

Digital Marketing Evaluation of Applied Undergraduate Talent Training with E-commerce using Big Data Mining and Communication Technology Support

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Abstract. E-commerce is a kind of business activity supported by communication technology, computer technology and network technology. It is a product of knowledge economy and information society, a new business model integrating information flow, material flow and capital flow, and an inevitable trend of future business operation and network operation of enterprises. The relevant statistics and research show that there are rigid and lagging phenomena in undergraduate colleges in applied talent cultivation mode, professional settings, teaching methods and teaching staff training, which cause the cultivated applied talents to be disconnected from the talent requirements of China's new economy and new industry. It provides a new way of thinking, method and sharing platform for the reform of talent cultivation, so as to seize the opportunity to achieve a bend and take the lead in building a higher education system that leads the development and progress of the times.

Keywords: big data; cloud computing; e-commerce; applied undergraduate; talent training; Digital Marketing Evaluation **DOI:** https://doi.org/10.14733/cadaps.2024.S4.103-118

1 INTRODUCTION

With the development of new technologies such as cloud computing and mobile Internet, mobile platforms such as cell phones and tablets, as well as various sensors, have become the main source and bearer of big data, and the amount of data on the Internet is showing a doubling every two years [23],[18].

Currently, e-commerce in China is in a period of rapid development [24]. Taking Alibaba as an example, from 2010 to 2014, the single-day turnover of Taobao and Tmall Double Eleven was 900 million, 3.3 billion, 19.1 billion, 35 billion, and 57.1 billion, respectively [6],[8],[22].

However, there are many problems in the cultivation of e-commerce talents at the present stage, (1) vague ideas of talent cultivation and unclear target orientation. In most ordinary colleges, especially the second-tier colleges represented by local universities, in the process of formulating talent training programs, they often lack the top-level design of professional construction, do not analyze enough the target orientation of talent training, market orientation and discipline orientation of the school, and do not understand the current situation of this professional education thoroughly [6]. As a result, it will inevitably lead to vague talent cultivation ideas and unclear target positioning. At the same time, it also inevitably causes the talent training programs of colleges to be more or less the same, or even not much different from those of higher education. On the whole, it is too biased to the specific operation of e-commerce, and the overall level is not high. (2) The combination with local industries is not close, and the talent cultivation is out of touch with social demands. In most ordinary colleges, e-commerce majors often do not emphasize industrial background, which leads to the lack of distinctive cultivation characteristics. Further, it inevitably leads to the disconnection between talent training and social demand. Graduates often have a training period of six months to one year after they arrive at work units. (3) The cultivation characteristics are not distinctive and the curriculum system is similar. In many general colleges, due to the lack of interface with industry, the curriculum system can only be popular, that is, on the basis of the curriculum system required by the Education Commission of the Ministry of Education for E-Commerce, with slight adjustments. This is indeed in line with the requirements of cultivation, but the characteristics are missing. (4) The teaching methods are old, and students' learning motivation is seriously lacking. In China's traditional education, the education method is often "fill-in-the-blank", making students memorize, looking for standard answers, emphasizing the teacher's one-way teaching, ignoring the cultivation of students' interest and desire to learn [14].

The training of e-commerce talents in domestic colleges is not outstanding due to professional characteristics, improper teaching courses and practical links, resulting in the training of talents, whether from the knowledge structure, or ability requirements, there is a large fault, the stock of e-commerce talents and talent structure obviously can not keep up with the requirements of the development of e-commerce. Artificial intelligence, modern logistics and other different e-commerce forms of rapid progress, more need for a large number of innovative thinking and entrepreneurial ability of high-quality applied E-commerce talents [16].the practical application of digital marketing is often overlooked in e-commerce education. Theoretical knowledge alone is insufficient in preparing students for the dynamic and rapidly evolving digital landscape. Practical links, such as internships, industry collaborations, or case studies, are essential for students to gain hands-on experience and develop a deep understanding of digital marketing strategies and their implementation in e-commerce settings.

2 RELATED WORK

For the problem of this study, that is, the big data evaluation model of talent cultivation quality in colleges, it is subordinated to the scope of evaluation methods and is also a part of the whole evaluation system. Many scholars at home and abroad have many research results on talent cultivation quality evaluation system, and after the combing of related literature, the status quo is presented as follows, here we mainly review from two perspectives of talent cultivation quality evaluation methods[11][20].

The theoretical research on talent training quality evaluation in China has far exceeded the actual operation, and this result is not only limited by the international political and economic environment

and our unique national conditions, but also by the lack of analysis of the realistic constraints in the theoretical research [10]. Here is a chronological overview of the current situation in the country from each viewpoint of talent training quality evaluation.

First, the evaluation indexes are constructed in terms of the factors that have a direct effect on the quality of talent cultivation in the overall process of university operation. The study [13] concluded that in the process of university teaching, the factor components that have direct effect on the quality of talent cultivation mainly include five, which are the accuracy of university orientation, the standardization of teaching work, the importance of practical teaching, the fairness of teaching assessment and the scientificity of teaching methods, and should be used as the basis when designing the relevant evaluation indexes. The study [4] concluded that the evaluation index system should include seven aspects: the status of teaching center, teachers' teaching input, students' learning autonomy, teaching mode, students' seeking condition, and the effect of moral education teaching. Secondly, the indexes are designed from the perspective of quality standards and constituents of talent cultivation in colleges. The research [17] divides the social evaluation index system of talent cultivation quality into four main aspects of morality, ability, performance and diligence proposed. Research [19], from the perspective of the formation process of talent cultivation quality, considers that the indicators of professional training plan, subject teaching system, rationality of teaching contents and methods, basic quality of professional faculty, level of student source, and the condition of theoretical and practical cooperation of colleges directly influence and form the comprehensive quality of graduates. The study [3] designed the talent training quality evaluation index system from the strategic perspective, and proposed to pay attention to the indicators such as the satisfaction of graduates and the satisfaction of employers. Research [21] established the index contents of three aspects of talent cultivation quality: knowledge structure, ability structure and ideology and morality based on the needs of employment market, and set up several secondary indexes under each primary index[7].

To sum up, the research on the evaluation index system can draw a conclusion: in the evaluation process, the selection of indicators and the design of the evaluation index system reflect that the evaluation objectives, evaluation standards and evaluation methods conform to certain evaluation concepts. Reasonable evaluation indicators can make the evaluation results of talent training quality more objective and accurate, and can guide the talent training work in colleges. In terms of human resources development, universities should adhere to the people-oriented leadership ideology, promote the all-round development of people, adapt to the needs of social development, and focus on knowledge transfer, capacity building, quality improvement, and personnel training quality improvement. In the evaluation process, we need to consider the impact of other relevant factors, focus on the operational feasibility of the evaluation indicators, and develop corresponding evaluation indicators to evaluate the training quality. In this study, the overall development of human resources and social adaptation, especially in terms of adapting to and meeting social needs, the quality of talent training in institutions of higher learning is primarily social evaluation. The evaluation by the government, institutions of higher learning and third-party evaluation are reasonable. Extensive stakeholder participation will help to provide more meaningful evaluation data, and help to extract and analyze evaluation data, making the evaluation results more objective and realistic. When the assessment is getting better and better, it can guide the process of talent training in colleges, achieve the goals of the national talent planning and university talent development strategy, thus promoting the implementation of the strategy, and realizing the rejuvenation of the country through science and education and strengthening talents.

Foreign countries have great significance for China's talent cultivation quality evaluation research in terms of their evaluation index system and evaluation methods and models [25]. Foreign countries have formed the way of social evaluation as the main subject of evaluation and the participation of

diversified evaluation subjects, and the evaluation system mainly includes certification system and ranking system, and its evaluation index system is relatively perfect [12].

As for the evaluation index system. The study [15] concluded that from the indicators published by the more famous international research institutions U.S. News & World Report, The Times, Maclean's and other university rankings, the indicators they share are mainly academic reputation, faculty qualification status, financial situation, freshman admission criteria, alumni donations, student graduation rate, etc. In terms of the specific indicators that each ranking focuses on, for U.S. News & World Report, the study [2], through the study of its university ranking, let us know that the ranking organization is classifying all universities before evaluating and ranking them, and its indicator system is: peer evaluation (25%); freshman admission (15%); faculty strength (20%); student graduation and retention rates (on average at 20%, with slightly varying by college category); funding (10%); alumni sponsorship (5%); and graduation rate fulfillment status (5%). The study [5] concluded that its evaluation index system mainly contains academic reputation, faculty strength, graduation rate, school resources, and student retention rate and assigns corresponding weights to them. In terms of the ranking of universities in The Times (Higher Education Supplement), the study [9] concluded that its evaluation method is to determine the evaluation content and weight distribution through authoritative experts. ratio. The study [1] also summarized a similar conclusion that the main indicators in ranking the UK domestic universities are the nine indicators revised in 2010, including, for example, student satisfaction, quality of research, graduation rate, etc. In contrast, its published ranking of world universities is evaluated from four main indicators, such as peer evaluation, faculty-student ratio, internationalization degree and paper citation rate. There are many other scholars who have summarized well-known foreign rankings, and given the similar analysis of the evaluation indicators of these rankings, they are not listed here.

Through the above research on foreign evaluation index system and evaluation methods, we can find that besides the unique characteristics of foreign evaluation of talent cultivation quality, such as the formation of a relatively complete social evaluation, a perfect index system, reliable evaluation data sources and smooth data collection channels, its most outstanding advantages compared with China's domestic are the utilization rate of its evaluation results and In addition to the unique features of reliable data sources and unobstructed data collection channels, its most outstanding advantages compared with China are the utilization of evaluation results and the guidance of future evaluation trends.

To sum up, based on the above summary and understanding of the research status at home and abroad, the paper found that, from the perspective of the current scientific research achievements, due to the diversity of disciplines in colleges and different evaluation standards, the research on the application of big data to the evaluation of talent training quality is still relatively weak. At the same time, the traditional evaluation data collection methods are relatively simple, lacking of big data evaluation methods. Because the large-scale data model can contain the basic characteristics of traditional evaluation methods, it has research value and space.

3 METHODS

3.1 The General Idea of Training Applied Undergraduate Talents in E-Commerce

Insist on taking the needs of enterprises and society as the guide, take the conceptual reform and educational thinking as the pioneer, focus on the combination of application and research, use big data technology to collect, analyze and apply data on e-business activities and professions, break away from sticking to the original technical cultivation means, try to make a breakthrough and innovative cultivation of "application-oriented" and "quality-oriented" talents. By encouraging and organizing students to participate in real e-commerce activities and real project practice and other

multi-level e-commerce practice activities, we promote students' exposure to the current enterprises and social frontier information, and make universities maintain the timeliness, effectiveness and advancement of talent training mode. The top-level design of comprehensive professional reform is to clarify the talent training objectives and formulate a scientific talent training program.

3.2 Innovation and Exploration Practice of Applied Undergraduate Talent Cultivation Mode of E-Commerce

To address the outstanding problems that need to be solved in the current applied talent training reform, combine the latest information technology research results such as big data, cloud computing, virtual reality (VR-Virtual Reality) technology, data mining, information fusion, etc., penetrate and exploit them deeply in the higher education reform of applied talent training, master the laws of technology foresight, scientific and technological achievements, and teaching and research achievements transformation We will explore the development of personalized teaching supply plan and personalized teacher vocational ability training supply plan, etc., create a shared, green, equal and efficient teaching cloud platform, change the phenomenon of rigid and lagging adjustment of discipline structure of applied undergraduate colleges, and enhance the structure of applied talent supply measurement. Adaptability, flexibility, and precision, and put limited teaching elements and related resources precisely into the cultivation of applied talents in professional fields most urgently needed by society and with the most development prospects, so as to realize the reform of applied undergraduate education, eliminate backward production capacity.

Because e-commerce majors pay more attention to practical application skills, enterprises often require their graduates to get started faster, so as to enhance their own competitiveness and reduce their human capital. Therefore, after combining the characteristics of e-commerce application, the core of e-commerce applied undergraduate talents training mode should be to promote the opening of practical training courses and the development of practical teaching. Through the innovative "O and O" mode (online and offline mode) of 1 year of basic course learning, 2 years of professional courses, and 1 year of professional internship in enterprises, i.e. "1+2+1" mode, students of e-commerce can have more time to At the same time, it also allows students to participate more in the enterprise, learn the enterprise's e-commerce management and business, and achieve the goal of "zero distance to work" and "employment upon graduation".

At present, more and more e-commerce enterprises use big data to develop enterprises and meet the needs of talents. Many universities also offer e-commerce courses to match the development of society, but their training plans are often aimed at the most popular majors, and they are unable to collect and analyze the demand data of e-commerce enterprises and social professionals. The use of large information technologies will provide a more accurate and reliable database for training programmes. The first stage of data collection mainly focuses on the classification of social demand for the overall e-commerce environment, job supply and other needs; The requirements of e-commerce enterprises on the professionalism, qualification and quality of talents; School training and teacher data; Data on differences in student information, interests and skills. Figure 1 shows the basic processing scheme of the data model. Figure 2 shows the relationship of enterprise - university talent training data.

Through the big data format, we will establish a multi-level information platform for business, college and students, and establish an interactive mode, so that students can understand the future development of e-commerce business and the development of e-commerce related technologies in the process of learning mode "2". Students can learn about the future development of e-commerce enterprises and the technological development related to e-commerce through the "2" mode; In this process, enterprises can also participate in the training of necessary professionals through the university platform. In the practice of the latest "1" model, universities and teachers can master the

application and adaptive skills of enterprises in time, so as to implement talent development and education reform plans.



Figure 1: Basic processing flow chart of data model.



Figure 2: Data relationship between enterprises and talents training of colleges.

3.3 Design of Talent Cultivation Evaluation System

The establishment of a perfect evaluation model is a cyclic improvement process, as shown in Figure 3. In the first step, the evaluation system is sorted out according to the research results in talent cultivation quality evaluation, and the characteristics of other evaluation models are summarized, and innovations are made in the field of evaluation methods, and the initial functional module is formed after the theoretical foundation and technical route required for the evaluation model are satisfied. In the second step, the evaluation model will be applied once with the evaluation of talent cultivation quality in universities, and the visualization technology will be used to show the evaluation results of the evaluation model for the university, and the strengths and weaknesses of the model will be found by comparing it with a relatively correct reference, which in this study is McKeith, and then the model will be revised. In the third step, the revised and improved evaluation model is again

used as an example to derive evaluation results for the university, verified with the third-party reference again, and revised again. In the fourth step, after several cycles, the model is continuously improved and improved, and a relatively correct and applicable evaluation model can be established.



Figure 3: Complete flow chart of big data evaluation model research.

In terms of indicator weights, many research results determine the importance of each factor from the perspective of hierarchical analysis, through matrix model, and then rank them. In this study, we adopt the subjective assignment method to assign the index weights, and according to the existing university rankings, the ratio of teaching and research weights in the quality of university operation, such as the Times' inclination to the quality of talent cultivation, and our alumni association's ranking to the teaching work, this study divides the index weights of employers and non-employers into 6:4. The specific hierarchical display is shown in Figure 4.

3.4 Practical Effects of Optimizing the Evaluation System of Applied Undergraduate Talent Cultivation Based on Big Data and Cloud Computing

Deeply explore mining technology forecast data, scientific and technological achievements, teaching transformation and scientific research achievements based on big data, cloud computing and complex network technology, optimize teaching resources, improve teaching efficiency, and the interaction between talent quality and social and economic benefits.



Figure 4: Hierarchical analysis of the index system.

It aims to guide our application talents to cross disciplines, complex new majors, early warning and problem elimination majors, reasonably allocate training resources, coordinate, etc. It can also provide guidance and guidance to the education sector and enterprises cooperating with educational institutions.

Using technologies such as big data, cloud computing, virtual reality (VR-Virtual Reality), data mining, and information fusion to build a new personalized comprehensive teaching platform and create a shared, green, equal and efficient teaching cloud platform. It not only provides more colorful shared resources for theoretical learning and virtual reality internship, training and practice teaching for applied undergraduate universities, but also serves all users of the shared teaching platform equally and efficiently to realize green sharing of high-quality educational resources.

We will study and master the personalized data collection technology reflecting students' knowledge background and structure, learning behavior characteristics and habits, personality, psychological characteristics and development characteristics, and carry out relevant big data analysis to clarify the data analysis indications for students' personalized teaching, set relevant effective analysis parameters, so as to guide the customized personalized teaching cultivation plan for each student and provide accurate teaching guidance for our school It provides students with precise teaching guidance, reduces ineffective teaching supply, improves teaching efficiency, truly realizes "respecting individuality and private customization", and is widely used in the field of personalized teaching.

4 CASE STUDY

4.1 Construction of Evaluation System For Training Talents in E-Commerce Using Big Data and Cloud Computing

4.1.1 Framework design

1. Basic content of talent training evaluation

The specific design of talent cultivation evaluation system is directly related to the discipline specialties, but according to the general law of practical teaching, the talent cultivation standard system can be specifically divided into three levels: basic, improvement and innovation, so that the different talent cultivation evaluation contents are placed at different levels of current. In terms of talent training of e-commerce majors, the current talent training evaluation mainly includes the content of experiments, internships, course designs and social surveys. Specifically evaluate the basic operation ability, professional design ability, as well as analysis and innovation ability of students. Practical teaching evaluation can be composed of three parts: institutional evaluation, teachers' evaluation and students' evaluation, with each part focusing on different points, thus forming a complete evaluation system for applied undergraduate institutions.

2. Operation mode of talent cultivation evaluation

Only by forming a complete basic operation mode and focusing on the details of talent cultivation evaluation can the evaluation system of practical teaching play an important role. Firstly, the talent cultivation evaluation system operates in the way of evaluation carriers, evaluation contents, standards and subjects. Secondly, talent cultivation evaluation is participated by multiple parties inside and outside the university, which is including teachers, students, institutions and relevant enterprises to carry out specific evaluation activities. Thirdly, the content of evaluation activities should also be comprehensive and effective, and should mainly focus on the evaluation of information such as internship results of learning, practice reports, innovation and creativity, and academic competitions. Fourthly, the construction of evaluation standards for practice teaching is in the core position, striving to conduct scoring evaluation in the form of scores on the basis of operability.

4.1.2 Construction strategy

1. Form a perfect evaluation institution system

To play the role of talent cultivation evaluation system, it is necessary to form a perfect talent cultivation evaluation institution, focus on the needs of practical teaching, build a clear structure and clear responsibility of the evaluation system according to the professional talent cultivation goals of e-commerce, clarify the roles of different departments, teachers and students in the evaluation system, fully mobilize the supervision of various departments, and promote the scientific evaluation of talent cultivation activities. The evaluation system should be clearly structured with clear responsibilities. To this end, it should form a three-level evaluation institution system of school, faculty and teaching and research department, pay attention to the evaluation role of different organizations, set up a specific teaching quality evaluation leading group, organize and carry out talent training evaluation scientifically according to the plan of talent training evaluation, use the existing means, go deep into the scene of practical teaching and adopt various forms of evaluation activities.

2. Establishing specific teaching evaluation standards

To promote the evaluation of human resources development and improve the quality of e-commerce training, it is necessary to improve the normative documents of human resources development evaluation, and pay attention to the various human resources development evaluation documents formulated according to different degrees, students' goals and needs, further improve the relevant teaching standards, refine the specific quality standards of the entire teaching process by stages, and apply these standards when formulating practical teaching rules. Guided by these standards, we will formulate practical teaching rules and focus on standardizing the assessment under the practical teaching management system. We form the revision method of talent cultivation evaluation standards, and constantly revise the evaluation method of talent cultivation around the newly emerged problems, so as to achieve the overall improvement of the goal of improving talent cultivation evaluation standards.

3. Formation of feedback mechanism of teaching evaluation

To improve the quality of practical teaching and highlight the practical ability of e-commerce professionals, especially innovation and entrepreneurship skills, a training feedback mechanism needs to be established by using the training evaluation mechanism. Specifically, according to the research information of the expert group, practice teaching management organization and teaching and research department, the necessary feedback on practice teaching is given, specific practice teaching guidance is formed, the problems of practice teaching are pointed out, and the results of talent training evaluation are checked, the data information is comprehensively summarized, and the role of talent training monitoring system is played.

At the same time, we further explored the changes in the accuracy of the evaluation for the cultivation of application-oriented undergraduate talents, and the specific results are shown in the Figure 5. It can be seen that no matter teachers' evaluation, self-assessment or mutual evaluation, there has been an increase in varying degrees.

4.2 Case Study

Considering the following factors: apparel is the traditional advantageous industry in Jiangmen; apparel is one of the most suitable products for e-commerce sales, and the professional knowledge required is relatively easy to master; a university has obvious advantages in apparel, with the only

master's degree in South China; mobile commerce is the key area of e-commerce industry development in the next few years; two professional directions are set up, one for technology and one for the two professional directions are set up, one for technology and one for marketing, to enhance the professional core competitiveness of each direction, which are the technical development capability of mobile commerce and the online marketing capability of apparel products.



Figure 5: Changes of the evaluation of the cultivation of application-oriented undergraduate talents.

The "Whole Industry Chain" is a development model proposed by COFCO, which was born in the context of China's escalating food consumption, upgrading of the agricultural industry and the severe food safety situation. Intuitively speaking, "Whole Industry Chain" is a consumer-oriented approach that starts from the source of the industry chain and goes through each link of production and procurement, trade and logistics, product information dissemination, customer problem solving, user experience, after-sales service and tracking, etc. In addition to the traceability of the source product distribution process, it also forms a whole chain of pre-sales, after-sales and after-sales services. In addition to the traceability of the source product distribution process, it also forms the whole process of pre-sale, after-sale, upstream, midstream and downstream linkage.

For the two professional directions, refer to the "whole industry chain" model, analyze each link of the corresponding industry chain for responsible and mobile e-commerce, and set up the curriculum system and practical content corresponding to each link, taking the direction of apparel e-commerce as an example, the whole industry chain of apparel e-commerce includes: apparel fabrics (including fabrics and accessories), apparel design and Production, warehousing and logistics, e-commerce system development and network marketing, enterprise management and operation. Along this industry chain, the curriculum is designed, as shown in Figure 6.

Similarly, mobile e-commerce can be designed according to the requirements of the "whole industry chain" perspective, as shown in Figure 7. The curriculum system based on the perspective of "whole industry chain" enables students to master the foundation and understand the frontier in a more systematic way.

The core of the teaching system of "teaching, competition and creation" can be briefly summarized as follows: project is the carrier, enterprise is the partner, teaching is the foundation, competition is the grasp, and the improvement of entrepreneurial ability and entrepreneurial consciousness is the goal.



Figure 6: Apparel e-commerce direction "whole industry chain" curriculum system.

In the teaching process of "teaching, competition and innovation" integration, we emphasize the multi-faceted collaborative training. Multi-faceted collaborative cultivation refers to the collaboration with the Education Commission, industry associations and enterprises to achieve collaborative cultivation of e-commerce students. In the process of collaborative cultivation, we adopt a full-cycle

project-based teaching method and implement the "project-based teaching mode of local universities based on collaborative cultivation".



Figure 7: "Whole Industry Chain" Curriculum System for Mobile E-commerce Direction.

The projects come from collaborative enterprises, such as China Mobile, Alibaba, Qingdao Haier, Jiangmen E-Commerce Association, etc., which fully reflect the current social needs and industry development direction. At the same time, according to the problems reflected in the teaching implementation process, we constantly adjust the talent training program, and gradually form a distinctive "knowledge - ability - quality" system.

Under the new talent training evaluation system, we also explored the growth of different students' achievements, and the specific results are shown in Figure 8. It can be seen that, as time goes on, the five students have shown their own performance growth to varying degrees.

The three links of teaching, competition and innovation in e-commerce in a university are integrated and promoted by each other. Targeted teaching is conducive to good competition results, and good competition projects are conducive to improving the level of "dual innovation" and transforming into entrepreneurship, and the competition and entrepreneurship will form a positive feedback to teaching. For the newly established talent training evaluation system in this paper, we conducted research to explore the recognition of different teachers to this system. The specific results are shown in Figure 9.



Figure 8: The growth of students' achievements under the new talent training evaluation system.



Figure 9: Teachers' recognition of talent training system.

5 CONCLUSION

At present, with the rapid development of e-commerce, it requires great efforts to reform and explore the training mode of e-commerce talents, which cannot be achieved overnight. It needs to keep pace with the times and innovate constantly. Next, in the field of e-commerce, we should actively learn from the experience and training methods of other disciplines, explore the practice of developing international e-commerce capabilities, combine the actual situation of local e-commerce development, the latest trend of e-commerce development and the needs of social development, adhere to the educational philosophy, methods, scientific system and curriculum, teacher training and education, education evaluation system, etc. Innovate and develop the training mode of e-commerce talents in local applied universities.

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