sustainability

MDPI

Article

An Ecological Perspective on University Students' Sustainable Language Learning during the Transition from High School to University in China

Chen Li [1,*], Shahid Abrar-ul-Hassan [1,2] and Fei Gao [3]

1 School of Foreign Languages, Southeast University, Nanjing 210096, Jiangsu, China; shassan@yorkvilleu.ca
2 General Studies, Yorkville University, Vancouver, BC V3L 5B3, Canada
3 College of Technology, Bowling Green State University, Bowling Green, OH 43403, USA; gaof@bgsu.edu
* Correspondence: lichenem@seu.edu.cn

Received: 22 July 2020; Accepted: 3 September 2020; Published: 8 September 2020

Abstract: Transitioning from high school to university presents a significant challenge for many students on multiple fronts, including language learning. This mixed-method study draws on an ecological perspective to investigate students' English learning experiences during the transition from high school to university in China, focusing on teaching content, teaching approach, assessment and feedback, and self-regulated learning. Data is collected from six universities at three different academic levels in China, and analyzed using both statistical and thematic analysis. The research finds that there are differences between high school and university English language education in the above-mentioned four areas, and students' ecopotentials are of critical importance for their adaptation to university English learning. These findings suggest the necessity of the continuity of teaching content, the promotion of individualized curricula, and the cultivation of self-regulated learning capacities to support students' sustainable English learning during the transition from high school to university.

Keywords: transition; ecological niche; ecostate; ecopotential; self-regulated learning

1. Introduction

The first year in university is challenging for students. They have to adapt to their new academic and social environment, and many experience difficulties in adjusting to the teaching style and greater degree of autonomy in higher education [1–5]. As students have to learn discipline-specific skills and ways of thinking in higher education, using these skills independently becomes one of the difficulties in their academic transition from high school to university [6]. However, among previous studies of this transition, there is a lack of discipline-specific research, and studies on students' adjustment to English language teaching and learning in Chinese universities are rare [7].

With the rapid development of modern technology, the deep integration between foreign language education and information communication technology (ICT) has transformed the traditional model of English language teaching and developed a new ecology [8]. According to the theory of ecology, each ecological factor in the ecosystem has its own ecological niche, which is composed of both an ecostate and an ecopotential. The ecostate refers to the state of an ecological factor, and the ecopotential refers to the potential for the development of an ecological factor [9]. The integration of ICT into the English language teaching ecosystem has greatly influenced students' ecological niches and created more challenges for students in adapting to university English learning. Moreover, "Chinese EFL learners are more anxious than language learners in other continents" [10] (p. 21). The more anxious they are, the more frequently they tend to use "Avoidance Strategy" to "avoid anxiety-provoking

situations in the process of language learning" [11] (p. 56). Therefore, it is necessary to study Chinese students' sustainable English learning during their transition from high school to university. The continuity of teaching content, individualized curricula, and self-regulated learning capacities are found to be important in the improvement of teaching and learning outcomes, and the sustainable development of English language education.

2. Literature Review

Research on students' transitions from high school to university has mainly focused on the four areas of teaching content, teaching approach, assessment and feedback, and self-regulated learning. The four areas receive wide research attention because they correspond to the major products of decision-making processes on the implemental stages of curriculum development: "Teaching materials", "teaching acts", and "learning acts" [12] (p. 3), which can reflect the curriculum changes in the transition from high school to university.

2.1. Teaching Content

Compared with high school, university education imposes more challenging academic requirements on students, such as more rigorous literacy demands and more complex group work [13,14]. English language teaching in universities emphasizes the advanced development of listening and speaking competences in using English for communicative purposes, whereas it is marginalized in the exam-oriented high school English curriculum, which stresses knowledge of English language, especially grammar and vocabulary, instead of the development of English communicative competences [7,15].

In addition to the insufficiency of listening and speaking in high school English teaching, there is also a mismatch in translation, which is tested in the College English Test (CET) as an important skill in university English teaching, but ignored in the high school English curriculum, because it is not tested in the National Matriculation English Test (NMET) [16]. These academic challenges create barriers [13,14], and the disconnect in teaching content means that many high school students struggle to adapt to university English learning [7].

2.2. Teaching Approach

Both teachers and students in high school tend to see English as a subject of knowledge, and the teacher-centered approach becomes dominant with an emphasis on the knowledge transfer of vocabulary and grammatical rules from teachers to students [7,15]. The problem of the teacher-centered approach lies in its lack of development of students' communicative competences in using English, and of their learning strategies.

In contrast, university English teaching adopts a learning-centered approach that depends on students' active participation in language activities for practice in using English. These different teaching approaches also create difficulties for students in their adaptation to university English learning [7,15].

2.3. Assessment and Feedback

Formative assessment and feedback are effective ways of promoting self-regulated learning strategies to help students adapt to university education, which expects active learners [17–19]. Moreover, feedback like teacher reformulations in whole-class discussions can serve as affordances for learning [20].

Research has found that formative assessment in university English teaching mostly assesses students' academic performance to provide mainly quantitative feedback. However, teachers overlook assessment and feedback on students' attitudes, motivation, learning strategies, etc., and talk little about the goals of English learning, which weakens the function of formative assessment to promote students' English learning [7,21]. More discussions between teachers and students in relation to

assessment results are necessary for students to be able to negotiate solutions to problems identified in the learning process [21].

2.4. Self-Regulated Learning

Research shows that self-regulated learning is very important for students' academic adjustment to university education, as they have to regulate their own study behavior in their new learning environment [13,14,17]. Empirical studies of university English learning reveal that students tend to continue in the same way that they learned English in high school, only concentrating on vocabulary and exam preparation as passive receivers of knowledge from the teacher [7,15].

Studies have also found individual differences in self-regulated learning capacities. Students with higher self-regulated learning capacities attain better academic outcomes than those with lower capacities, and they outperform students with lower capacities in cooperative learning, information literacy, metacognitive strategies, learning interest, self-efficacy and its attainment, and other motivations [22]. In contrast, many students are not able to develop appropriate learning strategies for themselves to become active learners in the first year of university [3,7,23]. Research has found that a significant leap from teacher-centered teaching at high school to student-centered teaching at university is unrelated to first-year achievement. Teachers' control in universities is still important, and a moderate step from less student-centered teaching towards more student-centered teaching seems to be optimal [24]. Therefore, pedagogical efforts are expected to foster "individual language learners' capacity for strategic learning" and "their capacities in opening up and sustaining a social learning space for exercising their strategic learning capacity or utilizing their strategic learning knowledge" [25] (p. 158).

Critical thinking is one of the most important competences for quick adaptation to university studies [26]. Critical thinkers are able to raise vital questions and gather and assess relevant information before coming to well-reasoned conclusions and solutions, and testing them against relevant criteria and standards [27] (p. 9). In university English learning, critical thinking is a core competence for the enhancement of information literacy in students' learning capacities, which is essential for English learning in the information age [22].

Previous research has advocated that high schools and universities should enhance collaboration to ease the transition for students [13,28]. In view of the complexity of language ability, which is defined as the combination of both language knowledge and strategic competence, which are composed of a set of subcomponents [29], it is even more significant and challenging to explore the continuity of English language education between high school and university, in order to support students' sustainable English learning with concerted efforts in policy making from both high school and university.

The adjustment of students is a complex process involving adaptive factors that are interdependent with dynamic relationships [17]. Most of the previous studies have overlooked these interactions between multiple factors in the adjustment process, and how they work together to impose different impacts on students who are characterized by individual differences. Previous studies tend to make independent discussions on each individual factor without connecting those factors with each other to further explore their mutual relationships and influences. Moreover, some important factors are not given the due attention in research. For example, only about 10% of previous studies in the literature review have addressed the role that ICT plays in the transition from high school to university English learning, which results in a lack of understanding of how this important factor can influence students' English learning in its interaction with other factors in the technology-enhanced English language education today. Therefore, this research takes an ecological perspective on these multifactorial influences to study the transition of students' English learning from high school to university with a stress on the interactions between multiple factors and the effects they cause.

2.5. Ecological Perspective

The ecological approach defined by van Lier sees language learning as a network of interdependencies among all the elements in the setting such as the actions and activities of teachers and learners, the interaction and the language use. Pedagogical principles in an ecological approach are the creation of ecologically valid contexts, relationships, agency, motivation and identity [30].

The English language teaching ecosystem consists of both ecological factors and the ecological environment. The major ecological factors are teachers, students, ICT, teaching resources, and administrators at all levels. The ecological environment is mainly established by English language education policies at different levels, the teaching facilities, and the campus culture. The ecostate–ecopotential theory states that the ecostate is the basis of the ecopotential, and the ecopotential will promote the change of the ecostate [9]. Take the ecological factor of the student as an example. The ecostate of the student's ecological niche includes knowledge of and competence in the English language. The ecopotential of the student's ecological niche mainly includes competences in cooperative learning, critical thinking, intercultural communication, employing language learning strategies, and information literacy, which refers to the capacity of identifying and utilizing information resources, etc. In addition to the ecopotential, other internal learner factors affecting the student's ecological niche mainly include the learner's belief, motivation, self-efficacy, learning style, etc. [22]. Figure 1 shows the development framework of the student's ecological niche.

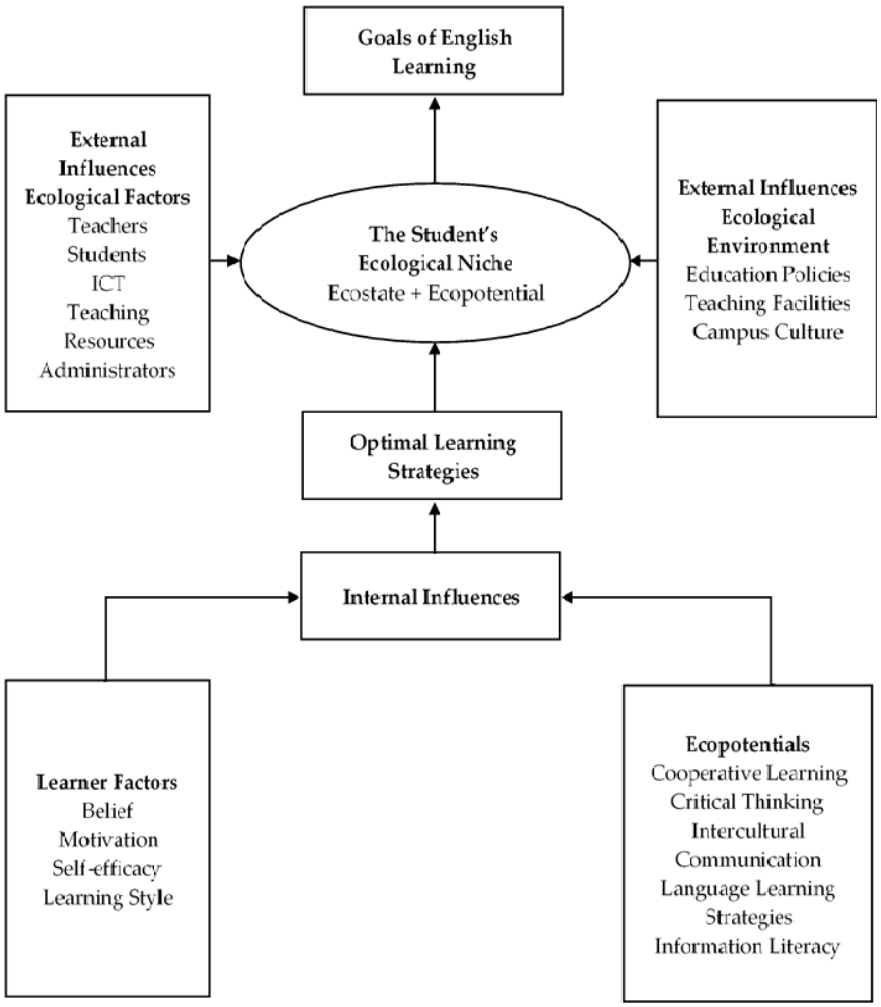

Figure 1. The development framework of the student's ecological niche. (Adapted framework [22]).

Under influences from the ecopotential and major learner factors, students form optimal learning strategies for themselves, with which they develop their ecological niches. Meanwhile, external influences from other ecological factors and the ecological environment are also imposed on the development of students' ecological niches. Both the internal and external factors push forward the development of students' ecological niches towards the goals of English learning. It is self-evident that students' ecopotentials play an important role in the transition from high school to university English learning because they can promote the change of students' ecostates. Equally important is the change of the external factors during the transition. Previous research has discovered that the external factors in university English learning, such as teachers, teaching resources, education policies, and campus culture, are more favorable for students with higher ecopotentials [22]. It means that the external factors may affect students' sustainable language learning in different ways depending on the level of their ecopotentials. All the above factors will be considered in this study.

Based on the ecostate–ecopotential theory, this study raises the following research question:

How do the major internal and external factors in the English language teaching ecosystem influence the development of the student's ecological niche in the transition from high school to university?

The study will investigate this research question with a focus on teaching content, teaching approach, assessment and feedback, and self-regulated learning.

3. Methods

3.1. Research Participants

The research adopts both quantitative and qualitative research methodologies, using six universities at three different academic levels in the national rankings for data collection. They are located in four different cities in Jiangsu province, China. According to the statistical report by Ministry of Education of the Peoples' Republic of China in 2018, among all the 31 regions at provincial levels in mainland China, the number of higher education institutions in Jiangsu province ranked the first, and the total number of students enrolled in universities and higher vocational colleges in Jiangsu province ranked the fourth [31]. Because each university has allocated quotas for the enrollment of high school graduates in different regions at provincial levels in mainland China, the selection of the sample universities in Jiangsu province for this study can best ensure the diversity of the research participants from different regions of the country with various socioeconomic backgrounds.

Among the six sample universities, one is supported by the "985 project" (referred to here as A), two are supported by the "211 project" (referred to as B1 and B2), and three are common provincial universities (referred to as C1, C2, and C3). The "985 project" and the "211 project" are two national higher education projects with the special support from the government for the construction of world-class universities. Among nearly 3000 universities in China, there are only 39 "985 project" universities and just over 100 "211 project" universities. Reflecting these proportions, the number of "985 project" universities in our sample is the lowest, and the number of common provincial universities is the highest, with the number of "211 project" universities in between. The national ranking and the students' academic performance in the "985 project" university in this study are higher than those in the two "211 project" universities, which in turn are higher than the three common provincial universities in terms of rankings and students' academic performance. Different ecological factors and ecological environments between the three levels of universities appear to have different impacts on the development of students' ecological niches. On the one hand, the admission scores of higher-ranking universities are much higher than those of the lower-ranking universities, indicating that there might be a gap between students' ecostates and ecopotentials at the beginning. On the other hand, higher-ranking universities are usually more competitive than lower-ranking universities in the recruitment of talented faculties, who are more competent in teaching and research. Differences like

these between the three levels of universities would shape the development of students' ecological niches in different ways.

Like previous studies on Chinese students' transition from high school to university English learning, this study only includes non-English majors as the research participants mainly for the following two reasons. For one thing, the majority of the more than 30 million students enrolled in Chinese universities learn English as the foreign language [32]. In contrast, the number of English majors is about 570 thousand [33], which only takes a small proportion of the total. The transition from high school to university English learning will mostly affect the large number of non-English majors. For another, the English education targeted at English majors has different goals, approaches, and evaluations from those for non-English majors. Therefore, English majors are not included in this study.

Among all the previous studies mentioned in the literature review, 12 of them involve large-scale data collections from more than 200 participants. Half of these empirical studies have 500–1000 participants, which is the most preferred range of the number of participants among the 12 studies. Taking this range as a reference, this study intends to involve around 800–900 participants with an expectation to receive around 800 valid responses from research participants. Table 1 shows the number of participants from each university.

Table 1. Type of university and number of participants.

University	Type	Number of Participants
A	"985 project"	130
B1	"211 project"	145
B2	"211 project"	151
C1	Common Provincial University	143
C2	Common Provincial University	158
C3	Common Provincial University	157
	Total	884

3.2. Research Methods

3.2.1. Questionnaires

Questionnaires were distributed to first-year student participants in sample universities, in order to collect data about their reflections on the differences between their English learning experiences in high school and university. The questionnaires mainly cover teaching content, teaching approach, assessment and feedback, and students' self-regulated learning behavior.

The questionnaire can be divided into two parts. The first consists of eleven Likert-scale question items and two multiple choice items to ask students to compare their high school and university English learning experiences. The two multiple choice items are follow-up questions asking about the key language skills in teaching content and the most difficult language skills they perceived during the transition. The second part consists of three items to collect information about the students' perceptions and uses of affordances in university English learning.

After a pretest of the questionnaire among 120 students, the validity and reliability of the Likert-scale question items in the first part of the questionnaire were evaluated. The KMO was 0.735, and the significance level of Bartlett's Test was 0.000. Cronbach's Alpha was 0.750. These statistics show that the validity and reliability of the questionnaire are acceptable. Table 2 shows details of the collection of questionnaire data. All the questionnaire data is analyzed with SPSS 21.0.

Table 2. Questionnaire data collection.

University	Number of Online Questionnaires Received	Number of Valid Online Questionnaires
A	130	120
B1	145	139
B2	151	143
C1	143	141
C2	158	158
C3	157	155
Total	884	856

3.2.2. Interviews

Interviews were carried out with students to learn more about their English learning experiences in both high school and university. In this study, 83 students from the six universities participated in telephone interviews, involving around 14 participants from each university. During the interviews, the participants were asked to report their College English Test Band 4 (CET-4) scores and compare their high school and university English learning experiences in terms of teaching content, teaching approach, assessment and feedback, and self-regulated learning. The interviews were transcribed to text, and a thematic analysis was carried out by coding the interview data according to the four themes.

3.2.3. Document Analysis

The two most influential documents guiding high school and university English education are the High School English Curriculum Standards (HSECS) and the College English Teaching Guidelines (CETG). The same coding system used for the interview data analysis was adopted for a thematic analysis of these two documents to examine the continuity and disconnection between the English language education policies at the high school and university levels.

4. Results

4.1. Questionnaire Analysis Results

In total, 856 valid questionnaires were collected from the six sample universities. Comparisons and contrasts between the students' high school and university English learning experiences were made in the following four aspects: Teaching content, teaching approach, assessment and feedback, and self-regulated learning.

4.1.1. Teaching Content

More than half of the participants agreed that the information load of the teaching content in high school was greater than that in university. Over 70% of the participants believed that high school English teaching concentrated on reading and vocabulary, and nearly half of the participants admitted that more knowledge about language and culture was taught in university than in high school. The National Matriculation English Test (NMET) is largely responsible for the exam-oriented English teaching practices in high school; since reading comprehension always accounts for the largest proportion of marks in exam papers, it has become an essential part of high school English teaching. Although the information load of high school English teaching is greater than that in universities, this overemphasis on reading and vocabulary narrows the scope of affordances for high school students, which is unfavorable for the development of their ecological niches. However, university English teaching includes more diversified content about language and culture since the exam pressure is eased.

When asked about the level of difficulty, more than half of the participants considered university English teaching to be more difficult than that in high school. The most difficult things to learn were listening, speaking, and vocabulary. One-way ANOVAs were used to determine whether there

were any significant differences between participants' choices from universities at the three different levels. A significant difference was revealed between participants at the A university and those at the C universities ($F(5.850) = 11.169$, $p < 0.05$); participants at university A regarded university English teaching as more difficult than the teaching in high school, but the mean score among the participants at the three C universities was around three out of five, which indicated that they were not sure. It may be inferred that participants at the C universities might consider both high school and university English learning difficult due to their low ecostates, shown by their CET-4 scores (usually taken at the end of the first year), which are significantly lower than those of the university A participants ($F(5.77) = 5.740$, $p < 0.05$). The low ecostates of the C university participants might suggest unsuccessful adaptation to the more challenging university English learning environment.

4.1.2. Teaching Approach

Around 67% of the participants claimed that more ICT was used in university English teaching than in high school, since lots of multimedia teaching resources were introduced. Furthermore, 61% of the participants indicated that high school English teachers gave more lectures on grammar and exam questions in class than university English teachers, who organized more classroom activities for students. However, participants' attitudes were divided about which approach was better for the development of their ecological niches. About one third of the participants liked the high school English teaching approach, while another one third preferred the university English teaching approach. The remaining one third of the participants were not sure.

These divided opinions about teaching approaches may be attributed to different ecological environments on the one hand, and students' ecological niches at different levels on the other. Due to the influence of NMET, the education policies and campus culture of high schools are exam-oriented. Though students have to take CET-4 in university, this is not as competitive as NMET. Therefore, university English teaching adopts a different policy and aims at the development of students' overall English competences.

However, different teaching approaches could still be found between universities at different levels. The result of a one-way ANOVA disclosed the significant difference in the ecological environment between university A and the C universities, with university A organizing more classroom activities for students ($F(5.850) = 15.209$, $p < 0.05$). This difference was partly caused by the different ecostates of participants. In general, the ecostates of participants from university A were higher than those at the C universities, because the NMET scores of university A participants were usually much higher than the scores of the C university participants. Most of the university A participants could better adapt to the shift of teaching focus from reading, vocabulary, and grammar in high school to more practical use of English in listening and speaking activities in university. However, C university participants with lower ecostates were not able to cope with this change so well. In view of these obstacles, teachers at the C universities tended to organize fewer classroom activities and lower the learning requirements. Hence, as in high school, reading took a dominant position in university English learning for participants at C universities, and the teaching approach tended to be more teacher-centered. Consequently, university A participants and C university participants made different choices about the most difficult language skills for them in the transition. One-way ANOVAs demonstrated that the university A participants believed that speaking was the most difficult in university ($F(5.850)= 6.759$, $p < 0.05$), whereas the C university participants chose reading ($F(5.850) = 3.754$, $p < 0.05$).

4.1.3. Assessment and Feedback

Almost 73% of the participants supported formative assessment in university, which included their performance in homework, quizzes, and other learning activities in their final evaluation, which would better promote their self-regulated English learning than the summative assessment more common in high school. Participants acknowledged the benefits from the feedback they had received based on these assessment practices. For example, 63% of the participants maintained that they had learned a lot

from teachers' feedback on their writing assignments, and almost 76% agreed that they had benefited from teachers' feedback on their class performance. In contrast, assessment in high school tended to be summative and very limited in form.

The diversity of assessment practices in university English teaching gives students more opportunities to receive feedback on their performance in various tasks, and contributes to their reflections about any adjustments they might need to make in their self-regulated learning in order to develop their ecological niches.

4.1.4. Self-Regulated Learning

Nearly 56% of the participants reported that they spent less time and effort on their university English learning than they did in high school. Only 18.3% spent more time and effort in university than in high school. Around 70% of the participants used more ICT for self-regulated English learning in university. Nearly one third of the participants claimed that they had found effective learning approaches to promote their English learning in university. However, 22.7% of the participants denied this, and 44.5% were not sure.

A *t*-test was used to explore the relationship between participants' ecostates and their ecopotentials in self-regulated learning. CET-4 scores represented the students' ecostates. Their ecopotentials were represented by their answers to the question about whether they had found the most appropriate self-regulated learning approaches. The lower their scores on this question, the lower their ecopotentials to improve their ecostates. The study divided the questionnaire data from the 83 interview participants who reported their CET-4 scores into a high ecopotential group and a low ecopotential group according to their answers to the question about self-regulated learning approaches. The *t*-test result showed that the participants' ecostates were predicted by their ecopotentials ($p < 0.05$): The CET-4 scores of the low ecopotential group were significantly lower than those of the high ecopotential group. This result supported the ecostate–ecopotential theory.

In addition, there were three other significant differences between the high ecopotential group and the low ecopotential group. The high ecopotential group showed significantly more use of ICT than the low ecopotential group ($p < 0.01$). The high ecopotential group also spent significantly more time and effort on university English learning than the low ecopotential group ($p < 0.01$), although neither of the two groups spent more time and effort in university English learning than they did in high school (both of the mean scores were below 2.5 out of 5). The high ecopotential group considered that teacher feedback on their writing assignments had helped them to enhance their writing competence, but the perception of benefits in the low ecopotential group was significantly lower ($p < 0.05$).

4.2. Interview Analysis Results

Eighty-three interview participants from the six sample universities were asked to compare their high school and university English learning experiences under the guidance of the interviewer's questions covering the following four themes of teaching content, teaching approach, assessment and feedback, and self-regulated learning.

4.2.1. Teaching Content

In the interviews, most participants described high school English teaching as exam-oriented. The majority of the time was spent on acquiring knowledge of grammar and vocabulary and doing exercises or exam papers, which reduced students' motivation for English learning:

Participant 51: 'It is repetitive and dull to learn English for exams.' (4 May 2020)

The teaching content of university English courses was diversified and involved many different topics for discussion, presentation, and many other activities. The interview participants preferred the university English teaching content, because they had limited access to different types of affordances necessary for the development of their ecological niches in high school English learning:

Participant 22: 'I like the diversity in teaching materials and many activities in university.' (3 May 2020)

4.2.2. Teaching Approach

The majority of the interview participants preferred the university English teaching approach. This preference was mainly attributed to more interactive activities in university classes, and more freedom of self-regulated learning after class:

Participant 32: 'The university is open and gives us much freedom for self-regulated learning. There are many interactions in class. I can learn to use English.' (4 May 2020)

Moreover, the integration of ICT with university English teaching enriched the curriculum with many multimedia teaching resources, which could boost motivation for English learning. However, almost 22% of the interview participants preferred the high school English teaching approach. The reasons for this preference varied. Some of them enjoyed doing exam questions, which brought a sense of achievement, while others thought that they learned more in high school because teachers lectured more in class. Some expected more supervision and guidance from their university teachers because they were not doing well with their self-regulated learning in university. Some other interview participants preferred the university English teaching approach, but acknowledged their lack of self-regulated learning capacities:

Participant 14: 'I like doing exam questions in high school, which can help me remember the language points and give me a sense of achievement.' (2 May 2020)

Participant 16: 'The high school teacher teaches us more details and I can learn more.' (2 May 2020)

Participant 17: 'I prefer high school English teaching because I am not good at self-regulated learning and need to be led forward.' (2 May 2020)

Participant 1: 'University English teaching is good because it stresses self-regulated learning. But I do little in self-regulated learning and gain little.' (2 May 2020)

These results showed the impact of the participants' attitudes towards English learning on the development of their ecological niches. Their attitudes decided the choices they made in English learning, which would lead to different trajectories in the development of their ecological niches.

4.2.3. Assessment and Feedback

Many participants expressed their appreciation of the variety of assessment practices in university, such as speeches, group presentations, and many other different types of assignments which were rarely organized in high school. These new assignments were interesting and motivating for them, although they might take a lot of time to prepare:

Participant 5: 'I like the home assignments in multiple forms, like presentations and some other listening and speaking tasks.' (2 May 2020)

Another change was the involvement of peer assessment, which provided participants with more opportunities to learn from each other in university:

Participant 3: 'The teacher asks us to score the videotaped speeches from each other and give comments. So we can see others' homework and learn from each other.' (2 May 2020)

Participants recognized the benefits of feedback from formative assessment in university, which helped to identify the weaknesses in their academic performance. However, some participants mentioned their need for more teacher feedback regarding their learning management, which showed a lack of guidance for students' self-regulated learning:

Participant 24: 'I like the supervision and feedback on my studies from teachers in high school. But in university it all depends on yourself to manage your own studies.' (3 May 2020)

4.2.4. Self-Regulated Learning

The status quo of students' self-regulated learning in university was not satisfactory, with more than half of the participants spending less time and effort in university English learning than they did

in high school. From the interviews, it seemed that there were two main reasons for this. The first was that students were so busy with their studies that they had to prioritize their major courses and reduce the time and effort devoted to self-regulated English learning:

Participant 6: 'I don't have enough time for English learning. My studies of my own major take up a lot of time.' (2 May 2020)

Second, there are only 2–4 teaching periods on average every week in the university English courses, significantly fewer than in high school. For participants who needed more supervision and guidance in their self-regulated learning, it was hard for them to make progress due to the lack of external pressure and assistance:

Participant 7: 'I know that I need to do more self-regulated learning. But I only meet the teacher once every week. I don't have the pressure to do more.' (2 May 2020)

Another problem in self-regulated learning lies in students' ecopotentials to identify and utilize affordances. ICT has become the most frequently used method for students to have access to English learning resources in their self-regulated learning, which is more encouraged in university than in high school. Faced with abundant English learning affordances on the internet, students need critical thinking abilities to gather and assess relevant information in order to identify and utilize appropriate affordances for their self-regulated learning. From the interviews, it was found that nearly 60% of the interview participants used mobile phone apps to help them learn new words, which was the most common activity in self-regulated learning, but usually only occurred during a short period of time before exams. Around 36% of the interview participants watched English movies, TV series, lectures, or other relevant videos. Nearly 28% listened to English news reports, speeches, or model tests. Only 7% read English books or articles in their spare time. It seemed clear that these affordances had been greatly undervalued in students' self-regulated learning; most students only recognized vocabulary as an affordance, while the proportions of students utilizing other affordances were much smaller and few participants mentioned the practice of writing and translation skills in their self-regulated learning except for completing writing and translation assignments. The imbalanced development of listening, speaking, reading, writing, and translation skills was not suitable to maximize their learning outcomes.

4.3. Document Analysis Results

The core qualities that the HSECS aims to cultivate are language competences, cultural awareness, critical and creative thinking competences, and learning capacities [34] (p. 6). The goals of university English teaching highlighted by the CETG include communicative competences, cross-cultural communication awareness, and self-regulated learning capacities [35] (p. 2). The teaching content is also organized in alignment with the above categories of core qualities and competences.

Although the goals of English teaching in the HSECS and the CETG are similar to each other, the specific foci of the teaching content are different. The HSECS proposes the development of the competences in listening, speaking, reading, watching, and writing. Here, watching, referring to the competence in obtaining and interpreting information from graphs, charts, symbols, animations, videos, and so on, is added to the traditional reading competences because it is very important in the new media era [34] (p. 30). The language competences specified by the CETG include listening, speaking, reading, writing, and translation. The CETG provides details of the genres, lengths, complexity, etc., of the teaching resources that are needed for the development of these competences. However, the HSECS does not provide these details; instead, it introduces the strategies that students are expected to practice when they use these language skills in their English learning, such as note-taking in listening and watching, predicting content in reading, the use of cohesive devices in speaking and writing to establish the logic, and so on.

Learning strategies are included as part of the teaching content in the HSECS, divided into four types: "Metacognitive strategies, cognitive strategies, communicative strategies, and affective strategies" [34] (p. 34). However, the CETG places learning strategies in the category of teaching approaches. It asks teachers to guide and help students to master learning strategies with appropriate

teaching approaches. In addition, both the HSECS and the CETG offer options for courses from elementary to advanced levels, with descriptions of different learning outcomes, for schools and universities to choose from according to the different levels of their students and the different requirements they need to meet.

Both the HSECS and the CETG emphasize the application of task-based and inquiry-based teaching approaches, as well as the guidance of self-regulated learning and cooperative learning among students through the appropriate use of ICT. They point out the necessity to enrich English teaching with abundant affordances from various multimedia resources.

The two documents also share similar assessment policies. Formative assessment should be performed as the major type of assessment, with summative assessment in an auxiliary position. Both qualitative and quantitative assessment in various forms of activities are encouraged. Assessment should involve students' self-evaluation and peer assessment. Teachers need to provide timely feedback and discuss with students about their English learning, in order to help them gain more positive washback effects from assessments.

As for self-regulated learning, the HSECS specifies a minimum number of hours for listening and watching English resources every week, and the minimum length of reading every week for different levels. The CETG does not specify similar requirements.

In general, both the HSECS and the CETG provide similar policies in relation to important issues surrounding English teaching and learning, which indicates a certain level of continuity in English language education policies at different levels. The involvement of learning strategies as part of the teaching content in the HSECS is a good preparation for self-regulated learning in university. However, translation is not covered in the HSECS, representing a disconnect from the development of translation competence included in the CETG. The CETG is more flexible about self-regulated learning, while the HSECS specifies details of minimum weekly requirements. In summary, in guiding the development of students' ecological niches the HSECS places more emphasis on teaching learning strategies to students, while the CETG stresses facilitating students' self-regulated learning by providing guidance and resources.

5. Discussion

5.1. Interactions between Ecological Factors

As the guidance for high school English teaching, the HSECS presents policies for curriculum development with consideration of the development of students' overall English language competences and their continuation into university English learning. However, NMET has affected the implementation of the HSECS and has caused a disconnect in terms of teaching content and teaching approaches between high school and university English teaching, which makes it more challenging for students to adapt to university English learning. These findings are in line with previous studies [7,13–15], except that reading is not included in previous findings as a significant part of the teaching content in high school. It is important to recognize that reading is the only language competence that is extensively developed in high school, further demonstrating the disconnect in the development of language competences between high school and university English teaching, and explaining students' low ecostates in terms of their other language competences.

Previous studies have also suggested that university English teaching is more challenging for students in terms of their listening and speaking skills [7,15]. However, this study finds that for students with low ecostates such as the C university students, reading is the most challenging skill for them in their adaptation to university English learning. Due to their low ecostates, the major teaching content has been changed from speaking and listening to reading. This indicates that in order to gain more insights into English language teaching and learning, due attention should be given to the interactions between the ecological factors in different ecological environments, which may have particular influences on specific groups of teachers and students.

5.2. Diversity

Teaching content and related teaching resources are more diversified in university than in high school English teaching in order to create sufficient affordances for the development of students' ecological niches. However, our data analysis shows the lack of diversity in the affordances used and the language skills practiced in students' self-regulated learning. Previous research has identified the same problem and attributed it to students' lack of information literacy, which will impose a negative influence on the balance of the development of the student's ecological niche [22].

The study shows students' satisfaction with the diversity of assessment practices in various forms, and the benefits they gain from the feedback. The assessment tasks not only test students' academic performance, but also offer them various learning experiences, which agrees with the ecologically valid pedagogical principles proposed by van Lier [30]. In addition, teacher feedback can provide very important affordances for learning [20]. In contrast, there are also complaints from participants, especially those who are not doing well with their self-regulated learning, about the lack of supervision and feedback in relation to their management of English learning in university. This is similar to previous research findings, indicating that assessment and feedback focus more on students' academic performance, i.e., their ecostates, than on ecopotentials such as learning strategies [7,21].

However, previous studies have not pointed out the relationship between formative assessment and students' self-regulated learning. This study has found a negative washback effect from formative assessment on students' self-regulated learning. Although there might be a variety of tasks in formative assessment, few of the interview participants mentioned reading assessment, and only 7% reported reading activities in their self-regulated learning. The overemphasis on listening and speaking activities in formative assessment reduces the chance of the development of students' reading competence. In more diversified formative assessment and feedback, a balance should be struck between different language skills and the feedback needs to address both the ecostates and the ecopotentials of students.

5.3. Individual Differences

Different students' ecological niches present different ecostates and ecopotentials. Students with higher ecopotentials can better adapt to a new learning environment and reach higher ecostates after a single year. They outperform the lower ecopotential group in the use of ICT for access to affordances, as well as the amount of time and effort devoted to self-regulated learning. This highlights the power and the decisive role of ecopotentials, which can promote a change in ecostates regardless of initial ecostates and different ecological environments. This conclusion is consistent with previous research findings about students' ecological niches in the College English ecosystem, where higher ecopotential groups outperform lower ecopotential groups in terms of their ecostates and the specific competences that constitute their ecopotentials [22]. This study has found that even though the lower ecopotential group utilized teacher feedback during their writing assignments, they did not recognize the enhancement of their writing competence as much as the higher ecopotential group. This is a novel finding, distinguishing competence in the identification and utilization of affordances from competence in the internalization of affordances into individual performance. To some extent, internalization competence also depends on critical thinking to work out solutions to the transformation of affordances into language competences. This differentiation contributes to insights about students' ecopotentials in English learning, and also highlights the importance of critical thinking in the development of ecopotentials as stated in previous studies [26].

The cultivation of critical thinking is specified in the HSECS, but the CETG does not place explicit emphasis on the development of critical thinking competence. In addition, the HSECS includes learning strategies in teaching content, but the CETG only asks teachers to guide the development of students' learning strategies. The different policies suggest less control over students' self-regulated learning in university than in high school.

However, this study has found a number of problems in students' self-regulated learning, suggesting that it requires more guidance and feedback from teachers. As previous research has

proposed, self-regulated learning capacities require pedagogical efforts to foster [25]; it seems to be difficult for students to make the transition from teacher-centered teaching towards student-centered teaching. The findings of this research advocate that differences in both students' ecological niches and their ecological environments need to be taken into account, in order to make appropriate pedagogical efforts to help them adapt to university English learning.

6. Implications

6.1. Continuity of Teaching Content

Though the HSECS and the CETG have established a degree of continuity in English language education policies between high school and university, the study has found that there is a disconnect in the development of listening, speaking, and translation competences. It will be advisable to increase the proportion of listening, speaking, and translation activities in high school English teaching, and extend them to students' self-regulated learning to achieve a more balanced development of English language competences and better prepare them well for the higher requirements in university English learning.

The time allocated for exam preparation for NMET should not be extended at the cost of regular English teaching and learning aimed at the development of communicative competences in English. If the ecological environment in high schools can become less exam-oriented, it will be more helpful in preparing students for subsequent adaptation to university English learning.

The content of formative assessment and feedback should maintain a balance between different language skills in order to create positive washback effects to guide students' self-regulated learning. In addition to the assessment of students' ecostates, feedback on their ecopotentials should be strengthened, allowing teachers to negotiate with students about how to develop their ecological niches and adapt to university English learning.

6.2. Individualized Curricula

In view of the individual differences in students' ecological niches, especially the conflicts between students' low ecostates in high school and the expectation of high listening and speaking competences in university, teachers need to make individualized curricula with appropriate teaching resources and teaching approaches for groups of students with different ecostates. In other words, a particular ecological environment should be created to include appropriate affordances for a particular group of students with similar ecostates, even within the same class. They will benefit from specially-tailored tasks, assessments, and feedback matching their ecostates, yielding better chances of success and improved motivation for sustained investment of time and effort in English learning, thereby improving their ecostates and ecopotentials step by step.

Such individualized curricula are highly demanding for teachers, as they have to take account of diversified affordances for students with different ecostates, while also integrating these curricula together as an organic whole when teaching to the whole class. Teachers should therefore be given more freedom in curriculum design in university English teaching.

6.3. Development of Ecopotentials

Our research results have provided evidence for the utility of the ecostate–ecopotential theory. Students with higher ecopotentials are able to make better transitions from high school to university English learning. Since the capacity for self-regulated learning is not well-developed in high school, university English teaching should strengthen the development of students' ecopotentials in order to help them adapt to their new ecological environment as quickly as possible. Therefore, it is necessary to include explicit instruction in self-regulated learning in the formal university English curriculum as an important component to be taught, supervised, and evaluated, rather than merely an after-class activity to be encouraged, but not sufficiently guided by teachers. Self-regulated learning should be characterized by neither too much freedom nor too much control. The optimal approach is to

offer appropriate control and supervision over students' self-regulated learning to fit their individual ecological niches. Teachers need to provide students with timely and frequent feedback to help enhance their ecopotentials.

The key issue in the development of students' ecopotentials is critical thinking, which is especially important with the increasing use of ICT by students to manage their learning processes in terms of the identification, utilization, and internalization of affordances in English learning. The cultivation of critical thinking is highlighted in the HSECS, but not in the CETG. It requires more specific policies to integrate the development of critical thinking into the curricula of both high school and university English education, to enable the better development of students' ecopotentials.

7. Conclusions

The HSECS and the CETG share common goals and many specific policies, which are conducive to students' transition from high school to university English learning. However, problems occur in teaching content, teaching approach, assessment and feedback, and self-regulated learning. For example, students' self-regulated learning cannot be fully developed in high school under the influence of NMET, and students lack enough guidance and feedback to develop it effectively in university. Interactions between the above four areas, between different ecological factors and those between ecological factors and the ecological environment, are identified and discussed in this study for a deeper understanding of how they influence students' transition from high school to university English learning in order to provide well-directed implications. Both high school and university have to make collaborated efforts in policy making to ensure the continuity of teaching content, individualized curricula, and the development of ecopotentials to promote students' sustainable language learning and the sustainable development of English language education from high school to university.

Further research could include studies on the important learner factors of motivation, self-efficacy, learning style, etc., to explore students self-regulated English learning at the micro level, in order to yield more insights about the development of their ecological niches and to inform English language education policies.

Author Contributions: Conceptualization, C.L. and S.A.-u.-H.; methodology, formal analysis, investigation, C.L.; supervision, S.A.-u.-H.; writing—original draft preparation, C.L.; writing—review and editing, S.A.-u.-H. and F.G. All authors have read and agreed to the published version of the manuscript.

Funding: This research received no external funding.

Acknowledgments: This article is the research production of Jiangsu Social Science Foundation Project "A study on English language education planning in the transition from high school to university", Grant number 17YYD001. The original draft was completed by C.L. while he was undertaking his postdoctoral studies supported by State Scholarship Fund of China.

Conflicts of Interest: The authors declare no conflict of interest. The funders had no role in the design of the study; in the collection, analyses, or interpretation of data; in the writing of the manuscript, or in the decision to publish the results.

References

1. Perry, R.P.; Hladkyj, S.; Pekrun, R.H.; Pelletier, S.T. Academic control and action control in the achievement of college students: A longitudinal field study. *J. Educ. Psychol.* **2001**, *93*, 776–789. [CrossRef]
2. Lowe, H.; Cook, A. Mind the gap: Are students prepared for higher education? *J. Furth. High. Educ.* **2003**, *27*, 53–76. [CrossRef]
3. Yang, P.; Mao, D. Adaption is the key word for college freshmen development. *China High. Educ. Res.* **2013**, *3*, 16–24. [CrossRef]
4. Wilson, K.L.; Murphy, K.A.; Pearson, A.G.; Wallace, B.M.; Reher, V.G.S.; Buys, N. Understanding the early transition needs of diverse commencing university students in a health faculty: Informing effective intervention practices. *Stud. High. Educ.* **2016**, *41*, 1023–1040. [CrossRef]

5. Song, Y. A survey on the adaptation of freshmen in Basic College of University of Shanghai Science and Technology. *J. High. Educ.* **2018**, *8*, 178–180, 184.
6. Goodwin, K.A.; Quinlan, K.M. How do we integrate skills and content in classics? An inquiry into students' use of sources. *Arts Humanit. High. Educ.* **2019**, 1–21. [CrossRef]
7. Xu, J.; Wu, W. A survey on college English learning of non-English major freshmen. *Foreign Lang. Educ.* **2003**, *3*, 65–72.
8. Chen, J.; Wang, J. On the development of "Normal" in IT-based foreign language education. *Technol. Enhanc. Foreign Lang. Educ.* **2016**, *168*, 3–12.
9. Zhu, C. The niche ecostate-ecorole theory and expansion hypothesis. *Acta Ecol. Sin.* **1997**, *17*, 324–332.
10. Jiang, Y.; Dewaele, J.-M. How unique is the foreign language classroom enjoyment and anxiety of Chinese EFL learners? *System* **2019**, *82*, 13–25. [CrossRef]
11. Guo, Y.; Xu, J.; Liu, X. English language learners' use of self-regulatory strategies for foreign language anxiety in China. *System* **2018**, *76*, 49–61. [CrossRef]
12. Johnson, R.K. A decision-making framework for the coherent language curriculum. In *The Second Language Curriculum*; Johnson, R.K., Ed.; Cambridge University Press: Cambridge, UK, 1989; pp. 1–23.
13. Sheridan, V.; Dunne, S. The bigger picture: Undergraduate voices reflecting on academic transition in an Irish university. *Innov. Educ. Teach. Int.* **2012**, *49*, 237–247. [CrossRef]
14. Wahleithner, J.M. The high school-college disconnect: Examining first-generation college students' perceptions of their literacy preparation. *J. Adolesc. Adult Lit.* **2020**, *64*, 19–26. [CrossRef]
15. Dai, W. The construction of the streamline ELT system in China. *Foreign Lang. Teach. Res.* **2001**, *33*, 322–327, 399.
16. Shao, Y. Reflections on high school English teaching from the perspective of college English teaching. *Foreign Lang. Teach. Res. Basic Educ.* **2007**, *1*, 22–25.
17. De Clercq, M.; Roland, N.; Brunelle, M.; Galand, B.; Frenay, M. The delicate balance to adjustment: A qualitative approach of student's transition to the first year at university. *Psychol. Belg.* **2018**, *58*, 67–90. [CrossRef]
18. Meehan, C.; Howells, K. 'What really matters to freshers?': Evaluation of first year student experience of transition into university. *J. Furth. High. Educ.* **2018**, *42*, 893–907. [CrossRef]
19. Nicol, D. Assessment for learner self-regulation: Enhancing achievement in the first year using learning technologies. *Assess. Eval. High. Educ.* **2009**, *34*, 335–352. [CrossRef]
20. Thoms, J.J. An ecological view of whole-class discussions in a second language literature classroom: Teacher reformulations as affordances for learning. *Mod. Lang. J.* **2014**, *98*, 724–741. [CrossRef]
21. Gu, S. A Study on the Autonomy-facilitating Factors in College English Curriculum. Ph.D. Thesis, Shanghai International Studies University, Shanghai, China, 19 May 2013.
22. Li, C. A study on the student's ecological niche in College English teaching ecosystem. *Technol. Enhanc. Foreign Lang. Educ.* **2017**, *177*, 15–22.
23. Huang, Z.; Li, Y. A study of the adaptation of freshmen: A perspective of the transition from high school to university. *China High. Educ. Res.* **2010**, *5*, 83–85. [CrossRef]
24. Torenbeek, M.; Jansen, E.; Hofman, A. The relationship between first-year achievement and the pedagogical-didactical fit between secondary school and university. *Educ. Stud.* **2011**, *37*, 557–568. [CrossRef]
25. Gao, X.A. *Strategic Language Learning: The Roles of Agency and Context*; Multilingual Matters: Clevedon, UK, 2010; pp. 158–161.
26. Terpstra-Tong, J.L.Y.; Ahmad, A. High school-university disconnect: A complex issue in Malaysia. *Int. J. Educ. Manag.* **2018**, *32*, 851–865. [CrossRef]
27. Paul, R.; Elder, L. *The Miniature Guide to Critical Thinking Concepts and Tools*, 8th ed.; Rowman & Littlefield: Lanham, MD, USA, 2020; pp. 9–17.
28. Van Rooij, E.C.M.; Jasen, E.P.W.A.; van de Grift, W.J.C.M. First-year university students' academic success: The importance of academic adjustment. *Eur. J. Psychol. Educ.* **2018**, *33*, 749–767. [CrossRef]
29. Bachman, L.F.; Palmer, A.S. *Language Testing in Practice: Designing and Developing Useful Language Tests*; Oxford University Press: Oxford, UK, 1996; pp. 66–75.
30. Van Lier, L. The ecology of language learning: Practice to theory, theory to practice. *Proc. Soc. Behav. Sci.* **2010**, *3*, 2–6. [CrossRef]

31. Ministry of Education of the People's Republic of China. Available online: http://www.moe.gov.cn/s78/A03/moe_560/jytjsj_2018/gd/ (accessed on 22 August 2020).
32. Wang, S. Notions and practices of individualized English language teaching in contemporary China. *Foreign Lang. Their Teach.* **2015**, *4*, 1–4. [CrossRef]
33. Wang, J. On curriculum design of the national standards for undergraduate English-major students: Review and reflections. *Mod. Foreign Lang.* **2015**, *38*, 121–130.
34. Ministry of Education of the People's Republic of China. *High School English Curriculum Standards*, 2017th ed.; People's Education Press: Beijing, China, 2018; pp. 1–37.
35. The National Foreign Language Teaching Committee in Higher Education under Ministry of Education of the People's Republic of China. College English Teaching Guidelines. 2014, pp. 1–20. Available online: https://wenku.baidu.com/view/875e41dc43323968001c9293.html (accessed on 10 May 2020).