

Navigating Learner Autonomy in the Digital Age: Chinese College EFL Students' Behaviour and Challenges

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Abstract

The rapid advancement of information technology has significantly transformed college English education in China, particularly in promoting autonomous learning. This study explores the readiness and challenges of English as a Foreign Language (EFL) students in Fujian Province in practicing autonomous learning within a digital environment. The study aims to: (1) assess students' overall readiness for learner autonomy, and (2) examine their learning behaviours and challenges related to digital technology use. Data were collected through questionnaires distributed to 450 college students. The questionnaire comprised 23 items categorised into four areas: readiness for autonomous learning, goal setting, method-use, and self-evaluation. Findings indicate that students displayed a moderate level of readiness for autonomous learning. While they showed motivation and a basic understanding of learning strategies, their self-evaluation skills were notably weak. In terms of goal setting, students were somewhat prepared to revise their study plans, but struggled to effectively achieve long-term English learning goals. Regarding method-use, participants demonstrated readiness to adjust strategies using digital tools, yet still lacked consistency in applying them effectively. For self-evaluation, students showed a willingness to utilise available online resources, but did not actively seek out opportunities to learn English beyond the classroom setting. The findings highlight the need for targeted support and digital literacy training to enhance learner autonomy among college EFL students in China's digital age.

Keywords: *Learner autonomy, digital age, EFL students, Chinese college students, language learning strategies, self-directed learning*

Introduction

Research Background

With the development of global integration, English is becoming increasingly crucial, and English competence in a country has a major impact on the acquisition of current information and the effectiveness of international communication (Rintaningrum, 2023).

In the digital environment, the rapid development of information technology has greatly changed the traditional model in the field of education, and college English education is no exception (Timotheou et al., 2023). As an important learning method, autonomous learning has become increasingly important in college English learning in the digital age (Pratiwi & Waluyo, 2023). The digital age has made it easier than ever to obtain college English learning resources independently (Allcoat et al., 2021). Students can easily access a

large amount of English learning materials through the Internet, such as online courses, e-books, learning websites, etc., which greatly enriches the range of learning materials (Chen & Huang, 2021). In the digital environment, students can choose a learning method that suits them according to their learning style and interests to improve their language skills (Nguyen et al., 2022).

Generally, there is a strong emphasis on the importance of autonomous learning in EFL education (Indah et al., 2021). However, research on learner autonomy in the digital age remains limited. Therefore, this study aims to investigate this critical aspect of college students' learner autonomy in the digital era in China, where English is taught as a foreign language. To guide this investigation, the following research questions have been formulated:

- a) What is the overall readiness of Chinese college students for autonomous English learning in the digital age?
- b) What are the learning behaviours and challenges faced by Chinese college students in autonomous English learning in the digital age?

Objectives of the Study

The purpose of this study is to scrutinise the scenario of learner autonomy among college EFL students in Fujian Province, China. Hence, the following are the objectives of the study:

- a) to investigate Chinese college EFL students' overall readiness for learner autonomy in the digital environment.
- b) to examine learning behaviour and challenges in autonomous learning among college EFL students using digital technology.

Literature Review

Definitions of autonomous learning

Henry Holec in 1970s formally put forward the concept of autonomous learning. This concept was defined as the ability to be responsible for one's learning, namely, the ability to independently determine goals, contents, and processes (Raya & Vieira, 2020). After that introduction, however, the concept has been analysed in diverse ways.

Due to the different theoretical standpoints and research methods of researchers, there is no unified definition of self-directed or autonomous learning. Some scholars regard it as a kind of behaviour, while others regard it as a kind of ability. In sum, there are eight theories of autonomous learning: (1) Operativism: self-directed learning is a kind of responsive response based on external rewards or punishments (Nyuhuan, 2024); (2) Humanism: the development of an individual's self-system inevitably produces self-directed

learning (Chamani et al., 2023); (3) Information Processing: information obtained by an individual is tested according to predefined criteria, and if it does not match perfectly, it has to be tested again, and so on until the information meets the criteria. (Li & Zhang, 2021); (4) Social cognitive school: autonomous learning is essentially the learner's regulation and control of the learning process (Mehdiyev, 2020); (5) Autonomous volitional school: students' autonomous learning is in fact a process of volitional control (Tsilmak et al., 2020); (6) Speech self-direction school: autonomous learning is a process in which an individual actively regulates his/her own learning by using his/her own internal speech (Mehdiyev, 2020); (7) Constructivist school: autonomous learning is a process in which learners regulate their learning according to their own needs (Dmitrenko et al., 2021); (8) Information processing school: Autonomous learning is a process in which learners actively adjust their learning strategies and efforts according to their own learning abilities and the requirements of the learning task (Marantika, 2021).

Despite the lack of consensus definition, scholars have put forth several theoretical stances that capture the complexity of autonomous learning. These viewpoints can be broadly divided into constructivist, behaviourist, and cognitive traditions. The operativist perspective, which is behaviourist in nature, sees autonomous learning as a conditioned reaction to outside stimuli like rewards and penalties. Cognitive theories, on the other hand, such as Speech Self-Direction, Autonomous Volitional, Social Cognitive, and Information Processing, place more emphasis on the internal processes that students employ to control their ideas, actions, and tactics. These approaches emphasise how learners can use internal dialogue and volitional control to plan, monitor, and modify their learning. In contrast, humanistic thought emphasises the importance of self-actualisation and personal development, arguing that autonomous learning develops organically as people gain independence and a sense of self. Constructivist theories, finally, portray autonomous learning as a dynamic, learner-centered process in which people actively create knowledge and modify their learning methods according to their requirements and objectives. In sum, these theories collectively provide a thorough explanation of autonomous learning as an inherent capacity and an interacting process influenced by environmental, cognitive, and motivational factors.

Challenges of learner autonomy in digital contexts

In the current digital environment, autonomous learning of English at university presents multiple challenges, both in terms of technology and learning itself. The following are the main challenges:

Information overload and resource screening difficulties

One is that online English learning resources, e.g., MOOCs, videos, and apps are flooded with resources, but the quality varies, making it difficult for students to identify materials suitable for their own level. There are too many online English resources, but learners don't know how to choose them", and most learners have

experienced learning inefficiency due to choosing the wrong materials (Huang et al., 2025). The other is that fragmented resources may lead to a lack of coherence in learning and make it difficult to form a complete language proficiency system. According to Liu et al. (2022). Although fragmented learning can improve short-term memory, only 17% of learners are able to transform it into actual language output ability.

Insufficient self-directed learning ability

Firstly, many students lack the ability to set goals, plan learning paths, and self-monitor, which makes it easy for them to fall into "ineffective learning". A survey by Wu et al. (2021) found that only 10% of college students were able to make a clear English learning plan, and more than 50% did not regularly review their learning results. In addition, without classroom supervision and peer pressure, students are easily distracted by social media and games, making learning less sustainable. In a report by Wang et al. (2022), 60% of students surveyed admitted to being "easily distracted when studying independently", with social media and gaming being the main triggers.

Technology dependence and digital divide

First, over-reliance on translation software and grammar checking tools weakens active thinking skills. Su et al. (2025) showed that 89% of students used grammar checking tools like Deepseek, but 43% of them showed a significant increase in writing errors after disabling the tool. Second, some students may not have equal access to quality resources due to equipment performance, network conditions or economic factors, exacerbating the learning gap. A survey by Abuali and Ahmed (2025) in universities in developing countries showed that 31% of students were unable to complete an online English course due to internet or device problems, with the percentage being higher in remote areas.

Psychological and behavioural problems

On one hand, facing the screen for a long time leads to distraction and learning burnout. According to Su et al. (2025) study, 67 percent of students experience "screen burnout" after prolonged online English learning, which manifests itself as a loss of concentration and efficiency. On the other hand, the lack of immediate support when encountering difficulties in independent learning may trigger language learning anxiety. A follow-up study by (Zhu, 2021) found that only 28 percent of students would actively seek help when they encountered problems in independent learning, while the rest chose to give up or procrastinate, leading to the accumulation of anxiety. In conclusion, even though digital environments have a great deal of potential for encouraging autonomous learning, these issues need to be resolved with focused support techniques, resource direction, and psychological scaffolding to genuinely help college students.

Psychological Frameworks

The framework of the research will consist of humanistic psychology (HP), constructivist learning theory (CLT), and cognitive psychology (CP). The combination of the three is suitable for research on college English autonomous learning in a digital environment. HP explains how emotion works on learning autonomy (DeRobertis, 2021), while CLT explains how external factors, such as teachers, play a role in autonomous learning (Chuang, 2021). Cognitive psychology is highly significant and aligns well with the objectives of the study. By incorporating CP, researchers can delve deeper into students' learning strategies. The aforementioned theories have established a strong theoretical basis for learner autonomy, as illustrated in Figure 1 (Cheng, 2019).

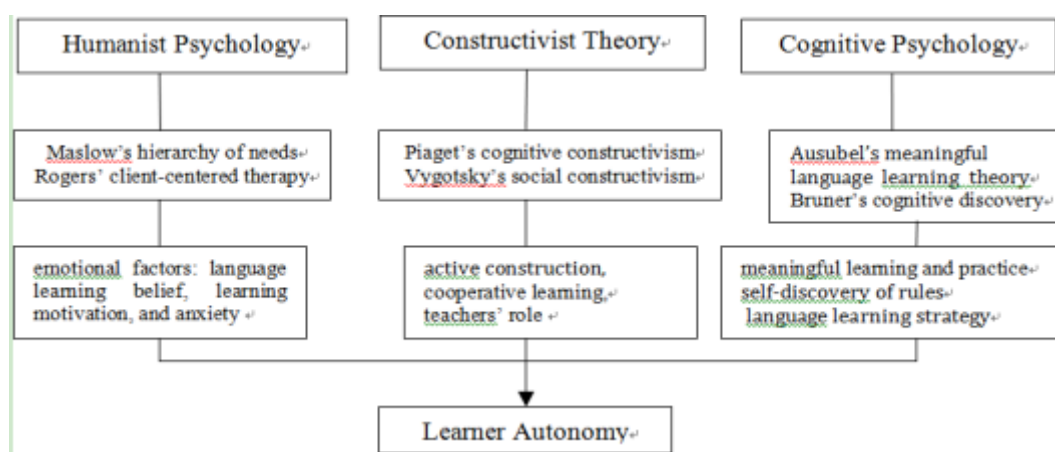


Figure 1: The Framework of the Study

Methodology

Research Design

The aim of the study is to investigate Chinese college EFL students' overall readiness for learner autonomy in the digital environment and examine learning behaviour and challenges in autonomous learning among college EFL students using digital technology. Hence, this kind of research needs rich data collection which should be quantitative design rather than qualitative research. Therefore, the researcher in this study will choose questionnaires as research instruments to collect rich and credible data according to the "fit for purpose" principle (Chigbu et al., 2021).

Instrument

The study uses an online questionnaire instrument composing of two parts. Part A aims to collect demographic information of subjects, including their gender and age etc. Part B includes 23 questions, which are divided into sections that check students' readiness for independent learning (3-6), set learning

goals (7-13), explore learning methods (14–19), and assess the process of learning English (20-25), all based on Cheng's (2019) study.

The Likert scale enables the subjects to clearly express their attitudes or opinions. At the same time, the subjects only need to choose the corresponding options according to their actual situation, which is convenient for researchers to conduct statistical analysis. By calculating indicators such as the mean and standard deviation, researchers can understand the overall attitude or opinion distribution of the subject group.

Table 1: Questionnaire Items

Variables	Section	Number of ranges	Number of items
Demographic	A	1 – 2	2
Readiness for independent learning	B	1 – 6	4
Goal setting		7 – 13	7
Method-use		14– 19	6
Self-evaluation		20 – 25	6

Respondents

The questionnaire survey adopts an anonymous survey form and takes 450 students from Fujian Forestry Vocational and Technical College, Northern Min Vocational and Technical College, and Wuyi College as the survey subjects. These students are sophomores and have one year of autonomous learning experience in college English. They can describe their autonomous learning of college English.

The participants come from different departments, majoring in art and media, computer science, banking and finance, business, electrical and electronics, accounting, and engineering. These majors are very popular among the three colleges, and many students choose these majors, so it is easy to find volunteers. None of them are native English speakers.

Table 2: Sample Size of Participants

College	No of students	Major
Fujian Forestry Vocational and Technical College	150	Art and media, Computer science, Banking and finance, Business, Electrical and electronics, Accounting, and Engineering
Northern Min Vocational and Technical College	150	Art and media, Computer science, Banking and finance, Business, Electrical and electronics, Accounting, and Engineering
Wuyi College	150	Art and media, Computer science, Banking and finance, Business, Electrical and electronics, Accounting, and Engineering

Data Collection

This study will be carried out at three colleges in Fujian Province. The questionnaire will be distributed offline. The researcher will contact the college's English lecturer via cell phone and meet with them after school at each college. After discussing the objective of the study, the researcher will distribute and collect the questionnaire with the assistance of a college lecturer. 450 students will participate in the collection of quantitative data. They are all sophomores with previous independent learning experience. To guarantee that the distribution and collection of questionnaires are properly supervised, the entire process is carried out in the classroom for 20 minutes. The college lecturer is present throughout the process to ensure that data is collected efficiently and accurately.

Data Analysis

Questionnaire data will be entered into a computer data file. The Statistical Package for the Social Sciences (SPSS) will then be used to evaluate the data. The internal consistency reliability of the measurement scales was assessed using Cronbach's alpha coefficients as presented in Table X. All variables demonstrated acceptable to excellent levels of reliability. Specifically, Readiness for independent learning ($\alpha = 0.932$), Goal setting ($\alpha = 0.950$), and Method-use ($\alpha = 0.949$) showed excellent internal consistency, indicating a high degree of reliability in measuring their respective constructs. While Self-evaluation had an alpha of 0.758 which is considered acceptable. These results suggest that all scales used in the study are sufficiently reliable for further statistical analysis ($\alpha = 0.983$).

Table 3: Reliability Analysis (Cronbach's Alpha Values for Each Construct Measured)

Variables	Number of items	Cronbach Alpha
Readiness for independent learning	4	0.932
Goal setting	7	0.950
Method-use	6	0.949
Self-evaluation	6	0.758
All	23	0.983

Findings

This section summarises the findings of the pilot study that answer the research questions.

RQ1: What is the overall readiness of Chinese college students for autonomous English learning in the digital age?

In Table 4, it was found that college students were prepared for learner autonomy (M=3.68). The highest mean score among these three aspects was goal setting (M=3.79), followed by self-evaluation (M=3.64), and method-use (M=3.46). Based on the findings, college students were somewhat more prepared for learner autonomy than the medium level, while their capacity for method use was lacking.

Table 4: College Students' Readiness for Learner Autonomy

Dimension	No.	Mean	S.D.	Rank
Goal setting	450	3.79	.64	1
Method-use	450	3.46	.72	4
Self-evaluation	450	3.64	.69	3
Overall readiness in the digital age	450	3.68	.60	2

RQ2: What are the learning behaviours and challenges faced by Chinese college students in autonomous English learning in the digital age?

Chinese EFL students' learning behaviour and challenges in the digital age could be analysed from three perspectives, namely, goal-setting, method-use, and self-evaluation.

Setting up learning goals

In table 5, college students were well versed in the modification of study schedule as needed (M=3.81), followed by goal setting (M=3.79), and understanding course requirements (M=3.71). Based on the findings, college students were somewhat more prepared for modifying their study plans, while their capacity to achieve their English language goal was lacking (M=3.14).

Table 5: Setting up learning goals

Item	No.	Mean	S.D.	Rank
I am aware of the criteria for the course.	450	3.71	.72	3
I am aware of the need to study diligently under the course objectives.	450	3.67	.63	5
I can create an English language goal.	450	3.40	.74	6
I can achieve my English language goal.	450	3.14	.67	7
I can schedule time for studying English.	450	3.79	.61	2
I can adjust my study schedule to fit my circumstances.	450	3.66	.65	4
I modify my study schedule as needed.	450	3.81	.60	1

Using the learning methods

Table 6 shows college students were well in the modification of learning strategies as needed (M=3.78), followed by employing writing techniques (M=3.61), and employing reading strategies (M=3.60). Based on the findings, college students were somewhat more ready to modify their learning methods, while their capacity to employ listening techniques was lacking (M=3.41).

Table 6: Using the learning methods

Item	No.	Mean	S.D.	Rank
I am aware of the general English language learning methodology.	450	3.53	.71	4
When I work on my listening abilities, I employ listening techniques.	450	3.41	.63	6
I work on my English speech using communicative techniques.	450	3.48	.71	5
When I read in English, I employ reading strategies.	450	3.60	.69	3
When I write in English, I employ writing techniques.	450	3.61	.65	2
I modify my English language learning strategies as necessary.	450	3.78	.77	1

Evaluating the process of English language learning

In table 7, college students were good at utilising all of the learning materials available (M=3.73), followed by applying the new information when practicing (M=3.68), and assessing learning results (M=3.60). Based on the findings, college students were somewhat more ready to utilise learning materials available, while their capacity to look for opportunities to study English out of class was lacking (M=3.15).

Table 7: Evaluating the process of English language learning

Item	No.	Mean	S.D.	Rank
I can assess my learning results.	450	3.60	.61	3
Outside of class, I look for opportunities to study English.	450	3.15	.69	6
I can utilize all the learning materials available to me.	450	3.73	.74	1
When I practice my English, I make an effort to apply the new information.	450	3.68	.66	2
Together with my classmates, I can learn.	450	3.57	.69	4
I take steps to rectify my blunders because I am aware of their causes.	450	3.53	.79	5

Discussion

This pilot study set out to investigate Chinese college EFL students' overall readiness for learner autonomy in the digital age and examine learning behaviours and challenges in autonomous learning from the perspective of goal-setting, method use, and self-evaluation. In the past, several academics have also studied college English autonomous learning (Cheng, 2019; Chuang, 2021; Zhu, 2021; Liu et al., 2025; Wu et al., 2025).
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2021; Su et al., 2025). Studies carried out in a digital setting were, nevertheless, comparatively uncommon. This study deliberately narrows its focus to participants exclusively in three colleges for sampling convenience. Besides, it will be conducted in Fujian province, which may not be representative of the entire country.

Conclusion

The findings from 450 participants revealed that Chinese college students exhibit a moderate level of readiness for autonomous English learning in the digital age. While they are relatively capable of modifying study plans and learning strategies, there is a notable gap in their ability to effectively achieve language learning goals, particularly in the areas of listening and out-of-class learning. Their strengths lie in understanding course requirements, using available learning resources, and employing certain language skills such as reading and writing. However, the challenges in goal setting, listening skill development, and seeking learning opportunities out of class indicate that students may require more targeted support and instructional guidance to enhance their autonomous learning in a digital environment.

Author contributions

This research paper resulted from the collaboration of three authors. Zhu Jiang composed the conceptualisation, literature review, and theoretical framework. Soo Kum Yoke and Wan Zumusni Mustapha conducted essential edits, performed final proofreading, and guaranteed compliance with academic standards. All writers reviewed and endorsed the final manuscript.

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Data availability statement

The author confirms that the data supporting the findings of this study are available within the article and/or its supplementary materials.

Conflicts of interest

The authors have no conflicts of interest to declare.

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