated. In the dynamic landscape of global communication and collaboration, proficiency in the English language has become an indispensable skill, especially for college students in China. The urgency to cultivate English language proficiency among this demographic stems from the recognition that English is not merely a subject of study but a gateway to a myriad of opportunities, both academically and professionally.

China's rapid integration into the global economy has heightened the demand for individuals who can navigate the complexities of international communication. English serves as the lingua franca in many academic and professional settings, making it imperative for college students to develop a strong command of the language. The ability to communicate effectively in English opens doors to a wealth of knowledge, diverse perspectives, and collaborative opportunities with peers and professionals from around the world.

Moreover, as the world becomes increasingly interconnected, proficiency in English is a key factor in fostering cultural understanding and promoting cross-cultural dialogue. College students equipped with strong English language skills are better positioned to engage in global conversations, contributing to a more inclusive and interconnected world.

In 2023, The "White Paper on Internationalized Talent Cultivation in China 2023," researched and written by the project team from the Center for China and Globalization (CCG), was officially released recently at the "International Talent Cultivation and Development Forum" co-hosted by the CCG and ETS China. Based on research and analysis, this report has constructed a framework for the international communication literacy of international talent, including three levels: emotional core, cognitive basis, and behavioral

elements. The emotional core is the foundation and prerequisite of international communication literacy, including two important elements: national identity and global concern. The cognitive basis is the bridge connecting the emotional core and behavioral elements, including foreign language knowledge and skills, world knowledge and global issues, professional knowledge and skills, and information technology knowledge and skills. Behavioral elements are the external manifestations of the emotional core and cognitive basis, which can promote the formation of the emotional core and cognitive basis, including two forms: deep understanding and effective expression.

Net-generation college students, often referred to as Generation Z, exhibit distinctive characteristics shaped by their upbringing in an era of rapid technological advancement. Born into a digitally connected world, these students are characterized by their inherent comfort with technology, a penchant for digital communication, and a natural aptitude for multitasking. They value instant access to information, exhibit a preference for visual and interactive content, and tend to approach learning in a collaborative and participatory manner. Additionally, their worldview is shaped by a global perspective, as they effortlessly navigate diverse cultures and perspectives through online platforms.

As an English teacher, the researcher is working in a private college where courses in comprehensive English and English interpreting are taught. Currently pursuing doctoral studies in the Advanced Philosophical Foundation of Education program, the impact of Jean Piaget's schema theory on the cognitive development of college students, particularly those of the net generation, is under investigation. The proposed thesis aims to explore the potential impact of cognitive schema on English learning interests and its implications for English teaching in China. This study seeks to contribute insights into how the interests of net-generation college students are influenced by the adaptation cognitive schema, laying the groundwork for the design of effective and

engaging English teaching strategies for in college in the future.

At Polus International College (PIC), where the researcher has been teaching English for the past five years, students face a persistent challenge in effectively communicating in English. Despite the institution's dedication to English language instruction and the implementation of various policies aimed at fostering English talent, students often struggle with comprehending English in context, hindering their overall proficiency. This challenge persists despite students' familiarity with individual words. This experience highlights the significance of involving students and sparking their interest in learning English. Effective teaching practices are crucial for educational success in all fields. Therefore, the researcher has decided to concentrate the research on English language instruction. The research aims to uncover insights into the factors that motivate students to engage with English learning. This will inform the development of more effective teaching approaches tailored to the diverse needs of students, ultimately empowering them to excel in their English language journey.

Also this research is based on the emotional need of college students. In Chinese education system nowadays, which emphasizes "grades-oriented" and places greater emphasis on exam results than the learning process, an increasing number of schools and teachers are driven by impatience for quick results. This has resulted in a situation where some students experience long-term learning difficulties, high academic pressure, severe anxiety and even dislike of learning. For various reasons, including their grades and individual circumstances, these students end up choosing to attend junior colleges. Among them, there are many who have developed a strong aversion to English learning. According to a study by (He, 2019), which is the latest study on cultural knowledge and learning ability requirements for college students, 10% of students entering college schools cannot even recognize the 26 English letters, while 38.63% have not achieved the English proficiency level of primary school graduates. 66.67% of students only reach seventh-grade level, and over 67% of students, even after completing all the courses in junior high school, still have a low English proficiency level, which indicates that their interest in learning is worrying.

Many of these students share common characteristics. Firstly, they lack ideals, wander aimlessly, and lack motivation and interest in learning. Secondly, they lack perseverance, are inclined to idleness, and lack the spirit to overcome difficulties. Thirdly, they are sensitive, with their self-esteem and confidence severely damaged, and tend to be passive and rebellious. Fourthly, they are not good at interpersonal communication, are self-contained, lack good companionship, have no sense of negotiation or unity. Fifthly, they long to be cared for, appreciated, and treated fairly, and to be respected by others. These common characteristics are partly due to the fact that college students are in a period of intense physical and psychological turmoil, and their cognitive, emotional, and psychological development is influenced and constrained by the laws of physical growth. Another reason is that they lack guidance and stimulation from parents and teachers in academic and emotional aspects for a long time. From the author's personal experience, the second and fifth points are the most typical factors influencing students' learning interests. Therefore, the choice of learning content is also crucial.

The complexity of college students' learning situation

clearly increases the difficulty of college English teaching for instructors, and the effectiveness of English teaching is far from ideal. Facing a field full of weeds, as initiators and pioneers, the first thing that comes to mind is water and sunshine. However, facing a group of children who are still in their youth but have been emotionally hurt, the first idea should be to provide them with care, encouragement, and help. This determines that college teachers should not only impart knowledge and dispel doubts, but also provide students with understanding, care, and support that they have lacked for a long time, help students build self-confidence, encourage and affirm them, eliminate the fear and dislike of English learning, remove emotional barriers, correctly guide and stimulate their interest in English learning, and make English proficiency a bonus code for future work and life.

"Love what you do, and you'll never work a day in your life." Most college students lack or even have no interest in learning English. Teachers face a group of students who have no interest in learning, which is like holding a hot potato and not knowing where to start. The key to opening the door to students' learning interest lies in teachers' emotions. Emotional smoothness is a prerequisite for learning. Only with unobstructed channels can the energy flow continuously. As the saying goes, smooth flow brings success. In the researcher's observation during the teaching process, different English teachers' classes involve different attitudes, levels of engagement, and performance in English learning among students. Therefore, the researcher intends to explore the current status of college students' interest in learning English and the emotional involvement of college English teachers through quantitative research. Additionally, this research aims to investigate the relationship between the emotional investment of college English teachers and students' interest in learning English, in order to provide teachers with suggestions and strategies for improving the current status of college students' interest in learning English. In future English teaching work, by stimulating students' interest in learning English, further improvements might be achieved in bettering the effectiveness of college English teaching, enhancing the sense of happiness and achievement for college teachers in teaching English, and promoting the improvement of college students' English proficiency.

Schema theory, centered around the mechanisms of learning, holds significance in the realms of cognition and psychology, making it a philosophical inquiry into how individuals perceive the world. (Bartlett, 1932), a pioneer in this field, introduced schema theory in his seminal work, "Remembering," where he investigated story recall. Bartlett's research challenged the notion that remembering is a mere reproductive process, asserting instead that individuals retain the overall essence of an event and subsequently reconstruct details based on this overall impression.

Piaget, a key figure in psychological theory, focused on the cognitive development of individuals. His work emphasized that he studied knowledge itself, distinct from practical applications or actions. Piaget conceptualized schema as the form or structure of knowledge, with the incorporated object representing the content of knowledge (Kitchener, 1986, p. 20). In the late 1960s and early 1970s, Piaget extensively examined children's cognitive development.

The application of schema theory expanded, particularly in the fields of reading (Cook, 1994), artificial intelligence (AI) (Arbib et al., 1987), and further into language learning and teaching (Anderson, 1988; Carroll, 1999). Post-2023, various

studies have contributed to the application of schema theory in English teaching and learning in China, with a focus on areas such as translation (Zhang Fuxiao, 2021; An, Ying, & Han, Ying, 2023), reading (Cheng & Wang, 2021; Li, 2022), and listening (Zhang, 2019; Lei, 2022).

Students play a crucial role in the learning process, and learning interest is a vital intrinsic factor that sparks their learning motivation. Despite the rich body of research on schema theory and its application in English teaching, the exploration of the connection between schema theory and learners' learning interests is still in its early stages. This study addressed this research gap by delving into the correlation between the three types of schemas and students' interests so as to lay a basis for English teaching design in colleges in China.

## 2. Statement of the Problem

This study delved into the influence of cognitive schema to net-generation college students' English learning interests towards a proposed development of teaching design for college teaching in English course for schools in China

Specifically, it answered the following problems:

- (1) What is the profile of student respondents in terms of:
  - 1) age,
  - 2) sex,
  - 3) major/ specialization, and
  - 4) year level ?
- (2) What is the assessment of the student respondents on the indicators of Cognitive Schema in terms of:
  - 1) language schema,
  - 2) content schema, and
  - 3) formal schema?
- (3) Is there a significant difference in the student respondents' assessment of Cognitive Schema when the respondents' profile is taken as a factor?
- (4) What is the assessment of the student respondents on level of net-generation College Students' English Learning Interests in terms of:
  - 1) English learning content preference,
  - 2) extensiveness of English learning methods,
  - 3) stability of attention in English learning, and
  - 4) self-efficacy in English learning?
- (5) Is there a significant difference in the assessment among the respondent students on the levels of Net-generation College Students' English Learning Interests when the profile is taken as a factor?
- (6) Is there any relationship between the assessed Cognitive Schema and Net-generation College Students' English Learning Interests?
- (7) Based on the result, what teaching design framework/ model may be proposed to improve English instruction in China ?

## 3. Hypothesis

This study tested the following null hypothesis of 0.05 level of significance:

Ho1. There is no significant difference significant difference in the student respondents' assessment of Cognitive Schema when their profile is taken as a factor when the profile is taken as a factor.

Ho2. There is no significant difference in the assessment among the respondent students on the levels of Net-generation College Students' English Learning Interests when

their profile is taken as a factor when the profile is taken as a factor.

Ho3. There is no significant relationship between the assessed Cognitive Schema and Net-generation College Students' English Learning Interests.

## 4. Scope and Delimitation

The primary aim of this research is to investigate the impact of cognitive schema, specifically focusing on language schema, content schema, and formal schema, on the English learning interests of Net-generation college students in China. The study was conducted in Sichuan Province, targeting three colleges: Sichuan Engineering Technical College, Sichuan Vocational College of Cultural Industries, and Polus International College. The respondents of the study consist of Net-generation college students within these institutions. Their participation is on voluntary basis.

In examining the influence of cognitive schema on English learning interests, the study explored various aspects, including reading, listening, speaking, and writing activities. The variables under consideration encompass language schema, content schema, and formal schema. The indicators or measures involved the identification of patterns and preferences related to cognitive schema in different language learning activities. The population of interest is Net-generation college students within Sichuan Province, while the specific respondents were volunteer students from the aforementioned colleges and were randomly drawn.

The data-gathering process involved comprehensive examinations of English learning interests through surveys, interviews, and observations. The venue for data collection was the selected colleges in Sichuan Province, and the study spanned a specified period, taking place within the academic year (2023-2024 academic year, second semester and 2024-2025 academic year, first semester).

Due to constraints in energy and time, the study is confined to Sichuan Province, and the findings may not be generalizable to other regions. Additionally, the focus on three specific colleges, although carefully selected to represent different levels of China's higher education system, may not capture the full diversity of English learning interests across all college settings in the country. These limitations are crucial to consider in interpreting and applying the results of the study.

Limitations of the study related to schema observation and questionnaire administration can be discussed as delimitations that may impact the research findings and interpretations. These limitations include the subjectivity inherent in the observation of cognitive schemas, which relies on subjective interpretation and may introduce bias into the analysis. Moreover, the generalizability of the findings may be limited due to the restricted scope of observation caused by time and resource constraints. Additionally, the use of questionnaires to evaluate learning interests and cognitive processes may be susceptible to response biases, such as social desirability or acquiescence bias, which could impact the validity of the collected data. Additionally, it is important to note that the sample recruited for the questionnaire may not be fully representative of the diversity of Net-generation college students, which could limit the generalizability of the findings. Furthermore, self-reporting limitations and potential language barriers in questionnaire responses could further compound these challenges, which could impact data quality and validity. Acknowledging these limitations as

delimitations is crucial for providing transparency and context for the research findings, allowing for a more nuanced interpretation and identification of areas for future research improvement.

## 5. Methodology

This chapter explains the research design, sampling method, the research instrument, data collection procedure, and data analysis method to be applied as well as ethical consideration.

### 5.1. Research Design

This study employed a quantitative research method approach to systematically depict the facts and characteristics of a specific population or area of interest, ensuring accurate and factual representation. Specifically, a descriptive-comparative-correlational research design was employed to accumulate a comprehensive database for a detailed portrayal of a particular situation, event, or entity.

This study adopts the descriptive-comparative-correlational research design as the main method to assess cognitive schema using a questionnaire to test scores and assesses the level of English learning interest with a preliminary Likert scale with 4-point scale options. Afterward, faculty members are invited to conduct in-depth interviews to learn about the students' cognitive characteristics.

The descriptive survey study is conducted with the objective of collecting in-depth, factual data to depict current phenomena accurately. Its goals include identifying issues, providing justification for current conditions and practices, conducting comparisons and evaluations, and drawing lessons from those who have encountered similar problems or situations. Through the collection and analysis of data, the study seeks to contribute valuable insights to future planning and decision-making processes, utilizing the experiences and perspectives of others.

Specifically, the descriptive-comparative-correlational approach was utilized to ascertain the connection between the two variables under examination among Net-generation college students, namely, the cognitive schema and their English learning interests.

### 5.2. Research Locale

This study was conducted in three colleges in Sichuan Province, China: Sichuan Engineering Technical College, Sichuan Vocational College of Cultural Industries, and Polus International College, as they represent different levels of colleges in both the public and private sectors.

Sichuan Engineering Technical College is a public full-time general higher education institution affiliated with the Sichuan Provincial Department of Economy and Information Technology. Located in Deyang City, the college boasts a picturesque campus of over a thousand acres, known for its harmonious and united academic atmosphere. Established in 1960, the college adheres to the principle of "establish the school before the factory," closely collaborating with heavy equipment enterprises to cultivate highly skilled technical talents adaptable to modern industry needs. Committed to integrated education, innovative teaching methods, and close industry collaboration, the college has excelled in fields such as mechanical design, metal materials, and intelligent equipment. It has emerged as one of China's leading high-level vocational institutions.(source: the official website of SETC: <https://www.scetc.edu.cn/>)

Sichuan Vocational College of Cultural Industries is also

called Sichuan Cadre Correspondence College. Cadre College, founded in 1985, and Cultural Industry College, established in 2006, have independently evolved into two entities with a unified leadership team. Cadre College originated from the response to the "Four Modernizations" policy for cadre education, while Cultural Industry College, the first publicly named college after the cultural industry in China, has grown into a key provincial vocational institution. The schools have contributed significantly to cadre training, correspondence education, and cultural industry development in Sichuan. They currently operate independently, embodying a two-entity, two-name, and unified management model. (source: the official website of SVCCI <https://www.svcci.cn/>)

Polus International College is established in 1993, guided by the philosophy of "enhancing the quality of life through beauty and health," is committed to cultivating high-quality, skilled professionals. The college consists of five secondary schools: School of Health and Medicine, School of Art & Design, School of Management & Digital Economy, School of Humanities & Education, and School of Sports & Tourism. Offering 49 majors, the college has nearly ten thousand students and around 600 dual-qualified teachers. Dedicated to promoting traditional Chinese virtues, the college has built an international education platform through collaborations with renowned international institutions. It focuses on enhancing its academic programs, aiming to become a high-level private college with international standards and distinctive Chinese cultural characteristics. Over the past 30 years, the college has emphasized research, optimized its faculty, actively engaged in international cooperation and competitions, and successfully nurtured a significant number of outstanding talents.(source: the official website of PIC: <https://www.polus.edu.cn/page/5>)

## 6. Results and Discussion

In this chapter, the findings from the survey and data collection are presented. This is followed by a comprehensive discussion that elucidates and establishes the relationships between these results and the study's objectives, as well as their connections to existing research.

### (1) Demographic Profile of the Respondents

After having completed the data gathering process for the study using questionnaire which is attached in the appendices, the results present information garnered from 380 respondents.

**Table 1.** Demographic Profile of the Respondents (n=380)

Demographic Profile	Categories	Frequency	Percentage
Sex	Male	184	48.40
	Female	196	51.60
	Total	380	100.00
Age	18-19 years old	131	34.50
	20-22 years old	115	30.30
	22 years old and above	134	35.30
	Total	380	100.00
Major	English Major	308	81.10
	Non- English Major	72	18.90
	Total	380	100.00
Year Level	Grade 1	116	30.50
	Grade 2	131	34.50
	Grade 3	133	35.00
	Total	380	100.00

Table 1 provides a comprehensive demographic profile of the respondents, categorized by sex, age, major, and year level.

The sex distribution of respondents in this study is nearly evenly split, with females slightly outnumbering males, comprising 51.60% (196 individuals) of the sample, while males account for 48.40% (184 individuals). This nearly equal distribution suggests a balanced representation of genders, which is crucial for ensuring that the findings are not biased towards one gender and can be generalized across both male and female college students in Sichuan Province. The balanced sample allows for the effective exploration of any gender-specific differences or similarities in cognitive schemas and interests for English learning, providing insights that can inform tailored teaching strategies. Such a balanced representation underscores the importance of inclusivity in educational research and the need to design equitable English teaching programs. Moreover, this distribution enhanced the reliability and validity of the research findings, suggesting that the results and recommendations are likely applicable to a broader population of college students in the region. This balanced distribution also paves the way for further research into the nuances of gender influences on cognitive schemas and learning interests, thereby contributing to the optimization of English language education for diverse student groups.

In terms of age, the respondents are fairly evenly distributed across three categories. Those aged 18-19 years make up 34.50% of the sample, with a frequency of 131 individuals. Respondents aged 20-22 years represent 30.30% (115 individuals), while those aged 22 years and above constitute the largest age group, comprising 35.30% (134 individuals). This distribution indicates a slight predominance of older respondents within the surveyed group, providing a comprehensive age representation that enhances the robustness of the study's findings. This diversity in age groups allows for a more nuanced analysis of age-related differences in cognitive schemas and interests in English learning, ensuring that the study's conclusions are relevant to a broad range of college students (Zhang, 2022). The balanced age distribution is vital for identifying trends and patterns across different age brackets, contributing to the development of age-appropriate and effective English teaching strategies.

Examining the major of the respondents, a significant majority, 81.10%, are English majors, with a frequency of 308 individuals. This contrasts with the 18.90% of respondents, or 72 individuals, who are non-English majors. This substantial difference highlights the predominance of English majors in the respondent pool. This skewed distribution suggests that the survey primarily reflects the perspectives and experiences of English majors, which may influence the findings. The predominance of English majors could be attributed to the focus of the survey or the ease of access to these respondents. Additionally, English majors may have a higher intrinsic motivation to engage in academic research, especially if it aligns with their interests in reading, writing, and critical analysis. They might also perceive greater benefits from participating, such as gaining insights related to their field, receiving extra credit in courses, or enhancing their resumes with research participation (Shi, 2022). The recruitment methods used may have been more effective among English majors, possibly through departmental channels or course-related activities. Furthermore, professors and instructors in the English department might have actively encouraged or required participation as part of coursework or for extra credit.

The year level distribution among the respondents shows a relatively even spread, ensuring diverse representation across different academic stages. Specifically, Grade 1 constitutes 30.50% of the sample (116 individuals), Grade 2 makes up 34.50% (131 individuals), and Grade 3 accounts for 35.00% (133 individuals). This balanced distribution provides comprehensive representation, enabling the identification of trends and patterns that may vary according to academic progression. The inclusion of students from all grades mitigates bias, ensures reliable findings, and captures a wide range of perspectives from those just beginning their academic journey to those who are more advanced, enriching the overall analysis and offering a fuller picture of the student body's academic and social dynamics.

Overall, the demographic profile of the respondents in the study reveals a balanced distribution across various categories, providing a comprehensive overview for analysis. The sample consists of 380 individuals, with a nearly equal representation of males (48.40%) and females (51.60%). Age-wise, the respondents are fairly distributed among three groups: 18-19 years old (34.50%), 20-22 years old (30.30%), and those above 22 years old (35.30%). The majority of respondents are English majors (81.10%), with a smaller portion being non-English majors (18.90%). In terms of academic year level, the distribution is quite even, with Grade 1 students making up 30.50%, Grade 2 students 34.50%, and Grade 3 students 35.00%. This balanced demographic profile ensures diverse perspectives and a solid foundation for the study's findings.

## (2) Assessment of the Student Respondents on the Indicators of Cognitive Schema

Another important aspect that this study focuses on is the assessment on cognitive schema of the student respondents. Three indicators- language schema, content schema and formal schema is assessed. The relevant data on the evaluation of these categories are presented in the following tables.

### 1) Language Schema

**Table 2.** Assessment of Cognitive Schema – Language Schema

Construct	Right	%	Wrong	%
Understanding Pragmatic Language Use	277	72.89	103	27.11
Interpreting Conditional Sentences	305	80.26	75	19.74
Suggesting Alternative Solutions in Conversation	112	29.47	268	70.53
Using Conditional Language for Future Events	17	4.47	363	95.53
Identifying Metaphorical Language	292	76.84	88	23.16
Understanding Past Conditional Sentences	86	22.63	294	77.37
Distinguishing Pronunciation Variations	87	22.89	293	77.11
<b>Language Schema</b>	<b>Mean = 3.09</b>		<b>SD = 1.21</b>	
	<b>44.14% (Average/Less Adaptation)</b>			

Legend: 80%-100% Excellent/Strong Adaptation, 55%-75% Above Average/Good Adaptation, 30%-50% Average/Less Adaptation, 0%-25% Below Average/Weak Adaptation.

Table 2 presents an assessment of cognitive schema specifically related to language schema, detailing the performance of respondents across various constructs.

The highest performance areas include interpreting

conditional sentences, with 305 respondents (80.26%) answering correctly. This indicates a strong understanding of conditional sentences among the respondents. Similarly, understanding pragmatic language use also saw high performance, with 277 respondents (72.89%) providing correct answers. This shows proficiency in the practical use of language across different contexts. Additionally, identifying metaphorical language was another strong area, with 292 respondents (76.84%) demonstrating their ability to recognize and understand metaphors.

On the other hand, significant difficulties were observed in using conditional language for future events, with only 17 respondents (4.47%) answering correctly. This indicates substantial challenges in discussing future events using conditional language. Another area of struggle was suggesting alternative solutions in conversation, where only 112 respondents (29.47%) provided correct answers, highlighting a challenge in proposing different solutions during discussions. Understanding past conditional sentences also posed difficulties, with just 86 respondents (22.63%) answering correctly, suggesting challenges in this area. Similarly, distinguishing pronunciation variations was problematic, with only 87 respondents (22.89%) answering correctly, indicating difficulties in recognizing and distinguishing different pronunciation variations.

The statistical summary reveals a mean score for language schema constructs of 3.09, with a standard deviation of 1.21. Overall, 44.14% of respondents are at an average or lower level of adaptation in language schema. This performance level indicates that nearly half of the respondents struggle with various aspects of language schema, suggesting areas that require targeted improvement.

To address these weaknesses, targeted practice and training are recommended. Developing specific exercises focused on using conditional language for future events and past scenarios can help improve comprehension. Providing more examples and practical applications to help students suggest alternative solutions during conversations is also crucial (Wang, 2023). Additionally, including phonetic training and pronunciation exercises can enhance the ability to distinguish pronunciation variations.

Interactive learning methods can make the learning process more engaging and effective (Wang, 2023). Using tools such as role-playing, group discussions, and language games can encourage students to practice language skills in real-life contexts, thereby improving their pragmatic language use. Regular assessments and feedback are essential to monitor progress and identify areas needing further improvement. Providing constructive feedback and personalized learning plans can address individual student needs and enhance overall language schema proficiency.

## 2) Content Schema?

Table 3 provides an assessment of cognitive schema, focusing on respondents' understanding of cultural symbols, greeting customs, color symbolism, gestures, and business card etiquette.

The construct with the highest correct response rate is the symbolism of colors in Chinese culture, with 328 respondents (86.32%) answering correctly. This indicates a strong understanding of the cultural significance of colors among the respondents. Similarly, a high percentage of correct responses was observed for the symbolism of colors in Western weddings, where 301 respondents (79.21%) demonstrated their knowledge of this cultural aspect.

**Table 3.** Assessment of Cognitive Schema – Content Schema

Construct	Right	%	Wrong	%
Understanding Cultural Symbols in Chinese Culture	41	10.79	339	89.21
Greeting Customs in Different Cultures	17	4.47	363	95.53
Symbolism of Colors in Chinese Culture	328	86.32	52	13.68
Symbolism of Colors in Western Weddings	301	79.21	79	20.79
Gestures for Approval in Western Cultures	53	13.95	327	86.05
Gestures for Conveying "Stop" in Western Cultures	270	71.05	110	28.95
Business Card Etiquette in Western Cultures	82	21.58	298	78.42
<b>Content Schema</b>	<b>Mean = 2.87</b>		<b>SD = 0.86</b>	
	<b>41.00% (Average/Less Adaptation)</b>			

Legend: 80%-100% Excellent/Strong Adaptation, 55%-75% Above Average/Good Adaptation, 30%-50% Average/Less Adaptation, 0%-25% Below Average/ Weak Adaptation.

Gestures for conveying "stop" in Western cultures also saw a relatively high correct response rate, with 270 respondents (71.05%) answering correctly. This suggests that the respondents are fairly familiar with common gestures used in Western cultures to indicate stopping or having had enough.

On the other hand, the understanding of greeting customs in different cultures showed the lowest performance, with only 17 respondents (4.47%) answering correctly. This indicates significant difficulty in this area, highlighting a need for better understanding of cultural differences in greetings. Understanding cultural symbols in Chinese culture also posed a challenge, with only 41 respondents (10.79%) answering correctly. This low percentage suggests that many respondents struggle with recognizing and understanding these cultural symbols.

Gestures for approval in Western cultures and business card etiquette in Western cultures also had low correct response rates, with 53 respondents (13.95%) and 82 respondents (21.58%) respectively. These results indicate areas where the respondents may lack familiarity with specific cultural practices. Overall, the mean score for the cognitive schema constructs is 2.87 with a standard deviation of 0.86.

The data from Table 3 illuminates the depth of understanding that Net-Generation college students in Sichuan Province have regarding various cultural norms and symbols, which are critical for effective cross-cultural communication. The highest proficiency demonstrated in color symbolism in Chinese culture underscores the inherent cultural knowledge that persists among these students. This could be attributed to the pervasive influence of cultural education in local settings or familial and social reinforcements.

Conversely, the low correct response rates for greeting customs across different cultures highlight a significant educational gap. This is a critical finding as greetings are fundamental to initiating communication and can shape the trajectory of interpersonal and professional relationships. The data suggests that despite globalization and increased exposure to diverse cultures through media and technology, practical understanding of these nuances remains limited.

The understanding of gestures also presents an interesting

dichotomy; while gestures for "stop" in Western cultures were relatively well-understood, gestures for approval and the specifics of business card etiquette in Western contexts lagged considerably. This could indicate that more observable or universally understood gestures are more easily grasped by students, whereas subtler cultural practices, which might be less frequently encountered or discussed, remain obscure (Yue, 2022).

By addressing these educational needs, English teaching in Sichuan Province can evolve to not only improve language proficiency but also to foster a comprehensive understanding of the cultural dimensions that influence communication. This holistic approach will better prepare students for the challenges of global interactions in their academic and professional futures.

### 3) Formal Schema

**Table 4.** Assessment of Cognitive Schema – Formal Schema

Construct	Right	%	Wrong	%
Knowledge of Cultural Symbols	92	24.21	288	75.79
Cultural Greeting Customs	380	100.00	0	0.00
Color Symbolism in Chinese Culture	380	100.00	0	0.00
Color Symbolism in Western Weddings	32	8.42	348	91.58
Gestures for Approval in Western Cultures	102	26.84	278	73.16
Gestures for Conveying "Stop" in Western Cultures	97	25.53	283	74.47
<b>Formal Schema</b>	<b>Mean = 2.61</b>		<b>SD = 0.67</b>	
	<b>43.50% (Average/Less Adaptation)</b>			

Legend: 80%-100% Excellent/Strong Adaptation, 55%-75% Above Average/Good Adaptation, 30%-50% Average/Less Adaptation, 0%-25% Below Average/ Weak Adaptation.

Table 4 presents an assessment of cognitive schema focusing on formal schema constructs, evaluating respondents' knowledge of cultural symbols, greeting customs, color symbolism, and gestures.

The constructs with the highest correct response rates are cultural greeting customs and color symbolism in Chinese culture. Both constructs had all respondents, 380 individuals, answering correctly, achieving a perfect 100.00%. This indicates a strong understanding and familiarity with these formal schema constructs among the respondents.

Knowledge of cultural symbols also showed a relatively good performance, with 92 respondents (24.21%) answering correctly. While this is not as high as the previous constructs, it still demonstrates a reasonable level of understanding among a significant portion of the respondents.

Conversely, color symbolism in Western weddings had one of the lowest correct response rates, with only 32 respondents (8.42%) answering correctly. This suggests a significant challenge for the respondents in understanding this particular formal schema.

Gestures for approval in Western cultures and gestures for conveying "stop" in Western cultures also had low correct response rates, with 102 respondents (26.84%) and 97 respondents (25.53%) respectively. These results indicate areas where the respondents may lack familiarity with specific formal cultural practices.

Overall, the mean score for the formal schema constructs is 2.61 with a standard deviation of 0.67. The overall performance indicates that 43.50% of the respondents are at an average or lower level of adaptation in formal schema.

This detailed assessment highlights the strengths and weaknesses of the respondents in various aspects of formal schema, providing insights into areas that may require further focus and improvement. Enhanced cultural exposure and interactive learning approaches, such as targeted cultural studies courses, virtual reality simulations, and practical role-playing exercises, could address the noted gaps (Yang, 2023). Additionally, robust cross-cultural exchange programs and regular assessments with detailed feedback could help bridge the understanding of Western cultural practices (Mao & Xu, 2022). Training educators with innovative teaching methodologies for cultural education is also critical for effective transmission of this knowledge, preparing students to navigate and succeed in multicultural and international environments.

### 4) Summary Table

**Table 5.** Summary of Cognitive Schema

Domains	Mean	SD	Descriptor/Interpretation	Rank
Language Schema	3.09	1.21	Average/Less Adaptation	1
Cognitive Schema	2.87	0.86	Average/Less Adaptation	2
Formal Schema	2.61	0.67	Average/Less Adaptation	3
<b>Cognitive Schema</b>	<b>8.58</b>	<b>1.64</b>	<b>Average/Less Adaptation</b>	-

Table 5 provides a summary of cognitive schema, encompassing three distinct domains: Language Schema, Cognitive Schema, and Formal Schema. Each domain is evaluated based on its mean score, standard deviation, interpretation, and rank.

Language Schema exhibits the highest mean score of 3.09 with a standard deviation of 1.21. This domain is interpreted as "Average/Less Adaptation" and ranks first among the assessed domains. The relatively higher mean indicates that respondents have a moderate level of adaptation and understanding in the aspects of language schema, though there is still room for improvement. This implies that they may have a relatively strong foundation in language-related cognitive processes such as vocabulary acquisition, grammar rules, and language use in context. For teaching design, leveraging this strength could involve reinforcing language schema through interactive and communicative activities that emphasize real-world language application. Incorporating authentic materials and cultural references can further enhance students' grasp and application of language schema.

Content Schema follows with a mean score of 2.87 and a standard deviation of 0.86, also interpreted as "Average/Less Adaptation." This domain ranks second. The mean score suggests that respondents have a similar level of adaptation in content schema, reflecting an average performance in comprehending and applying content constructs. This suggests a need for teaching approaches that foster critical thinking, problem-solving, and abstract reasoning skills. Strategies such as case-based learning, collaborative projects, and inquiry-based activities can help students deepen their cognitive schema by encouraging them to connect new information with existing knowledge frameworks. Moreover, incorporating technology-enhanced learning tools and

simulations can provide experiential learning opportunities that stimulate content schema development.

Formal Schema has the lowest mean score of 2.61 with a standard deviation of 0.67, maintaining the "Average/Less Adaptation" interpretation and ranking third. This lower mean score indicates that respondents face more challenges in understanding and applying formal schema constructs compared to the other domains. Addressing this gap in teaching design involves providing explicit instruction on formal schema elements, including guidance on academic writing conventions, citation styles, and disciplinary-specific formats. Scaffolded assignments, peer review activities, and writing workshops can assist students in developing proficiency in formal schema, thereby enhancing their academic communication skills.

The cumulative score for Cognitive Schema, calculated as the sum of the three individual domains, is 8.58 with a standard deviation of 1.64. This aggregate score reinforces the overall interpretation of "Average/Less Adaptation," highlighting that while respondents exhibit some level of understanding across the domains, there is a consistent need for improvement in adapting and applying these cognitive schemas effectively. Therefore, a holistic teaching design should integrate strategies that support the development of all three cognitive schema domains. This could include interdisciplinary approaches that connect language learning with cognitive development, collaborative learning environments that promote peer interaction and feedback, and reflective practices that encourage students to evaluate and refine their understanding of cognitive schema over time (Xie, 2022).

Overall, the table succinctly captures the comparative performance of respondents across the three cognitive schema domains, providing clear insights into areas of strength and those requiring further development.

## 7. Conclusion

Based on the findings and their synthesis, the study drew the following conclusions:

(1) The demographic profile of the 380 respondents in this study reflects a diverse and balanced sample across various categories. With nearly equal representation of genders and a comprehensive distribution across age groups, academic majors, and academic year levels, the findings are robust and applicable to both male and female college students in Sichuan Province. This inclusive approach enhances the study's generalizability, allowing for a nuanced exploration of how cognitive schemas and English learning interests vary across different demographic backgrounds within the student population.

(2) The assessment of cognitive schemas among respondents reveals a mix of strengths and challenges across language, content, and formal domains. In language skills, students excel in interpreting conditional sentences, pragmatic language use, and identifying metaphorical language, yet face difficulties in using future and past conditional language. A significant proportion exhibit an average or lower level of adaptation, indicating a need for targeted strategies such as specific exercises and phonetic training. In cultural understanding, while there is strong knowledge of Chinese color symbolism and Western wedding colors, challenges persist in greeting customs, Chinese cultural symbols, approval gestures, and Western business card etiquette. Similarly, in formal schema, familiarity is high

with cultural greeting customs and Chinese color symbolism, but moderate for cultural symbols and Western color symbolism, with notable challenges in approval and "stop" gestures. To enhance students' learning, it is essential to strengthen the teaching of language schema by focusing on the use of future and past conditional sentences, as well as improving phonetic skills and pragmatic language use. For content schema, more emphasis should be placed on cross-cultural elements, such as greeting customs, approval gestures, Chinese cultural symbols, and Western business card etiquette. In terms of formal schema, additional instruction on cultural symbols and Western color symbolism is needed, along with further clarification of approval and "stop" gestures to improve intercultural competence. These findings underscore the necessity for enhanced educational strategies that integrate language development, collaborative learning, and reflective practices to bolster intercultural competence and language proficiency among college students in Sichuan Province.

(3) That the cognitive schema perceptions among participants that reveal uniform perceptions has a minimal impact. This consistency may be linked to limited exposure to English courses, as most students have restricted access to English, which diminishes the influence of factors such as sex, age differences, and grade level on these perceptions. In contrast, English majors demonstrate higher cognitive schema levels in language and content compared to non-English majors, likely due to their greater exposure to comprehensible input. Therefore, it can be inferred that limited exposure reduces opportunities for full cognitive development. To address these findings, teaching designs should focus on increasing exposure to comprehensible input for all students while aligning content with their interests. Strategies such as using authentic materials, interactive activities, and structured schema development exercises can enhance cognitive schema growth. Additionally, creating a supportive learning environment that caters to diverse needs will improve overall engagement and learning outcomes.

(4) The assessment of English learning interest reveals consistently low engagement across several domains, including content preference, extensiveness, stability of attention, and self-efficacy. Among these, extensiveness and self-efficacy are particularly noteworthy. Therefore, to design targeted interventions, implementing structured activities, integrating motivational approaches, and creating a more supportive environment could enhance self-efficacy and foster positive experiences in English language learning.

(5) It can be inferred that respondents' profile do not greatly influence learning preferences. Highlighting the need for flexible educational strategies tailored to individual needs rather than specific grades could provide positive results that emphasize the importance of using inclusive and adaptable teaching methods to effectively address the diverse needs of all students.

(6) The assessed low cognitive schema is not reflective of the students' learning interest, thus the earlier framework supports the finding highlighted with the framework that the higher the students' cognitive development in English language strengthened connection with English learning interest. Therefore, the theoretical framework is supported in a negative way. Thus, finally it could be inferred that the findings emphasize the impact of cognitive factors on language learning engagement. It underscores the importance of personalized educational strategies that consider individual

learning preferences and motivations.

## 8. Recommendations

The study was conducted within a specific scope, and upon analyzing the results, the researcher suggests several areas for future studies:

(1) Based on the findings of this study, it is recommended that future research should not only distinguish between English majors and non-English majors but also further categorize non-English majors into disciplines such as humanities, sciences, and engineering. This refined categorization would allow for a more in-depth exploration of the relationship between cognitive schemas and English learning interests across different academic backgrounds, thus providing more precise guidance for personalized educational strategies.

(2) Students tend to score higher in language and formal schema, which is correlated with the Chinese approach to English teaching that emphasizes grammar over content. This teaching method results in students having relatively less comprehensible input. Therefore, it is recommended to shift teaching paradigms by incorporating more interactive content with students and adhering to principles of second language acquisition.

(3) Based on these findings, it is recommended to adopt an inclusive approach in educational strategies that acknowledges the stability of cognitive schema perceptions across demographic variables such as gender, age, academic major, and grade level. Focus should shift towards tailored learning methods that accommodate individual differences and consider factors beyond academic discipline, such as learning styles, motivation, and background experiences, which may have a more significant impact on cognitive abilities. This approach ensures a more effective and equitable educational environment that supports cognitive development and academic success for all students.

(4) Based on the assessment revealing consistently low engagement in English learning across various domains, it is recommended to implement targeted interventions. Strategies should focus on personalizing learning content to align with student preferences, enhancing self-efficacy through supportive activities and feedback mechanisms, improving attention stability with structured learning exercises, and integrating motivational techniques to boost overall engagement. These efforts aim to create a more stimulating environment that fosters positive experiences and improves outcomes in English education.

(5) In light of the findings regarding demographic differences in student English learning interests, it is imperative to implement personalized learning pathways in order to effectively address individual preferences. This approach guarantees inclusivity and relevance in the delivery of educational content by adapting materials to resonate with the diverse interests of students. Furthermore, the development of flexible educational strategies, including adaptive teaching methods and differentiated instruction, allows for the accommodation of varying learning styles and preferences among university students in the digital age. The incorporation of multimedia resources, interactive online platforms, and real-world applications of English language skills can enhance engagement and effectiveness. These methods not only cater to the technological proficiency of today's students but also promote active learning and practical skill development, thereby fostering a more dynamic

educational experience.

(6) Based on the findings linking cognitive schema of Net-generation college students to their English learning interests, it is crucial to develop personalized learning approaches that cater to individual cognitive styles. By integrating adaptive teaching methods and leveraging technology, educators can enhance engagement and learning outcomes effectively. Continuous assessment and a supportive environment further nurture students' self-efficacy and overall interest in English learning, ensuring a dynamic and tailored educational experience.

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