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## **MARKETING COMMUNICATION STRATEGIES OF COLLEGES AND UNIVERSITIES BASED ON SPATIAL AND TEMPORAL DISTRIBUTION OF STUDENTS**

The development of marketing strategies based on temporal and spatial student's distribution is extremely important in order to win a niche in the market of educational services. The object of the study is information about the place of origin of the Henan Institute of Science and Technology students in 2016 and 2020. The data used are provided by the Office of Academic Affairs of Henan Institute of Science and Technology, which selects identity data of students admitted and registered at the university in 2016 and 2020. The temporal and spatial distribution and spatial aggregation characteristics of the student enrolments are analyzed, as well as factors affecting the quality of the student flows, such as geographic location, total number of students per year, and publicity. The paper uses spatial data analysis (ESDA), which determines the spatial weight between districts. Global Moran's I index was used for spatial analysis. The analysis carried out on the example of Henan province showed that the number of graduates in each city in a given year directly affects the number of university entrants (in 2020, the largest number of school graduates was recorded in the cities of Zhoukou and Nanyang, which had the highest number of university entrants). The spatial arrangement of colleges and universities is identified as the main factor influencing the recruitment of students of each educational institution. The choice of colleges and universities by applicants and their parents in China is also determined by proximity to large cities, convenient transportation, and employment opportunities. It has been established that advertising educational services of universities is also an additional factor in their popularization and attraction of students. The important achievements and characteristics of the school should be highly summarized to ensure that all the information on the school brand is spread in the whole domain in a comprehensive manner. Different media should be selected for different students from different places.

Attention should be paid to the use of new media such as WeChat, Micro-blog, Tiktok etc. Also, a significant role should be given to interpersonal communication and mobilization of the enthusiasm of graduates to increase the popularity of a particular educational institution. Colleges and universities should reflect on themselves, correct in time, and actively establish a complete, effective, and dynamic evaluation mechanism for marketing, to improve marketing strategies, including through surveys of graduates, students, parents and other stakeholders of higher education.

**Key words:** *student's place of origin, GIS analysis, marketing communication, brand.*

Надзвичайно важливим сьогодні є розвиток маркетингових стратегій, що базуються на просторовому та часовому розподілі студентів, в напрямку завоювання ніші на ринку освітніх послуг. В статті аналізується маркетингова стратегія університету на прикладі Хенанського інституту науки і технологій за 2016-2020 рр. Аналізовані дані взято з відділу академічних справ Хенанського науково-технічного інституту, в якому вибрано вихідну інформацію про студентів, прийнятих до університету у 2016-2020 рр. Аналізується їх часовий і просторовий розподіл, а також просторова агрегація місця походження студентів, аналізуються фактори, що впливають на якість регіонів походження студентів (географічне розташування, загальна кількість зарахованих студентів за рік, публічність). В роботі використаний аналіз просторових даних (ESDA), за допомогою якого визначається просторова вага між районами (округами). Для проведення просторового аналізу використано Global Moran's I index. Проведений аналіз на прикладі провінції Хенань продемонстрував, що кількість випускників у кожному місті за певний рік прямо впливає на кількість вступників до університетів (у 2020 р. найбільша кількість випускників шкіл зафіксована у містах Чжоукоу та Наньян, з яких і була найвища кількість вступників в університет). Просторове розташування коледжів та університетів визначено головним фактором, який впливає на поповнення лав студентів того чи іншого освітнього закладу. Вибір коледжів та університетів абітурієнтами та їх батьками в Китаї також зумовлений близькістю до великих міст, зручним транспортом і можливостями працевлаштування. Встановлено, що реклама освітніх послуг університетів також є додатковим фактором їх популяризації та залучення студентів. Важливі досягнення та ключові переваги школи мають бути чітко узагальнені, щоб гарантувати, що вся інформація про шкільний бренд поширюється всебічно для публічного доступу. Для різних студентів із різних місць слід обирати різні медіа-ресурси. Увага повинна бути звернена на використання нових засобів масової інформації, таких як WeChat, Micro-blog, Tiktok тощо. Також неабияку роль слід надати міжособистісному спілкуванню та мобілізації ентузіазму випускників для підвищення популярності того чи іншого закладу освіти. Коледжі та університети повинні замислитися над тим, щоб вчасно виправляти та активно створювати повний, ефективний та динамічний маркетинговий механізм для покращення своїх маркетингових стратегій, зокрема, через опитування випускників, студентів, батьків та інших стейкхолдерів вищої освіти.

**Ключові слова:** *місце походження студентів, GIS-аналіз, маркетингова комунікація, бренд.*

**Introduction.** Communicative strategies are important not only for product or brand promotion of manufacturing companies, but also for providers of educational services – colleges and universities. In the 21<sup>st</sup> century, the development of marketing strategies based on the temporal and spatial distribution of students is extremely important for gaining a niche in the educational services market. Each educational institution strives to fully evaluate its place in the market and popularize its own brand. This study focuses on the analysis of the case study of

Henan Institute of Science and Technology (China), and the conclusions can be useful for all educational institutions in China, Ukraine, and other countries of the world.

**Literature review.** Marketing thought originated in the field of business management, but it's not just for businesses. In recent years, the marketing awareness of Chinese colleges and universities has been on the rise [1]. With the increasingly fierce competition in the education market, universities realize that the innovation and reform of marketing management mode and the ef-

fective spread of university brand are important methods to compete for the teachers and social resources [2]. This is conducive to enhancing the popularity of universities and social identity [3], conducive to enhancing core competitiveness and competitiveness, and promoting the development of higher education [4]. In the past, colleges and universities focused on vying for the source of students based on the enrollment plan [5]. However, the existing colleges and universities have different sources of student recruitment because of their differences, so different colleges and universities must carefully analyze the information of the place of student's origin before enrolling students and adopt different marketing strategies [6]. Geographical information systems, etc., can display a large amount of data information such as the spatial location of the enrolled students through clear and concise graphics, thereby greatly improving the accuracy of marketing strategies [7]. In view of the characteristics of different student profiles, the school develops suitable strategies with outstanding advantages, which can better compete for excellent candidate resources and social resources [8]. Based on this, the study focuses on the place of origin of students admitted to universities. By analyzing the spatial and temporal distribution of students, it can help the university find the differences with other similar universities, put forward targeted marketing strategies, help the university build a unique brand image, gain recognition from the public and form a good reputation, and then stand out in the fierce competition society [9].

The relevance of the study of marketing communication strategies concerning educational institutions is actively discussed by various scientific groups, for example [10; 11; 12]. At the same time, attention is paid not only to the actual promotion of educational services but also to the study of the consequences of successful marketing moves: the effectiveness of the creative industry [13], environmental management [14; 15; 16], the promotion of a green brand [17; 18], food security [19; 20], etc.

**Methods and research design.** The object of the study is information about the

place of origin of the Henan Institute of Science and Technology students in 2016 and 2020. The data used are provided by the Office of Academic Affairs of Henan Institute of Science and Technology, which selects identity data of students admitted and registered at the university in 2016 and 2020. The number of high school graduates in each city is taken from the statistical yearbook of Henan Province. The original data of students flows mainly includes the deletion of data, the repair of missing data and the screening of students' source. Every year, in Henan Institute of Science and Technology, students mainly come from the province, accounting for more than 92%. The proportion of students from other provinces is less than 8%. In this paper, information on the place of origin of students in Henan Province is taken as the research object, and the place of origin information of students in other provinces is ignored; at the same time, after manually completing the county information, the place of origin information of students in Henan Province is selected and classified.

Exploratory Spatial Data Analysis (ESDA) carries out spatial autocorrelation analysis by determining the spatial weight among districts (counties) [21]. Spatial autocorrelation refers to the potential interdependence of observed data of some variables within the same distribution area. In this study, the Global Moran's I index was adopted to conduct a Global spatial analysis, to explore the spatial pattern of the students' flows places in each district (county) of Henan Institute of Science and Technology. Global spatial autocorrelation can reflect the overall spatial correlation degree of student origin, and the calculation formula is as follows [22]:

$$I = n \frac{\sum_{i=1}^n \sum_{j=1}^n w_{ij} (x_i - \bar{x})(x_j - \bar{x})}{s^2 \sum_{i=1}^n \sum_{j=1}^n w_{ij}}, \quad (1)$$

where  $n$  is the number of counties,  $x_i$  and  $x_j$  is respectively the number of students,  $w_{ij}$  is the spatial weight matrix,  $\bar{x}$  is the mean value,  $s^2$  is the variance.

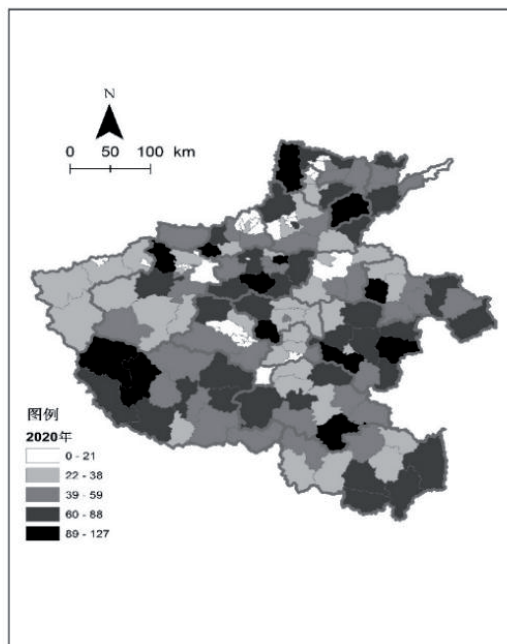
**Research results.** The paper observes the spatial distribution of student flows from the student index of each city. The percent-

age of the number of students from each city to Henan Institute of Science and Technology is the index for the total number of high school graduates in the city. According to the student index in 2020, the top cities are: Jiaozuo, Anyang, Xuchang, Hebi, Nanyang, Xinxiang, Luoyang (Figure 1); according to the 2016 student index, the top cities are: Jiaozuo, Hebi, Xinxiang, Anyang, Luoyang, Shangqiu, Jiyuan (Figure 2). Through the analysis of the GIS buffer zone and the analysis of geographic statistics, these cities are relatively close to the average straight-line distance of Xinxiang City where the school is located, compared with the cities with a lower student index. At the same time, Kaifeng City is close to Xinxiang, but Kaifeng City's student index was the lowest in 2016 and 2020.

From the number of students from each city to the school, we observed the spatial distribution of students. According to the number of students sent to schools in 2020, the top cities are Nanyang, Zhengzhou, Zhoukou, Luoyang, Zhumadian, Shangqiu, Xinyang, Anyang, Xinxiang, and Jiaozuo. Data show that the total number of high school graduates in these cities in that year

is also relatively at the top. Kaifeng and Pingdingshan were the top cities in terms of the number of high school graduates in that year, but the index of the number of students sent to the schools ranked lower. According to the number of students sent to the schools in 2016, the top cities were Zhoukou, Shangqiu, Xinyang, Zhengzhou, Luoyang, Nanyang, Zhumadian, Xinxiang, Jiaozuo, and Anyang. Data show that the total number of high school graduates in these cities in that year also ranked in the top. Compared with the number of high school graduates in 2020 in Kaifeng and Pingdingshan, the number of high school graduates in that year is relatively high, but the number of students sent to schools is relatively low (Fig. 1-2).

The spatial distribution of students was observed from the added value of the student index in each city. Data show that compared with 2016, the index of student source in Xuchang, Nanyang, Luohe, Pingdingshan and Puyang all increased in 2020, the student index of Zhengzhou stayed the same in two years, and the student index of Sanmenxia, Zhumadian, Anyang, Kaifeng, Jiyuan, Shangqiu, Luoyang and other cities all decreased (Fig. 3).



**Fig. 1. Spatial distribution pattern of student place of origin in Henan Province in 2020**

Sources: developed by the authors

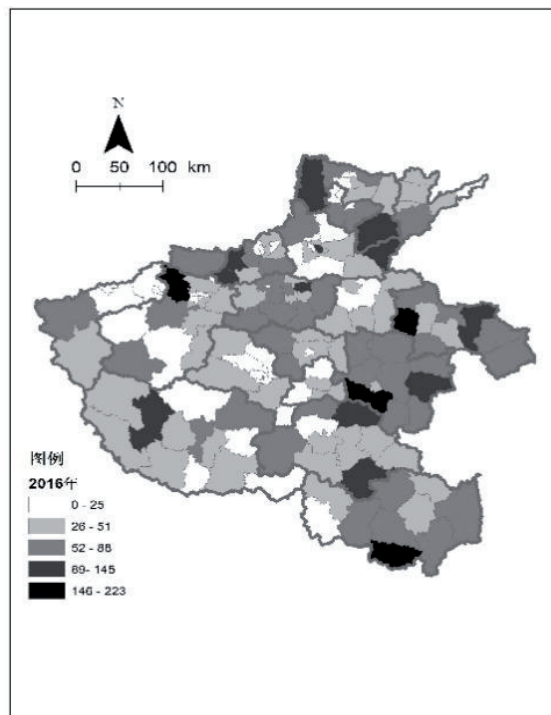


Fig. 2. Spatial distribution pattern of student place of origin in Henan Province in 2016  
Sources: developed by the authors

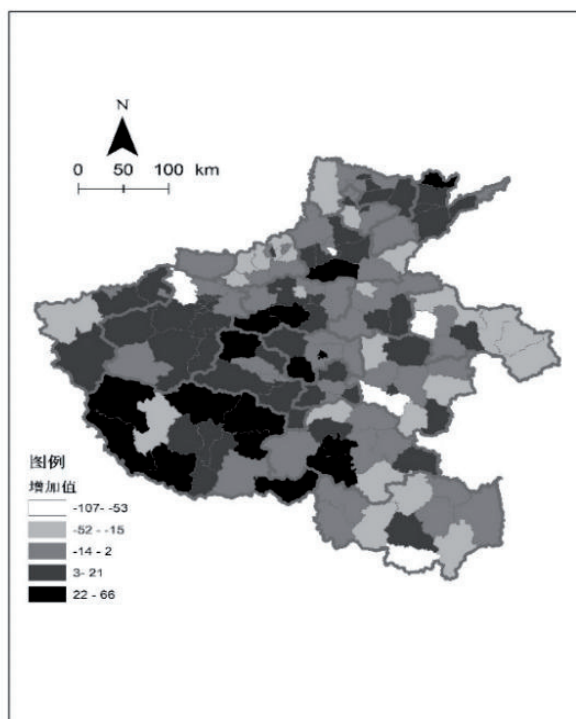


Fig. 3. Changes in student place of origin in 2016 and 2020  
Sources: developed by the authors



Moran's I coefficient is the most widely used index to measure spatial autocorrelation. Moran's I is a measure of spatial autocorrelation, which is characterized by a correlation in a signal among nearby locations in space [23]. Between -1 and 1, if the value is positive, it changes in the same direction, and the data is positively correlated. The closer the value is to 1, the stronger the positive spatial autocorrelation and the clustered distribution; for example, the value of Moran's I negative, it is a reverse change, and the data is negatively correlated. The closer the value is to -1, the stronger the negative spatial autocorrelation and the uniform distribution; if Moran's I is close to 0, it is randomly distributed and has no spatial autocorrelation.

Through the spatial autocorrelation analysis, Moran's I is -0.12, Z value test is -0.62, which shows that the source of students in Henan Institute of Science and Technology presents a negative correlation overall, but the negative correlation is not obvious. Therefore, the autocorrelation analysis is not statistically significant, and the source of students is nearly randomly distributed.

The location of colleges and universities is the main factor affecting the student enrollment. When choosing colleges and universities, students and parents tend to choose colleges and universities in developed cities with a booming economy, advanced information, convenient transportation, and more employment opportunities. These colleges and universities have rich social resources and unique geographical locations, so the scale and strength are better than other colleges and universities. Others will choose colleges close to home. Because there are many one-child families, parents do not have enough confidence in their children's adaptability to language, diet and living habits. Choosing a college close to home can make them easy to take care of children and make full use of the network resources near home. There are also some students from poor families who choose colleges close to home for the sake of saving transportation expenses. From the information map of

Henan Institute of Science and Technology, we can know that the student index is higher in the cities with closer distances.

In 2016, the total number of high school graduates in Henan Province was 633,076. In 2020, there were 709,731 people, an increase of 12.1%. From the data, we can see that the number of graduates in each city has a direct impact on the admission rate of universities. For example, the prefecture and city with the largest number of college entrance examination graduates in Henan Province in 2020 is Zhoukou City, with 86,241 people. The Henan Institute of Science and Technology enrolled 697 students in Zhoukou City that year, and the number of admissions ranked third among the prefectures and cities in Henan Province. In 2020, the city which provided the largest number of students for Henan Institute of Science and Technology was Nanyang, with 894 students enrolled. The total number of college entrance examination candidates in Nanyang that year was 73,590, ranking second in Henan Province; in 2016, the city with the largest number of college entrance examination graduates in Henan Province was still Zhoukou City, with 73,623. Henan Institute of Science and Technology enrolled 833 students from Zhoukou, the number of admissions ranked first among the prefectures and cities in Henan Province; in 2016, the city with the second-largest number of students was Shangqiu, with 710 students admitted. At that time, the total number of college entrance examination candidates in Shangqiu City was 57,417, ranking fourth in Henan Province. Therefore, the number of students is closely related to the total number of college entrance examination candidates in prefectures and cities that year.

In 2020, cities with low input index are relatively far away from the city where Henan Institute of Science and Technology is located, which are Zhoukou City – 0.81%, Xinyang City – 0.81%, Pingdingshan City – 0.89%, Zhumadian City – 0.91%. In 2016, cities with low input index were still relatively concentrated in cities with relatively long linear distance, which were Pingdingshan City – 0.83%, Zhumadian City

– 1.03%, Nanyang City – 1.04%. However, the research results also show that Kaifeng City, which is closer to Xinxiang, has the least student source index in 2016 and 2020, and the number of college entrance examination graduates is not the least in these two years. At the same time, there are some relatively close cities, such as Jiaozuo, Hebi, and even Xinxiang. This phenomenon may be because the scope of publicity area is not wide enough, and the publicity is not good enough, so that the candidates in more areas do not know about the school, thus affecting the number of students.

**Discussion.** Based on the analysis of the spatial distribution, agglomeration characteristics and influencing factors of the student enrollment, the authors discuss the marketing strategies of colleges and universities from the perspective of marketing communication, in order to help colleges and universities attract high-quality students to the greatest extent in the competition, improve the quality of enrollment, and then improve the popularity, recognition and comprehensive strength of colleges and universities.

At present, many scholars believe that in order to attract high-quality students, we must strengthen the enrollment publicity, and have carried out positive and beneficial exploration in the enrollment publicity [24; 25; 26]. But the authors think that in order to improve the comprehensive strength of the school, it is not enough to do a good job of enrollment publicity. In China, there is a common saying that “a headache cures the head, and a foot cures the foot”, which means to deal with a problem without considering the overall situation and solving the problem fundamentally. The authors believe that the enrollment publicity should be integrated into the overall marketing communication strategy of the university, and the strategy should be adapted and coordinated with the overall development strategy, competition strategy and brand strategy of the university. Only in this way the problem can be solved fundamentally. Firstly, the school should make clear the overall strategic objectives and position in combination

with the actual situation. Secondly, the university should be clear about its own characteristics and advantages and explore the core competitiveness different from other universities. Thirdly, the school should be good at identifying the target groups, and subdivide the target groups into college students, middle school students and their parents, the government, employers, alumni, media, the public, etc. Finally, the school should combine the above three points to formulate different marketing strategies.

Schools should analyze the results and the environment based on the information of the student enrollment. First, what areas are the school's main source of students from for a long time, and what are the characteristics of these areas, such as whether it is close to the school, or has a natural geographical advantage? Whether there are more graduates every year, with a natural demographic advantage? In these areas, what marketing strategies the school has implemented? Why is there a good dissemination effect? How to further consolidate this result in the next step? Second, what are the areas where the school provides fewer students, and why does this phenomenon occur? For example, is it because there are fewer students in the region, or the marketing communication for students and parents in this region is not strong enough. Schools should carefully analyze the causes, find the root cause of the problem in depth, and formulate targeted solutions to the problem. For example, schools should adjust the marketing communication intensity or marketing communication strategy in these regions. Third, it is necessary to conduct in-depth analysis and judgment for some areas with large increase and decrease in student enrollment, summarize the existing problems, and formulate feasible solutions.

**Conclusion.** In marketing communication, colleges and universities should carefully design and uniformly plan the information, which mainly includes the school's mission, school spirit, school motto, school characteristics, school achievements, research characteristics, student training and other comprehensive information. The school should effectively summarize its

philosophy, mission, vision, values, teaching style and study style, as well as the name of the school, school emblem, a variety of cultural supplies, vehicles, campus buildings and other visual information and so on. The behavior of teachers and students, such as behavior cultivation and code of conduct, shall be standardized uniformly. The important achievements and characteristics of the school should be highly summarized to ensure that all the information on school brand spread in the whole domain with a comprehensive manner. It should always convey one sound, one image, tell one story, to effectively enhance the public impression of the brand.

Different media should be selected for different students from different places. The first is to give full play to the role of mainstream media paper newspapers. To effectively enhance the social influence of the school, we should publicize the major achievements and important events of the school and other news with great social influence through big newspapers, front pages and large length in-depth reports. The second is to play an important role of network media. Through recruiting information network and other websites, we should provide timely admissions information, establish online interactive platform with fast and effective communication with candidates and parents. Attention should be paid to the use of new media such as WeChat, Micro-blog, Tiktok, etc., and a wide choice of dissemination

information should be adopted to attract more attentions. The third is to give full play to the role of interpersonal communication. In the process of contacting with students' parents, students and visitors, the school staff and all departments should convey good images of the school in every communication channel and contact. At the same time, the school should strengthen the contact with alumni, fully mobilize the enthusiasm of alumni, and improve the popularity of the school.

During and after the implementation of the marketing communication strategy, the school should evaluate the effect in time. The communication strategy can be improved and optimized only when the experience and lessons are fully absorbed. For example, questionnaires were sent to middle school students and their parents from different places of origin to understand their school, their main ways of knowing the school, their awareness of the school brand, and their suggestions and opinions on all aspects of the schoolwork. Similarly, the school can also conduct research among freshmen, alumni, employers, relevant government departments, etc., to provide timely feedback, adjust the method and enhance the dissemination effect. Research is a long-term and systematic process. Colleges and universities should reflect on themselves, correct in time, and actively establish a complete, effective, and dynamic evaluation and evaluation mechanism for marketing, to improve marketing strategies.

## References

1. Deng, L.H., 2006. Research on educational marketing management model of Chinese universities: Doctoral dissertation, Harbin Engineering University. <https://kns.cnki.net/KCMS/detail>.
2. Yang, S.S., 2015. The change of brand communication methods of universities in the new media environment: Master's thesis, Nanchang University. <https://kns.cnki.net/KCMS/detail>.
3. Xiangling, 2014. Research on the current situation, problems, and countermeasures of brand communication of XJ University: Master's thesis, Guangdong University of Technology.
4. Zhang, Y., Li, J.Z., 2020. An overview of the marketing management model for the integration and development of education industry in Chinese universities – a review of marketing management, *Science and Technology Management Research*, 10, 256.
5. Zheng, L., Xiu, Y., 2016. An analysis of the use of self-media in university brand communication, *News Knowledge*, 6, 34-43.



6. Liu, Y., Liu, H., 2014. Research on the strategy of postgraduate admissions promotion in universities from a multidisciplinary perspective, *Modern University Education*, 1, 39-44.
7. Fan, B., Meng, Q., 2005. A framework of decision analysis system for college admissions management, *Education Informatization*, 15, 37-39.
8. Gong, Y.-T., Chen, L.-Q., Lu, Z.-J., 2006. Research on the prediction model of master's degree enrollment process, *Science and Technology Progress and Countermeasures*, 4, 157-159.
9. Huang, J.S., 2017. Research on Brand Image Shaping and Communication of Local Universities Based on Self-Media, *Journal of Chengdu Institute of Technology*, 1, 88-91.
10. Artyukhov, A., Volk, I., Vasylieva, T., Lyeonov, S., 2021. The role of the university in achieving SDGs 4 and 7: a Ukrainian case. *E3S Web of Conferences*, 250, 004006.
11. Stavyt'skyi, A., Dluhopolskyi, O., Kharlamova, G., Karpuk, A., Oset'skyi, V., 2019. Testing the fruitfulness of the institutional environment for the development of innovative-entrepreneurial universities in Ukraine. *Problems and Perspectives in Management*, 17(4), 274-288.
12. Yarovenko, H., Bilan, Y., Lyeonov, S., Mentel, G., 2021. Methodology for assessing the risk associated with information and knowledge loss management. *Journal of Business Economics and Management*, 22(2), 369-387.
13. Bilan, Y., Vasilyeva, T., Kryklii, O., Shilimbetova, G., 2019. The creative industry as a factor in the development of the economy: dissemination of European experience in the countries with economies in transition, *Creativity Studies*, 12(1), 75-101.
14. Starchenko, L., Lyeonov, S., Vasylieva, T., Pimonenko, T., Lyulyov, O., 2021. Environmental management and green brand for sustainable entrepreneurship. *E3S Web of Conferences*, 234, 00015.
15. Koziuk, V., Hayda, Y., Dluhopolskyi, O., Kozlovskyi, S., 2020. Ecological performance: ethnic fragmentation versus governance quality and sustainable development. *Problemy Ekorozwoju / Problems of Sustainable Development*, 15(1), 53-64.
16. Dluhopolskyi, O., Martyniuk, V., Oleksiv, I., Gliszczyński, G., 2021. How the economic complexity of a national economy affects the environment? *European Research Studies Journal*, XXIV(SI2), 322-334.
17. Lyeonov, S., Pimonenko, T., Chygryn, O., Reznik, O., Gaynulina, R., 2021. Green brand as a marketing instrument: principle, features and parameters, *International Journal of Global Energy Issues*, 43(2-3), 147-165.
18. Tambovceva, T., Ivanov, I.H., Lyulyov, O., Pimonenko, T., Stoyanets, N., Yanishev'ska, K., 2020. Food security and green economy: impact of institutional drivers, *International Journal of Global Environmental Issues*, 19(1-3), 158-176.
19. Chigrin, O., Pimonenko, T., 2014. The ways of corporate sector firms financing for sustainability of performance., *International Journal of Ecology and Development*, 29(3), 1-13.
20. Vysochyna, A., Stoyanets, N., Mentel, G., Olejarz, T., 2020. Environmental determinants of a country's food security in short-term and long-term perspectives, *Sustainability*, 12(10).
21. Lu, D.D., 2002. A study on the "human-earth system" theory of geography, *Geographical Studies*, 2, 135-145.
22. Mitchell, A., Griffin, L.S., 2021. *The Esri Guide to GIS Analysis. Vol. 2: Spatial Measurements and Statistics. Second edition.* 288 p.
23. Li, H., Calder, C.A., Cressie, N., 2007. Beyond Moran's I: testing for spatial dependence based on the spatial autoregressive model, *Geographical Analysis*, 39(4), 357-375.
24. Ma, Y.P., Wei, M.R., Han, L.Y., 2006. Innovations in the method of admissions promotion for non-popular graduate students, *Degree and Graduate Education*, 8, 56-59.

25. Molchanova, E., Dluhopolskyi, O., Savych, O., Kovtoniuk, K., & Markovych, I., 2021. Analysis of the selected entry strategy of Blue Bottle Coffee roaster, *Economic Studies (Ikonomicheski Izsledvania)*, 30(8), 229-242.

26. Rong, B., Lei, W., Gang, X., 2008. Reflections on the optimization of master's degree enrollment publicity, *Journal of Chongqing Jiao tong University (Social Science Edition)*, 3, 142-144.

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The development of marketing strategies based on temporal and spatial student's distribution is extremely important in order to win a niche in the market of educational services. The object of the study is information about the place of origin of the Henan Institute of Science and Technology students in 2016 and 2020. The data used are provided by the Office of Academic Affairs of Henan Institute of Science and Technology, which selects identity data of students admitted and registered at the university in 2016 and 2020. The temporal and spatial distribution and spatial aggregation characteristics of the student enrolments are analyzed, as well as factors affecting the quality of the student flows, such as geographic location, total number of students per year, and publicity. The paper uses spatial data analysis (ESDA), which determines the spatial weight between districts. Global Moran's I index was used for spatial analysis. The analysis carried out on the example of Henan province showed that the number of graduates in each city in a given year directly affects the number of university entrants (in 2020, the largest number of school graduates was recorded in the cities of Zhoukou and Nanyang, which had the highest number of university entrants). The spatial arrangement of colleges and universities is identified as the main factor influencing the recruitment of students of each educational institution. The choice of colleges and universities by applicants and their parents in China is also determined by proximity to large cities, convenient transportation, and employment opportunities. It has been established that advertising educational services of universities is also an additional factor in their popularization and attraction of students. The important achievements and characteristics of the school should be highly summarized to ensure that all the information on the school brand is spread in the whole domain in a comprehensive manner. Different media should be selected for different students from different places. Attention should be paid to the use of new media such as WeChat, Micro-blog, Tiktok etc. Also, a significant role should be given to interpersonal communication and mobilization of the enthusiasm of graduates to increase the popularity of a particular educational institution. Colleges and universities should reflect on themselves, correct in time, and actively establish a complete, effective, and dynamic evaluation mechanism for marketing, to improve marketing strategies, including through surveys of graduates, students, parents and other stakeholders of higher education.

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