

The Current Outlook in the Internationalization of Medical Education in Pakistan

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Abstract

Background: Internationalization in medical education (ME) creates new potentials, and links among countries.

Objectives: The present study aimed to investigate the current outlook on the internationalization of ME in Pakistan.

Methods: This case study had an outlook on the internationalization of ME in three top universities in Pakistan. The most significant components, characteristics, and variables related to ME were identified and categorized. The reports regarding the educational, research and health system performance of this country were collected by reviewing the grey literature, and visiting the official websites of these universities.

Results: To improve their competitive capacities Pakistan's top universities have considered some research parameters, unique strategies (motivational mechanisms for target groups of students, and professors, educational mechanisms and empowering students and professors, mechanisms for communicating with other pioneering universities, and mechanisms for communicating with the industry and exchanging intellectual capital), and short-, medium- and long-term plans for attracting capital, exchanging scientific products, and sharing experience.

Conclusion: Pakistan's success in internationalization depends on factors, such as concentrating on science and technology, the enhanced role of the local government and the privatization of HE institutes, including modern ideas and making changes in the country's cultural structure, using English as the primary language in universities, designing web portals based on international criteria, receiving tuition fees from international students, designing programs for international students, hiring foreign faculty members, and sending professors abroad to take part in specialized courses, and making efforts to monitor international initiatives and ensuring quality.

Keywords: Internationalization, Medical Education, Pakistan, Higher Education

Background

Improving medical education is one of the concerns of each country's education system (1). Today, by developing social media, the promotion of ME has experienced international progress. This is due to the fact that because science's geographical borders have

dissolved, new problems in the area of education have surfaced. Globalization and internationalization of ME are hence necessary and unavoidable changes (2). Internationalization is "the process of integrating an international, intercultural, or global dimension into the purpose, functions or delivery of postsecondary

education” (3). Internationalization is a continuous effort to internationalize education, including ME (4), and many countries have initiated the process of becoming integrated into global education (1, 5, 6).

Medical universities can increase the capacity for the admission of foreign students to not only attract young personnel but also introduce universities to the world (7). Besides, disregarding the causes of other countries’ success, and not benefiting from their experiences will delay the internationalization process. Universities need to heed the concept of internationalization, and the factors affecting education, such as attracting elite students, making changes in the content, and providing educational programs in accordance with health needs, and the provision of medical services (8). Providing raw materials and turning them into valuable products is better to be based on the culture to benefit society (9). Providing a road map of ME can considerably help pave the way for the internationalization of the medical universities (10).

Objectives

Since ME is an exception, all countries should take measures to achieve a decent position in this regard. Pakistan is the only neighbor of Iran relating to the internationalization mission of Kerman as the main pole of the country’s eighth region. Its geographical nearness, cultural similarities, and recent collaborations make this country as a good target for international relations. Therefore, this study aimed to investigate the current outlook of ME in three top universities in Pakistan, assess the present policies for ME in these universities and offer suggestions regarding future strategies for ME at the international level in Iran. One of the most well-known worldwide university ranking systems is the Times Higher Education Ranking System, which takes into account 13 functional characteristics to provide thorough and fair comparisons. These indicators are divided into five groups: education, research, citations, industrial income, and international reputation (11). The selection of Pakistan was due to the issue that it is one of the countries associated with the internationalization mission to Kerman as the main pole of the country’s eighth region.

Methods

This is a case study that describes the current outlook in the internationalization of ME in Pakistan’s three top universities (Quaid-i-Azam University, the University of Lahore, and the University of Karachi) based on Times Higher Education World University Ranking at

the time of the study. Based on the literature review, the most significant components, characteristics, and variables related to ME were identified and categorized. The reports regarding the educational, research and health system performance of this country were collected by reviewing the grey literature. Afterward, the required information was collected from the official websites of the Pakistan universities. In the cases when required information was not available on the websites, it was acquired via e-mail contact with the universities. This study was approved by the ethics committee of KMU (IR.KMU.REC.1400.257).

Results

Karachi, Lahore, and Quaid-i-Azam Universities were the top three international medical universities in Pakistan according to THE rankings. English was the primary language used on the websites of the universities and colleges, and it was also the language of instruction for foreign majors at all of these institutions. Examining the letters between and among universities revealed that they communicated in English as well. Furthermore, an English certificate or records of studying in an English-speaking university/school was necessary for (native/ non-native) students to enter any level.

The educational curriculums of all the majors in these universities were based on the international standards, and students willing to study medicine had to take part in a 4-5-year course as their undergraduate degree. Then, they had to go through an apprenticeship in a hospital. Having finished this stage, they could select specialized majors after passing entrance exams and being interviewed.

University of Lahore had the highest number of professors, as well as the highest variety in the majors offered in the field of pharmacy among three universities. However, it offered one undergraduate major in the field of medicine. Moreover, universities of Lahore and Karachi offered master’s degree majors. Quaid-i-Azam University offers a wider range of majors in the field of medicine, especially in MD degrees. On a global scale, there was a severe lack of both the quantity and diversity of nursing and allied health degree programs. Not to mention that certain majors, including anesthesia and surgical technician, were reserved for students from the host country. These universities’ regulations, the same as the others in Pakistan, were set by the health department of the corresponding province. However, all universities had to make their policies based on Pakistan Medical and Dental Council

(PMDC). In this country, university admission is based on PMDC instructions. Applicants' scientific performance presented as grades in their higher secondary school certificate (HSSC) and an entrance exam, such as MDCAT were qualifications necessary for being accepted in most of universities. Therefore, all main rules and regulations were based on PMDC and Pharmacy Council of Pakistan (PCP).

The universities of Lahore and Karachi were similar in terms of various dentistry majors. In these universities, the students willing to study dentistry had to pass a 4-5-year course as their undergraduate degree, after which they served a one-year apprenticeship in a hospital. Then, they could study specialized majors after taking entrance exams and being interviewed.

Universities of Lahore and Karachi ranked 801 in THE rankings, while Quaid-i-Azam University ranked 500. If we compare these three universities' educational capacity based on this ranking, we can see that Quaid-i-Azam University had a greater professor-to-student ratio but fewer students overall than the other two. At the University of Lahore, however, there were more international students than at the other two. The research parameters of Pakistan's top universities included research grants offered by these universities, published articles, research fields, and active research collaborators, the percentage of research budget in the total university budget, patents, registering inventions and trademarks, and licenses (Table 1).

Each of Pakistan's universities had unique strategies to internationalize their education, which are presented in table 2. The strategies encompassed motivational mechanisms for specific groups of students and professors, financial mechanisms, legal mechanisms, educational mechanisms, and measures to empower students and professors. Additionally, there were mechanisms to foster communication with other leading universities, engage with the industry, attract financial capital, and exchange intellectual capital (Table 2).

To improve their competitive capacities, Pakistan's universities have considered some short-, medium- and long-term plans for attracting capital, exchanging scientific products, and sharing experiences, which are discussed in table 3.

Discussion

This study aimed to investigate factors affecting the internationalization of ME in Pakistan's universities. The results showed that Pakistan considered some factors in the internationalization of education, which

has replaced its previously predominant education system with these factors. In order to address the demand for education and give access to high-quality education, Pakistan's policy emphasized public-private partnerships. As a result, targeted privatization measures were implemented, particularly in rural regions. In this process, private and semi-private companies were encouraged to participate in this significant matter.

A series of events has led to Pakistan's success in the internationalization of education. Decentralization, gender equality, efficiency, quality human capital, and privatization have entered the educational policies (12). In addition, an increase in the number of applicants for education worldwide is evident, and almost every nation in the world considers the development of education as a national agenda (13).

As in the present study, all the universities studied had modern or semi-modern research centers, and all of them collaborated with leading research centers in the world. Therefore, up-to-date technologies provide the opportunity for international professors, and students to further their scientific objectives based on global developments in their field of interest. The privatization process has created a competitive environment. Equality of rights has become important, and no local school displays its heritage or follows local cultures, racism, or sexism that are contrary to global cultures. The focus is more on commonalities than differences because this system focuses on national development and individual growth.

British colonialism, however, led to the slow entry of the English language into the vocabulary of people and prepared the ground for the acceptance of this language in universities. English is still mainly used in education and as an official language in the country (14). People with a neutral attitude may use English as a means of communication without considering cultural and social aspects (15). On the other hand, English acts as a gatekeeper for most jobs in Pakistan (16). For instance, graduates without English proficiency hesitate to apply for the jobs they are interested in (17). The majority of the primary websites linked to these three institutions are created in English and, by today's standards, promote visitors from other countries, making these universities more appealing to prospective students.

Table 1. Research parameters of Pakistan’s universities

Research Parameters	University of Karachi	University of Lahore	Quaid-i-Azam University
Research grants	<p>Establishing a financial support office to support qualified, and necessitous students and provide them with their educational expenses</p> <p>Paying the costs of research trips and participation in seminars and conferences to the students and professors</p>	<p>The financial aid office disburses educational grants to those who need financial assistance for their higher education.</p> <p>Providing scholarships to necessitous qualified students</p>	<p>Allocating 25% of research grants to female students</p> <p>Providing educational grants to foreign students, especially those from Germany, France, and the US</p> <p>Establishing a financial aid office to manage those eligible to receive grants</p> <p>Providing research grants to all the M.Phil./Ph.D. students</p> <p>Providing research grants, such as scholarships for minorities, political agent scholarships (FATA), financial support of the Zakat committee of the district, Baluchistan/ FATA scholarship, Karwan-e-Ilm Foundation of Lahore, Aga Khan Development Network, Sindh endowment fund, Balochistan Education Endowment Fund</p>
Articles	<p>Indexing of 10971 articles of this university in different databases</p> <p>506 articles published in 2006</p> <p>Approximately 1200 articles published by the Department of Pharmacy</p> <p>Publishing 1447 articles between 2007 and 2010</p> <p>Having more than 60 registered inventions in the field of scientific research</p>	<p>Publishing 5920 articles in reputable journals</p>	<p>Publishing 2918 articles by this university’s researchers</p>
The proportion of the research budget to the total budget	<p>Allocating 18% of university’s budget to research</p>	<p>Allocating 20% of university’s budget to research</p>	<p>Allocating 24% of university’s budget to research</p>
Active research fields	<p>Having 27 research centers at University of Karachi (ten centers focused on medicine, pharmacy, and allied health professions)</p> <p>Having several Pharmaceutical laboratories</p> <p>Having 94 universal research fields</p>	<p>Having four research centers</p> <p>Vast research in 183 fields</p>	<p>Information was not available</p>
Patents, registering inventions, trademarks, and licenses	<p>ORIC: Office of Research Innovation and Commercialization is responsible for all the affairs related to registering inventions, intellectual property, trademarks, and work licenses</p> <p>Enhancing technology transfer by investigating the opportunities for issuing licenses and joint investments</p> <p>Contributing to the university and country’s economic growth by helping natives implement their ideas</p>	<p>Information was not available</p>	<p>Some of the inventions were commercialized and trademarked: Commercial use of enzymes domestically produced by the microbiology department in poultry feed, producing environmentally-friendly leather, using microbial lipase in detergents and chemical fertilizers</p>
Active research collaborations and partnerships	<p>The highest level of collaboration with the US, England, Turkey, and Germany</p>	<p>Research collaborations with several international institutes such as Duke University, University of Houston Texas, University of Pittsburgh, Center for Disease Control and Prevention in the US, University of Liverpool, University of Glasgow, University of Nottingham, University of Reims Champagne-Ardenne, and The University of Münster</p>	<p>Conducting research activities in international educational and research institutes such as the UNESCO, IRSIP, Agencia Espanole de Cooperacion Internacional (Spain), and so on, in collaboration with this university</p>

Table 2. Strategies used by Pakistan’s universities for internationalization

Strategies	University of Karachi	University of Lahore	Quaid-i-Azam University
Motivational mechanisms for target groups of students	<p>Online admission system (Only accessible to international students)</p> <p>Variety of courses offered in different majors with a cost-effective expenditure structure</p> <p>Supporting students’ intellectual property of their invention</p> <p>Providing grants for research travels and participation in seminars and conferences</p>	<p>Providing financial support to students</p> <p>Offering Language courses to the accepted students</p> <p>Providing welfare facilities and accommodation to students</p> <p>Offering a wide range of medical majors in accordance with international standards</p> <p>Providing grants to students for research travels</p> <p>Active research centers and libraries</p> <p>Providing job services to students after graduation so they can enter the labor market</p> <p>Helping international students get their visa</p>	<p>Providing welfare facilities such as dormitories and transportation</p> <p>Providing financial support to students, especially German, French, and American students</p> <p>Providing educational courses according to international standards</p> <p>Assisting with the commercialization of students' ideas and giving work opportunities after graduation</p> <p>Sending students to take part in international conferences, and courses abroad</p> <p>Providing English courses to the accepted students</p> <p>Helping international students get their visa</p>
Motivational mechanisms for target groups of professors	<p>Offering grants for research travels and participation in international seminars and conferences</p> <p>Supporting professors’ intellectual property of their invention</p> <p>-Providing job offers to professors</p>	<p>Offering research grants to professors</p> <p>Providing welfare facilities to professors</p> <p>Sending professors to other countries to take part in research courses</p>	<p>Providing welfare facilities such as accommodation to professors and their families</p> <p>Helping professors and their families get their visa</p> <p>Sending professors on research trips to participate in international conferences</p> <p>Offering research grants and providing proper research facilities, such as laboratories and specialized equipment</p> <p>Providing job security by signing mutual contracts</p> <p>Providing educational courses in English</p>
Financial mechanisms and financial support	<p>Providing financial resources with the cooperation of private sector and receiving a budget from the government</p> <p>Charging students with tuition fee</p> <p>Generating revenue through the organization of seminars, scientific excursions, educational classes, and courses for reeducation</p>	<p>Collaboration with the private and non-government sectors and applicants</p> <p>Covering the main part of the university’s expenses by charging students with tuition fee</p> <p>Providing approximately 20% of the university’s revenue through employers (private sector), and research institutes signing contracts with HE institutes to implement research projects</p> <p>Some private agencies’ role in covering hospital expenses</p>	<p>Receiving funds from the government</p> <p>The budget allocated to Pakistan’s HE by the government</p> <p>Collaboration with the private sector (signing contracts with educational institutions, knowledge enterprises, industrial workshops, and research institutes)</p> <p>Receiving funds to validate and provide facilities such as laboratory equipment and participating in research projects</p> <p>Receiving financial help from some countries, such as Germany to establish centers such as the Taxila Institute of Asian Civilizations (TIAC)</p> <p>Charging students with tuition fee</p>
Legal mechanisms	<p>Approving educational courses by the university and holding examinations under its provision</p> <p>Responsible for holding exams and entrance exams for itself and 145 colleges and institutes affiliated with the university</p> <p>Enforcement of university laws and regulations by the region’s health department</p> <p>Setting policies and laws and regulations based on the criteria proposed by the PMDC and PCP</p> <p>Admission to medical university based on PMDC (HSSC and MDCAT) instructions</p>	<p>Enforcement of university laws and regulations by the region’s health department</p> <p>Setting policies and laws and regulations according to the criteria proposed by the PMDC and PCP</p> <p>Admission in medical university based on PMDC (HSSC and MDCAT) instructions</p>	<p>The same as Lahore</p>

Table 2. Strategies used by Pakistan’s universities for internationalization (continue)

Strategies	University of Karachi	University of Lahore	Quaid-i-Azam University
Educational mechanisms and empowering students	<p>Modernizing the facilities in physics, chemistry, food science, and industry, statistics, biotechnology, computer sciences, and mass communication fields to improve the quality and productivity</p> <p>A counseling office guiding foreign students regarding the admission process and facilitating registration in different departments</p>	<p>Establishing the research, innovation, and commercialization office</p> <p>Department of Job services, and corporation links in the university</p> <p>Providing workshops, discussions, seminars, one-on-one coaching sessions, etc.</p>	<p>The research, innovation, and commercialization office</p> <p>Holding online and in-person educational workshops for students</p> <p>Holding international courses with the cooperation of other domestic and international universities</p> <p>Inviting native and international professors</p>
Educational mechanisms and empowering professors	<p>Establishing the research, innovation, and commercialization office, and helping professors commercialize their ideas</p> <p>Offering reeducation courses to professors</p> <p>Sending professors to educational and research courses</p> <p>Holding international conferences and creating international links to collaborate with foreign professors</p>	<p>Offering reeducation courses to professors</p> <p>Sending professors to educational and research courses</p> <p>Holding international conferences and creating international links to collaborate with foreign professors</p>	<p>Offering reeducation courses to professors</p> <p>Establishing occupational adjustment for professors</p> <p>Providing financial support for research</p>
Mechanisms for communicating with other pioneering universities	<p>Establishing centers called Quality Enhancement Cell (QEC) that are responsible for corresponding with outside bodies of university, revising quality standards and the quality of teaching and learning in each field, establishing academic relationships with other institutes regarding effective management of standards and quality of programs, monitoring students, professors, and staff’s performance, quality management process, teaching, and informing process, purchasing products, designing and development process, service provision process, product management process, the process of managing contact with clients, internal quality management, monitoring and measurement process, and management assessment process</p> <p>Offering an annual program called Continuing Dental Education Programs at Altamash College to facilitate the entrance of new sciences to Pakistan by inviting foreign professors</p> <p>Partner universities: The Australian National University, University of Canberra, Inserm, The University of Paris, The Max Planck Society, Germany; Pasteur Institute of Iran, University College Dublin, Ireland; Sains University of Malaysia, Ohio University, Bua University, Auckland University</p> <p>International professors working with this university: Prof. Dr. Hans Yornvall, Prof. Dr. Stephen Pennington, Dr. Aftab Ahmed, Prof. Dr. Roman Zubarev</p>	<p>Signing memorandums of understanding with universities of Afghanistan, Azerbaijan, Congo, Iraq, Pakistan, Sudan, Turkey, Uganda, and Northern Cyprus</p> <p>Research collaboration with international institutes such as Duke University, University of Houston Texas, University of Pittsburgh, Center for Disease Control and Prevention in the US, University of Liverpool, University of Glasgow, University of Nottingham, University of Reims Champagne-Ardenne, and The University of Münster</p> <p>Inviting international professors to present some courses</p>	<p>Signing memorandums of understanding with universities all over the world, such as Atatürk University (Erzurum, Turkey), Ball State University, Muncie Indiana, USA ‘ University of Jordan ‘Canadian company Health Consortium of Canada (HCC) ‘Turkish Cooperation and Coordination Agency (TiKA) ‘Taras Shevchenko National University of Kyiv, Ukraine‘ Beijing Institute of Genomics of the Chinese Academy of Sciences, China</p> <p>Doing research with international educational and research institutes such as UNESCO, IRSIP, and Agencia Espanolede Cooperacion International (Spain)</p>

Table 2. Strategies used by Pakistan’s universities for internationalization (continue)

Strategies	University of Karachi	University of Lahore	Quaid-i-Azam University
Mechanisms for communicating with the industry, attracting financial capital and exchanging intellectual capital	<p>One of the pioneering universities in patent</p> <p>Encouraging investors from outside the university and helping new ideas emerge by creating links between the labor market and the university’s scientific and research products</p> <p>Establishing a unit called Industry Liaison Cell as a bridge between the academic setting and the labor market</p>	<p>Exchanging intellectual capital and attracting investments by holding educational courses for graduates and, helping them establish science enterprises and sending staff to these institutes</p> <p>Achieving the remaining portion of the university's costs via partnerships with the commercial and nonprofit sectors.</p> <p>Covering the main part of expenses by charging students with tuition fee</p> <p>Signing contracts with employers (the private sector) and research institutes to implement research projects in collaboration with HE institutes and paying tuition fees to the university (approximately 20% of the university’s revenue)</p> <p>Another approach of this university to increase its capital was to satisfy the educational needs of industrial and commercial centers</p>	<p>Commercializing the university’s research and sending the products to the market</p>

Table 3. Plans used by Pakistan's universities for internationalization

Plans	University of Karachi	University of Lahore	Quaid-i-Azam University
Short-, medium- and long-term plans for developing manpower in different medical majors in the country and abroad	<p>Designing 4-year courses to attract foreign students</p> <p>Including some new subjects in the modified curricula of 4-year program to create more opportunities in the labor market</p> <p>Inviting foreign professors to teach at the university</p> <p>Regularly appointing parties to attract native and foreign professors</p> <p>Offering evening courses to increase the capacity of accepting students</p> <p>Improving entrepreneurship and commercialization activities</p> <p>Offering internship courses</p> <p>Developing and enhancing research programs</p> <p>Creating direct links between research activities, and educational, industrial, and social sectors</p> <p>Promoting multidisciplinary and interdisciplinary research</p> <p>Increasing and diversifying foreign research budget</p> <p>Translating the studies in favor of people</p> <p>Internship opportunities</p> <p>Case studies competitions</p> <p>Updating the demand and supply of resources</p>	<p>Conducting continuous studies to improve the quantity and quality of education and research in the university</p> <p>Self-evaluation by the university</p> <p>Analyzing student processes in top international universities and following suite</p> <p>Planning and conducting feasibility studies on open and distance education</p> <p>Planning some courses to be online</p> <p>Evaluating the potential for admission in various majors using faculty data</p>	<p>Holding seminars, educational workshops, conferences, and continuous education programs for academics and professional pharmacists</p> <p>Designing collaboration programs and creating links with national and international educational and research institutes</p> <p>Establishing a unique and advanced medical research center able to register new and generic inventions in pharmacy</p> <p>Promoting the pharmacy department to a national center and establishing a national pharmaceutical sciences university to meet the needs of national and multinational pharmaceutical industries and other educational institutes, research, and healthcare</p> <p>Analyzing student processes in top international universities and following suite</p>
Plans for attracting capital	<p>Office of Research Innovation and Commercialization (ORIC), and creating links with agencies for budget provision</p>	<p>Attracting capital by signing international memorandums of understanding and creating links with international agencies</p>	<p>Mentioned in the previous part</p>
Plans for exchanging scientific products and sharing experience	<p>Establishing centralized laboratories to increase the research capacity</p> <p>The most important journal of this university at the international level: Karachi University Journal of Science</p>	<p>Pakistan Journal of Molecular Medicine (PJMM)</p> <p>Journal of Media, Business & Social Sciences (JMBSS)</p> <p>Asian Journal of Allied Health Sciences (AJAHS)</p>	<p>Collaboration with government and private sector universities in innovative research</p> <p>Collaboration with domestic and international organizations active in similar research</p> <p>Establishing a national and international assembly by holding seminars, and conferences for discussion of scientific and technological developments</p> <p>Pakistan Journal of Social Sciences</p>

Reviewing the majors offered at these three universities and comparing their titles and curricula with those of prestigious universities worldwide and international standards indicates that Pakistan has tried to arrange its academic majors in a way that native and foreign students are more willing to be admitted in these universities knowing that the certificates, and majors offered are internationally valid and their chances of admission are also higher.

In this new university system, it is possible to commodify universities by allowing them to charge foreign students tuition fees, which leads to a reduction of the economic burden on the government and private centers and attraction of foreign currency.

As seen, these three universities provided facilities to attract international students, such as 1) Free access to research databases 2) Student insurance 3) Free access to laboratory equipment 4) Grants for presenting research papers in international conferences 5) Free access to university workshops 6) Free access to library books 7) Helping graduate students find jobs.

As mentioned earlier, each university has a limited number of foreign faculty members. Moreover, every university has plans to send its professors, and students to foreign countries to participate in specialized courses.

Pakistan has approved a program to attract and employed foreign professors to its universities. Furthermore, this country invites foreign professors to implement short-term educational programs in Pakistan at public or private universities to hold workshops/seminars for native graduate students. These partnerships provide ongoing exchanges between Pakistani and international institutions, which has an impact on faculty recruitment and research partnerships. Besides, HEC has developed a program to provide financial aid to Pakistani researchers to travel to foreign countries. In this program, financial assistance is provided to university faculty members, staff, and Ph.D. students of public and private universities to participate in international conferences, postdoctoral research, or any type of research (18). HE institutions in Pakistan are trying to improve research culture and are organizing international conferences, encouraging researchers to conduct research, and publishing journals at the international level.

Conclusion

The reasons for Pakistan's success in the internationalization process can be attributed to factors, such as the focus on science and technology, the

advanced role of the local government and the privatization of HE centers, the introduction of modern ideas and changes in the country's cultural structure, using English as the main language in universities, designing web portals based on global standards, creating diversity in majors and making them conform to international standards, receiving tuition from international students, designing programs for international students, employing foreign faculty and sending professors abroad to take specialized courses, and trying to monitor international initiatives and ensure quality.

As a comparative view, for the internationalization of medical education in Iran, it is recommended to rely on the priorities of own educational system and use other universities and medical education abilities as a model to improve all aspects of internationalization.

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