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Investigation and Research on the Learning Power and Influencing Factors of University Students in the Guangdong-Hong Kong-Macao Greater Bay Area

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Abstract: In the context of the Internet era, the educational model, form, content and learning methods are undergoing profound changes. The learning power of students has become a widespread concern of universities and society in the Guangdong-Hong Kong-Macao Greater Bay Area. In order to achieve the development goal of building an international scientific and technological innovation centre with global influence in the Guangdong-Hong Kong-Macao Greater Bay Area, the role of education and talent cultivation in the Bay Area cannot be ignored. Based on theoretical and empirical analysis, the research conducted a quantitative analysis of the collected questionnaire data through SPSS and explored the influencing factors of the learning power of university students in the Guangdong- Hong Kong- Macao Greater Bay Area. The study found that learning motivation is the most significant factor affecting the learning power of university students in Guangdong-Hong Kong-Macao Greater Bay Area; positive motivation, healthy home education, a well-supported campus environment, effective feedback between teachers and students, appropriate use of online resources, and a steadily developing social environment are closely related to and had a facilitating effect on learning power. With the findings of the study, practical suggestions are made to enhance students' learning power and improve their learning efficiency so as to promote the development of education in the Bay Area.

1. Introduction

The spread of Internet technology has accelerated the speed of knowledge dissemination and greatly changed the mode and content of teaching and learning today. The "learner-centered" approach is an important concept in teaching and education today, focusing on the development of the human capabilities, promoting the all-round development of people, advocating the concept of learning for all, lifelong learning and personalized learning, and gradually promoting the construction of a "learning society", which is more conducive to the training of more talents who

can adapt to the all-round development of different fields. High-quality education and talent development are essential if the Guangdong-Hong Kong-Macao Greater Bay Area, as one of the most economically active and open and inclusive regions in China, is to seek higher levels of development and become an international center of technological innovation with world influence. Since the economic base and scientific and educational resources within the Guangdong-Hong Kong-Macao Greater Bay Area vary greatly, there is an urgent need for regional universities to explore and research talent training models in accordance with the economic development of the local region.

In the development and construction of the Guangdong-Hong Kong-Macao Greater Bay Area, education cooperation and development is one of the most important components. The aim of this important component is to address the innovation-driven needs of the development of the Bay Area, by gathering the strength of higher education institutions as well as scientific research institutions in Guangdong, Hong Kong and Macao, and linking the educational resources from all over the world to jointly deliver innovative fresh blood and strong impetus for the flourishing development of the Guangdong-Hong Kong-Macao Greater Bay Area. The learning power of university students has a direct impact on their creativity in their future work. Liang Yan (2021) suggested that in terms of professional education, we should start with students' intrinsic motivation, enhance their learning power, and encourage Hong Kong and Macao students to perform practical research work and innovative activities by utilizing their expertise and integrating it with the technological development of the Guangdong-Hong Kong-Macao Greater Bay Area [1]. Therefore, attaching importance to and nurturing the learning power of university students will help channel future innovation and development for the Guangdong-Hong Kong- Macao Greater Bay Area.

The term learning power was first coined in the field of management. The concept of the "learning organization", first introduced by Jay Wright Forrester at MIT in the USA, reflects the unique value of learning power in organizational management: it makes the organizational team an organic whole, and the continuous self-improvement and self-development of each member keeps the team moving forward. In the study of university students' learning power, university learning relies more on students' self-learning ability and self-control, and requires a high degree of self-awareness, unlike in secondary school, where they are surrounded by teachers and detailed guidance, and are strictly supervised and disciplined by the school rules and regulations. W.C. Kriby of Harvard Business School's Department of Business Administration suggested that "the only way to truly improve your learning and become a master of learning is to have the power to learn." Therefore, it is particularly vital that university students have good learning power. According to B. J. McGettrick (2002), learning is a huge, endogenous energy that facilitates a 'double chain' of interaction, one of which is the learner's own ideas, attitudes, goals and motivation, and the other is the way in which the learner achieves the learning outcome [2]. Deakin Crick (2006) further suggested that learning is an abstract concept that not only cannot be accurately measured or observed internally in terms of factors such as thinking and emotions, but can only be measured through the results of learning [3]. Learning power is an important indicator of how students learn to learn, and is an important mechanism for students to engage in deep learning and promote the development of core literacies, and the situation and cultivation of learning power among university students is receiving increasing attention. The Effective Lifelong Learning Inventory (ELLI) project in the UK provided feedback to students at a number of UK universities on their individual learning power and has provided the basis for students to improve their learning power. This project structured the learning power into seven dimensions: growth orientation, critical curiosity, meaning-making, dependence and fragility, creativity, relationships/ interdependence and strategic awareness [4]. Based on the research of this project, Xiao-ou Huang (2020) measured Chinese university students, and the research analysis found that there is an uneven structure of learning

power among university students in China, which may affect their overall learning power [5].

A great deal of research has been conducted by different scholars on the factors influencing learning power, but there is a lack of research that breaks down to the current state of learning power and the factors influencing it in different groups. In this paper, we aim to study the current situation of the learning power of university students in Guangdong-Hong Kong-Macao Greater Bay Area and its influencing factors, using questionnaires and interviews and combining with case studies, as well as using Likert scales and SPSS statistical tools for data analysis, so as to explore the main factors affecting the learning power of university students in the Greater Bay Area, and then take certain effective measures to improve the quality of education in universities in the Greater Bay Area, stimulate students' interest in learning, enhance students' learning power, and make positive contributions to promoting the reform of university education and teaching, which will promote the development of education in Guangdong-Hong Kong-Macao Greater Bay Area.

2. Research and Design

2.1. Scope of the Research

With the purpose of investigating the current situation of the learning power of university students in the Guangdong-Hong Kong-Macao Greater Bay Area, we selected a representative group of university students from "985" and "211" universities and ordinary undergraduate institutions in the Guangdong-Hong Kong-Macao Greater Bay Area as the research subjects, including three major universities and general universities in Guangdong Province, three universities in Hong Kong and Macao. 152 students in the Greater Bay Area were randomly sampled to measure their learning power.

2.2. Research Tools

With a combination of questionnaires and Likert scales, supplemented by qualitative survey methods such as documentary data analysis, our study investigated the group of university students in the Guangdong-Hong Kong-Macao Greater Bay Area. The data obtained from the survey were imported into SPSS26.0 software for descriptive statistical analysis, correlation analysis and regression analysis, and to describe the association of different external and internal factors with the learning power of university students in the Greater Bay Area. Finally, based on the findings obtained from the research analysis, suggestions were made for the cultivation and enhancement of the learning power of university students in the Guangdong-Hong Kong-Macao Greater Bay Area.

2.3. Questionnaire Design

The main content of this questionnaire referred to the NSSE-China evaluation system introduced by the Institute of Education of Tsinghua University and established in the light of educational reality, and integrated the conception of the theoretical model of college students' learning power with reference to the scale in *The Preparation and Initial Application of the Learning Power Scale for Students in Private Universities* by Liwen Yan [6]. After reading and analyzing the literature, it was found that the questionnaires available in most of the current related studies had neglected the influence of the social environment, Internet application environment and home environment in which students lived on the learning power situation to varying degrees, leading to a certain degree of ignoring the comprehensiveness, relevance and specificity of learning power measurement. Therefore, through literature search and interviews with some teachers and students, we proposed the hypothesis on the survey "learning power and its influencing factors of university students in

Guangdong-Hong Kong-Macao Greater Bay Area": learning motivation, teacher-student interaction, family education, campus environment, online resources and social environment all have an influence on the learning power of university students.

The questionnaire design was based on a scale and contained a basic information section and a variable question section. In the basic information section, the questionnaire investigated the subject's gender, grade, major, institution and so on. The variable questionnaire was in the form of a 5-point Likert scale, with five options: “completely unsuitable”, “unsuitable”, “fair”, “suitable” and “very suitable”, corresponding to scores of 1, 2, 3, 4 and 5. The detailed questionnaire questions corresponding to the variables are shown in Table 1.

2.4. Hypothesis of Influencing Factors

2.4.1. Learning Power and Learning Motivation

Table 1: Questionnaire questions corresponding to the variables.

Variables	Questionnaire questions corresponding to the variables
Learning Motivation	1. You are a person with ambitions.
	2. Your parents want you to have a good job and high achievements in the future.
	3. You are highly motivated once you study.
	4. I often don't know what the knowledge I am learning really means to me.
	5. You are interested in what you are studying.
	6. How is your motivation to learn from the following sources?
	a. Interest in exploring things/knowledge
	b. Employment / further studies
	c. Expectations of parents and teachers
	d. School atmosphere and influence of peers
	e. Challenge/improvement of self
	f. Sense of mission for the country and society
Teacher-Student Interaction	1. Your teachers are lovable and respectable.
	2. In your mind, the teachers are top-notch in their teaching
	3. The curriculum is stale and boring.
	4. You have the enthusiasm to carry out your own research studies, but lack the guidance of a specialist teacher after class.
Social Environment	1. I have paid attention to the development of the Guangdong, Hong Kong and Macao Greater Bay Area.
	2. I have participated in internship practice.
	3. I have a feeling that there are both opportunities and challenges in the development of the Guangdong-Hong Kong-Macao Greater Bay Area.
	4. I have tried to understand what kind of talents are needed in Guangdong-Hong Kong-Macao Greater Bay Area, and I have worked hard to achieve this.
	5. The development of the Greater Bay Area has enabled me to enjoy better educational resources and learning experiences.
Campus Environment	1. The university I attend has good teaching conditions.
	2. My university has appropriate penalties for cheating, truancy, leaving early and being late.
	3. The working hours at my university are well arranged.
	4. I make regular use of the library collection and digital literature resources for my studies.
Online Resources	1. I can take full advantage of my initiative by studying online.
	2. I will use online classes for learning.
	3. I accept the model of paying for knowledge.

Home Education	1. My parents are passionate about learning.
	2. My parents are reasonable in everything and are not arbitrary or over-indulgent.
	3. My parents are well-educated.
	4. My parents believe that learning is important.
	5. I will talk to my parents for help when things go wrong.
Learning Power	1. My dedication is proportional to the results I achieve.
	2. I study with a clear sense of priority and can grasp knowledge clearly.
	3. I can master new knowledge skillfully and quickly by combing old knowledge.
	4. I am inert and have a headache when it comes to study.
	5. I do something in class that is not relevant to the lesson.
	6. I can apply my life experiences to my learning.
	7. After a lesson or chapter, I organize all the relevant knowledge into a “knowledge tree” or outline to remember.
	8. I am refreshed and attentive in all lessons.

Learning motivation is the direct drive that stimulates students to engage in learning activities and is the endogenous cause that activates students to learn, and its relationship with learning power is dialectical. Currently, the scale of enrolment in universities in the Guangdong-Hong Kong-Macao Greater Bay Area continues to expand. Learning motivations are becoming increasingly diverse, with students who are clearly motivated to learn being more enthusiastic and efficient, and often able to expand their knowledge through online learning by selecting the learning resources they are interested in or need. However, students who are deeply under the influence of exam-oriented education or who are not sufficiently motivated to study have little understanding of and interest in their studies, and are prone to boredom, which is not conducive to the enhancement of their learning power. In addition, the phenomenon of utilitarianism of learning motivation is also noteworthy. During their long-term study and personal growth, university students in the Guangdong-Hong Kong-Macao Greater Bay Area have been subjected to a combination of objective factors such as the changes of the times, social trends, school education and family values, which have led to an increasing utilitarianism of learning motivation. Utilitarian motivation also tends to make students averse to learning, which reduces the efficiency and quality of learning, but gives them a degree of clarity of direction and a clearer goal.

Thus, our research hypothesis H1: Learning motivation has an influential role on learning power.

2.4.2. Learning Power and Teacher-Student Interaction

The development and enhancement of students' learning power is not innate, but is developed over time and by implication in the teaching culture influenced by the interaction of teachers. While learning power can vary from the own perceptions of individual students, what is more important is the role of the culture of teaching and learning on students' learning power. With the establishment of the Guangdong-Hong Kong-Macao University Innovation and Entrepreneurship Alliance and the Guangdong-Hong Kong-Macao University Alliance, there are increasing visits and exchanges between teachers and students from the three places, which greatly facilitate the collision of teaching ideas and achievements. Strengthening good interaction and increasing effective communication between teachers and students, and being able to give positive guidance in time when students have problems, can promote the development of students' learning attitudes, habits and other good qualities [7], which can effectively improve students' learning power.

Consequently, this study hypothesis H2: Teacher-student interaction has an influential effect on learning power.

2.4.3. Learning Power and Campus Environment

There is an inextricable link between the campus and education. The landscape, the hardware and software, and the learning atmosphere all affect and shape the people on campus. The more supportive a campus environment is, the better it is for the development of high-quality students. The current connectivity of the Internet in Guangdong-Hong Kong-Macao Greater Bay Area uses multimedia teaching and a campus environment with a full complement of software and hardware facilities, and a democratic, scientific, relaxed and liberal campus atmosphere helps to stimulate students' learning power.

Therefore, hypothesis H3 of this study: the campus environment has an influencing effect on learning power.

2.4.4. Learning Power and Online Resources

Modern information technology in the Guangdong-Hong Kong-Macao Greater Bay Area is among the forefront of the international scene, providing strong technological support for the development of talents. The richness of learning resources, the variety of learning methods and the convenience and efficiency of the learning process in the information age have provided learners with more opportunities to learn outside the classroom, and learning in the online world has become an essential part of the learning life of university students. Online learning is more interesting and provides knowledge and insights not found in textbooks. If you use online resources wisely, they will complement each other with your own learning methods and study power. However, some students are addicted to the internet and use it frequently for entertainment, which goes against the grain and greatly weakens their own learning power. In addition, most learners say that in the process of using online resources, they are easily disturbed by other content and have weak self-control. For example, when communicating with others online, it is difficult to ensure that they are fully focused on the discussion of the learning content and concentrate less, and some students say that the process of acquiring resources takes a lot of time due to their own information retrieval ability, which to a certain extent affects their learning efficiency. The cultivation of talent cannot be separated from the mindset of the Internet age. Online learners with learning power are active learners who are internally driven, anticipatory, and skilled in planning and reflection, able to regulate and manage learning, and have a spirit of reciprocity and cooperation [8].

Thus, what is hypothesized in this study is H4: Internet resources are effective in influencing learning power.

2.4.5. Learning Power and Home Education

The existence of internet technology has changed the way students learn and the way families educate themselves. Psychological research has shown that parenting styles have a profound impact on children's self-perceptions and behavior, and that parental influence and guidance are directly related to students' academic performance and learning capacity. Information technology supported education models and the development of university students' learning power require the cooperation and participation of parents, who should pay attention to students' learning behavior at home [9].

As a result, in this study, hypothesis H5: Family education has an influential role on learning power.

2.4.6. Learning Power and Social Environment

The different distribution of universities and teaching resources within the Guangdong-Hong

Kong-Macao Greater Bay Area has led to unbalanced regional development, uncoordinated development in the area, and different social environments in each region, further leading to significant differences in the quality of students within the universities in the Greater Bay Area. In terms of tertiary education levels, Hong Kong and Macao are overall more developed than those in Guangdong. While students in Guangdong and Hong Kong are highly competitive, local students in Macao show a lower desire to study due to the lack of a competitive social environment and a more heterogeneous secondary education [10]. In addition, with the development of the Guangdong-Hong Kong-Macao Greater Bay Area, it has brought about a large demand for innovative and entrepreneurial talents in universities. Talent development in the Greater Bay Area is being given attention, and the interconnectedness of education is subtly influencing students' learning behavior and motivation. With the day-to-day sharing and exchange of information, policies and talents in the Greater Bay Area, external factors play a non-negligible role in influencing students' student ability.

In this research, it is thus hypothesized that H6: Social environment has an influential role on learning ability.

3. Research Analysis and Results

3.1. Data Validation

3.1.1. Reliability Analysis

Table 2: Reliability statistics.

Influencing Factors	Cronbach Alpha Values	Cronbach Alpha Values Based on Standardized Terms	Number of Items
Learning Motivation	0.764	0.769	11
Teacher-Student Interaction	0.723	0.731	4
Campus Environment	0.714	0.715	4
Online Resources	0.709	0.716	3
Home Education	0.757	0.769	5
Social Environment	0.878	0.879	5
Learning Power	0.747	0.754	8
Overall Questionnaire	0.909	0.91	40

A total of 152 questionnaires were received, of which 120 questionnaires were valid, representing a validity rate of 80%. The questionnaire was tested for internal reliability. According to the statistical viewpoint, a Cronbach Alpha coefficient value of 0.7 or above for any test and scale indicates good internal consistency of the test or scale. As shown in Table 2, this reliability coefficient was used to evaluate internal consistency across the dimensions of this study's scale, and the overall Cronbach Alpha coefficient value for the survey data was 0.909, which was much greater than 0.7, indicating good reliability of the questionnaire scale. The Cronbach Alpha coefficient values for each dimension were learning motivation (0.764), teacher-student interaction (0.723), campus environment (0.714), online resources (0.709), home education (0.757), social environment (0.878), and learning power (0.747), all of which were above 0.7. This indicated that the scale has good reliability and that the sample feedback results were generally accurate and reliable, allowing for further analytical studies.

3.1.2. Validity Analysis

The question design of this questionnaire drew in part on the results of the literature, and after a small pre-survey, the question design of the scale had been repeatedly revised and refined, so the

content validity of this scale was trustworthy. Therefore, on this basis, the validity analysis only needed to test construct validity. In this paper, the construct validity was tested using KMO values and Bartlett's test, and the results are detailed in Table 3. The KMO value for this study sample was 0.824, which was greater than 0.8, indicating good validity. Meanwhile, the Bartlett's test resulted in a p=0.000, which was less than 0.05, and the variables were considered not independent of each other. An exploratory factor analysis was conducted and found that the correspondence between the questionnaire items and the study variables was as expected, that is, the test scores of the scale questions were consistent with the characteristics that were intended to be measured.

Table 3: KMO values and Bartlett's test.

KMO Measure of Sampling Adequacy		0.824
Bartlett's Test of Sphericity	Approx. Chi-Square	2686.880
	df	780
	Sig.	0.000

3.2. Research Analysis

3.2.1. Overall Analysis of Learning Power

The Total Learning Power Score is used to reflect the general situation of the learning power of university students in the Guangdong-Hong Kong-Macao Greater Bay Area (see Table 4). According to the results of the questionnaire, the average score of the 120 respondents was 114.48, with the minimum score being 98 and the maximum score 163. This showed that the general situation of the learning power of university students in Greater Bay Area is average, and the level of learning power still need further improvement.

Table 4: The Total Learning Power Score.

	Number of Subjects	Minimum Value	Maximum Value	Average Value	Standard Errors	Standard Deviation
The Total Learning Power Score	120	98.00	163.00	114.48	1.71	18.74

3.2.2. Correlation Analysis

The correlations between the seven factors of learning motivation, teacher-student interaction, home education, school environment, online resources, social environment and learning power were analyzed and the results are shown in Table 5. The Pearson correlation coefficient is used to indicate the correlation of the factors. The two * signs are significant at the 0.01 level with 99% certainty that the presence of this coefficient is considered statistically significant. A correlation coefficient over 0 indicates a positive correlation, while the opposite is a negative correlation. The larger the value, the stronger the correlation. In general, a coefficient greater than 0.4 indicates a strong positive correlation; greater than 0.6 indicates a much stronger positive correlation.

The results in Table 5 showed that, firstly, learning power had a significantly strong positive correlation with learning motivation and home education, and secondly, learning power had a significantly much stronger positive correlation with campus environment, teacher-student interaction, online resources, and social environment. These findings suggested that positive motivation, healthy home education, a well-supported campus environment, effective feedback between teachers and students, appropriate use of online resources, and a steadily developing social environment are closely related to and had a facilitating effect on learning power. The significant correlation among the above variables provided a basis for further regression analysis.

Table 5: Correlation of dimensions.

	Learning Power	Campus Environment	Teacher -Student Interaction	Learning Motivation	Home Education	Online Resources	Social Environment
Learning Power	1						
Campus Environment	.617**	1					
Teacher -Student Interaction	.659**	.546**	1				
Learning Motivation	.593**	.483**	.564**	1			
Home Education	.524**	.471**	.620**	.554**	1		
Online Resources	.664**	.628**	.574**	.601**	.573**	1	
Social Environment	.645**	.581**	.483**	.663**	.476**	.613*	1
*. At the 0.05 level (two-sided), the correlation was significant.							
**. At the 0.1 level (two-sided), the correlation was significant.							

3.2.3. Regression Analysis and Hypothesis Testing

In order to analyze the factors influencing the learning power of university students in the Guangdong-Hong Kong-Macao Greater Bay Area, a linear regression model was developed to analyze the strength of each factor, using the overall attitude of the sample towards the variable as the explanatory variable. Multiple regression analysis was conducted with learning power as the dependent variable (Y) and learning motivation (LM), teacher-student interaction (TSI), home education (HE), campus environment (CE), online resources (OR) and social environment (SE) as independent variables.

The model was revised according to the stepwise method, starting from the path with the least significant coefficient and gradually removing it, resulting in the model equation as:

$$Y=28.790+4.633*OR+4.894*SE+3.756*TSI+4.950*LM+4.382*HE+2.792*CE \quad (1)$$

That is, the learning power equation is calculated as follows:

$$\text{Learning power}= 28.790+ 4.633*\text{Online Resources}+ 4.894*\text{Social Environment}+ 3.756*\text{Teacher-Student Interaction}+ 4.950*\text{Learning Motivation}+ 4.382*\text{Home Education}+ 2.792*\text{Campus Environment} \quad (2)$$

As can be seen from the regression model in Table 6, $R^2=0.863$, indicating that the goodness of fit of the model was good and that the independent variables explained 86.3% of the variance in learning power. The F-value of the ANOVA was 118.276, with a significant value of 0.000 (less than 0.05), which passed the significance test at the 5% level of significance. This indicated that the overall regression was effective and the results were statistically significant. Among the predictor variables investigated, the standardized regression coefficients in Table 6 showed that all coefficients were positive, which demonstrated that the influencing factors are positively related to learning power.

Learning Motivation (LM) (B=4.950，P=0.000<0.001), with the largest B value among all the factors, revealed that learning motivation was the most significant factor influencing the learning power of university students in Greater Bay Area. The hypothesis H1, learning motivation has an

influential role on learning power was verified. Students themselves are the main subjects of learning, and their personal motivation for learning directly affects their subjective initiatives and enthusiasm for learning, which in turn affects their learning power, and then their efficiency and effectiveness in learning. The characteristics and qualities of students are different from one another within the Guangdong, Hong Kong and Macao region, and their sense of competitiveness also varies, but the majority of students tend to have ambiguous and missing motivations for learning, which to a certain extent leads to low levels of learning effectiveness.

Social Environment (SE) (B=4.894, p=0.000<0.001), the second largest of all factors in terms of B value after the learning motivation, can significantly predict the learning power of university students in Greater Bay Area. Hypothesis H6, social environment has an influential role on learning power was validated. The Guangdong-Hong Kong-Macao Greater Bay Area has a high concentration of knowledge, universities, capital and other innovative resources, which not only creates conditions for the development of talents in the Greater Bay Area, but also reflects the huge demand for developing talents. In 2017, the Guangdong-Hong Kong-Macao University Library Alliance had been formally established, which strongly promoted the exchange and collaboration among libraries in the three regions, and contributed to the common construction and sharing of resources. Open and inclusive cooperation in tertiary education is the main theme of the development of tertiary education in Guangdong, Hong Kong and Macao, which has sufficient potential for the development of education, laying a solid foundation for stimulating the potentials of learning of university students.

Online Resources (OR) (B=4.633, p=0.000<0.001), also significantly predicted the learning power of university students in the Greater Bay Area. Hypothesis H4, online resources play an influential role on learning power, was checked. The emergence of the Internet has broken the constraints of the traditional learning model and has satisfied the personalized learning needs of university students, allowing learners to adapt to the time and place. With the further development of Internet technology, "Internet + Education" will become the future development trend, and this learning mode makes the learning of university students in the Greater Bay Area freer and more independent. The learning potential of students will be stimulated to the maximum extent, quality learning resources will be allocated more effectively, and students who are able to use online resources wisely will have stronger learning power.

Home Education (HE) (B=4.382, p=0.000<0.001) was also significant in predicting the learning power of university students in the Greater Bay Area. Hypothesis H5, home education is influential on learning power, was verified. Teaching and learning by the elders in the family have a subtle influence on students. Pragmatic parents in Guangdong, Hong Kong and Macao are overly concerned about their studies and examination results, which invariably exert immense pressure on students, which may discourage students from learning and goals and make them resistant to learning.

Teacher-Student Interaction (TSI) (B=3.756, p=0.000<0.001) also predicted significantly the learning power of university students in the Greater Bay Area. Hypothesis H2, teacher-student interaction has an influential effect on learning power was validated. Apart from interacting with their peers, the next most frequent interaction is with their teachers, who are the guides of students' learning careers. The quality of their teachers' teaching and the availability of professional teachers to guide students after class when they are enthusiastic about conducting research studies play an important role in the cultivation of talents. A positive and harmonious atmosphere of teacher-student interaction will promote the growth and progress of university students and have a positive effect on the development of learning power [11].

Campus Environment (CE) (B=2.792, p=0.001<0.05) significantly predicted the learning power of university students in Guangdong, Hong Kong and Macao. Hypothesis H3: Campus environment

has an influential effect on learning power was verified. The positive campus cultural atmosphere in Guangdong, Hong Kong and Macao provides good support for the development of university students. Universities should focus on the precipitation of cultural heritage, cultivate students' correct values, strengthen the humanistic atmosphere, optimize the curriculum, and improve the education system and practice platform.

Table 6: Regression analysis model of factors influencing university students' learning power.

Variables	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	R^2	F	Sig.
	B	Std. Error	Beta					
(Constant）	29.79	3.400		8.467	0.000	0.863	118.276	0.000
Online Resources	4.633	8.870	0.249	5.628	0.000			
Social Environment	4.894	0.715	0.266	6.482	0.000			
Teacher-Student Interaction	3.756	0.602	0.217	8.217	0.000			
Learning Motivation	4.950	0.678	0.314	5.542	0.000			
Home Education	4.382	0.751	0.224	5.832	0.000			
Campus Environment	2.792	0.795	0.155	3.514	0.001			

4. Conclusion and Suggestions

With reference to the research results of previous literature on factors influencing learning power, this study designed a questionnaire and scale for university students in the Guangdong-Hong Kong-Macao Greater Bay Area in the age of information, and categorized the factors influencing learning power of university students in the Greater Bay Area into learning motivation, teacher-student interaction, home education, campus environment, online resources and social environment. These factors are obstacles to the improvement of students' learning power, and can also be reasons for enhancing the learning power of university students. Among them, learning motivation is the most significant influencing factor on the learning power of university students in Greater Bay Area. The multiple linear regression model fitted in this study can basically explain the interrelationship between the dependent and independent variables, which is a practical guide for cultivating talents with all-round development in the Guangdong-Hong Kong-Macao Greater Bay Area.

The following discussion and suggestions have been drawn from our research.

(1) Utilitarian motivation tends to make students averse to learning and is not conducive to the cultivation of creativity, but it can make students' learning more purposeful and directed, and transform the pressure to pursue goals into motivation, which is beneficial in correcting students' partiality. Most students are stressed about their studies, mainly from the pressure of employment in the Greater Bay Area society, but when it comes to learning specifically, the pressure is left to the back of the mind. Teachers then have to skillfully use the advantages and disadvantages of utilitarian learning motivation to cultivate positive attitudes towards learning and to guide them in various social and practical activities so as to achieve a combination of internal and external and all-round development.

(2) The "Internet + Education" model has brought new opportunities for teaching reform. Building an online education platform in the Greater Bay Area and jointly introducing modern business management skills that enterprises and talents need, such as strategic business management, marketing, financial decision-making, innovation and entrepreneurship and other quality courses, for university students in Greater Bay Area to learn business management knowledge on their own, can transform pure research talents and research elites into high quality composite talents and improve the ability of collaborative development of talents.

In future online education, it is necessary to continuously use data mining technology to understand the differences in learning power between different university students, to target online teaching, and to carry out online course planning, learning arrangements and teaching evaluation according to the characteristics of different learners. After the class, learners can adjust their learning progress and learning time according to the learning timeline chart generated by the teaching system, and allocate online resources and learning time in a reasonable and effective way to promote the cultivation of talents.

(3) The teaching interaction between teachers and students can be not only limited to face-to-face teaching of questions and answers, but can also be effectively communicated with students through the Internet platform, so as to better understand the learning situation of students. Through an interactive Internet platform, students can timely receive feedback and answers to their questions after class, which can create a strong sense of satisfaction and increase their motivation and initiative, helping to maintain their enthusiasm for continuous learning. Teachers can provide remedial teaching for students with differences in learning ability to promote self-confidence in the learning process for students in the middle and lower reaches of the school.

(4) Universities should provide regular training activities in the area of information technology to improve teachers' ability to use information technology and to establish online channels such as campus online communities. Teachers must have strong information technology education skills and be able to apply it proficiently. Teaching activities should be designed and implemented in a more diversified style, with a conscious effort to enhance students' higher-level thinking skills and promote deeper learning and thinking.

(5) The Greater Bay Area should encourage universities in Guangdong, Hong Kong and Macao to carry out various forms of training programs such as joint degrees, summer courses and mutual recognition of credits, and further strengthen joint training of talents and humanities exchanges among the three places. It is possible to jointly support learning and practical exchange activities between young people from Hong Kong, Macao and Guangdong by building a platform for cooperation and exchange among university students from Guangdong, Hong Kong and Macao, organizing cultural salons and symposiums, and sharing the employment experiences of university students in the Greater Bay Area.

For universities in the Guangdong-Hong Kong-Macao Greater Bay Area, there is a long way to go to improve the learning power of university students. In this article, we have not yet fully revealed the learning power of university students in the Guangdong, Hong Kong and Macao Bay Area in the context of the Internet, but only provided a reference to enhance the learning power of university students. We still need to continue to explore research on the enhancement of learning power, and we hope that this article can make a modest contribution to the development of learning power among university students.

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