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REVIEW ARTICLE

Internationalizing the Transformation and Innovation Approach in Health Higher Education

Background: Internationalizing education in universities has a positive effect on the quality of education and the position of a university in both short and long term. The purpose of this article is to examine the process of internationalization in order to strengthen the educational process in the field of specialization as well as to increase skills in higher education.

Methods: In this review study, articles published in Persian and English journals in databases of Google scholar, ProQuest, Elsevier, PubMed, ISI (Web of Science), Barakatks, AND Scopus were used. Searching articles were mainly using the keywords of internationalization, innovation, medical education, health education in Persian language and their English equivalent in Latin databases. The paper-selection process was based on the following strategy: At the end of the search, 130 articles were obtained. Then following the title and abstract screening, out of 86 articles 40 articles were excluded by the study of their abstracts, as well as 36 articles were chosen by full-text review. Finally, 10 articles found the inclusion criteria. Initially, the most important reasons were examined for the internationalization of higher education, then the internationalization process was considered with regard to the influential factors.

Results: The results showed that if the transformation and innovation packages in the internationalization sector are realized, the following achievements will be achieved in the field of medical education: compilation of regional and international medical education and document preparation, compilation of international performance indicators and monitoring model, Designing a Model for Benefiting International Scientific Exchanges, Developing a Flexible Pattern in Educational Curricula to Expand the Attraction of International Students, and International Accreditation of Iranian Medical Universities.

Conclusion: This research can provide a new perspective for changing the viewpoints of policy-makers and administrators of the macro-regional universities of medical sciences, especially in the first District to review the packages of transformation and innovation.

Key words: Internationalization, Medical Sciences Education, Health System

تدوین نهج التحول والابتكار في التعليم العالي الصحي

الخلفية: تكمن الحاجة إلى تدوین التعليم الجامعي في تأثيره الإيجابي على جودة التعليم و موقع الجامعة على المدى القصير و الطويل. الغرض من هذه المقالة هو دراسة عملية التدوین من أجل تعزيز العملية التعليمية في مجال التخصص ، و زيادة المهارات ، و ما إلى ذلك في التعليم العالي.

الطرق: في دراسة المراجعة هذه ، تم استخدام المقالات المنشورة في المجلات الفارسية والإنجليزية في قواعد بيانات الباحث Google ، ProQuest ، Elsevier ، PubMed ، ISI (Web of Science) ، Barakatks ، و Scopus. كانت مقالات البحث تستخدم بشكل أساسي الكلمات الرئيسية للتدوین و الابتكار و التعليم الطبي و التعليم الصحي باللغة الفارسية و ما يعادلها باللغة الإنجليزية في قواعد البيانات اللاتينية. استندت عملية اختيار الأوراق البحثية إلى هذه الاستراتيجية: في نهاية البحث ، تم الحصول على 130 مقالاً و من أصل 86 مقالاً بعد فحص العنوان و الملخص واستبعد 40 مقالاً بعد الدراسة المجردة و 36 مقالاً بعد مراجعة النص الكامل. أخيراً ، شاهدت 10 مقالات معايير التضمين. في البداية تم فحص أهم الأسباب لتدوین التعليم العالي ، ثم تم النظر في عملية التدوین فيما يتعلق بالعوامل المؤثرة.

النتائج: أظهرت النتائج أنه في حال تحقيق حزمة التحول و الابتكار في قطاع التدوین ، سيتم تحقيق الإنجازات التالية في مجال التعليم الطبي: تجميع وثائق التعليم الطبي الإقليمي و الدولي ، تجميع مؤشرات الأداء الدولية و نموذج الرصد ، تصميم نموذج إعادة التبادل العلمي الدولي ، تطوير نمط مرز في المناهج التعليمية لتوسيع جذب الطلاب الدوليين و اخيراً الاعتماد الدولي للجامعات الطبية الإيرانية.

الخلاصة: يمكن أن يوفر هذا البحث منظوراً جديداً لتغيير صانعي السياسات و الإداريين في الجامعات الإقليمية الكلية للعلوم الطبية ، لا سيما في المنطقة الأولى لمراجعة حزم التحول و الابتكار.

الكلمات المفتاحية: التدوین ، تعليم العلوم الطبية ، النظام الصحي

بین المللی سازی رویکرد تحول و نوآوری در آموزش عالی سلامت

زمینه و هدف: نیاز به بین المللی سازی آموزش دانشگاه به این دلیل است که تأثیر مثبتی بر کیفیت آموزش و جایگاهش در کوتاه مدت و بلند مدت دارد. هدف از این مقاله بررسی روند بین المللی سازی به منظور تقویت فرایند آموزشی در حوزه تخصصی، افزایش مهارت و غیره در آموزش عالی است.

روش: در این مطالعه مروری، از مقاله‌های چاپ‌شده در مجلات فارسی و انگلیسی موجود در پایگاه‌های اطلاعاتی Google Scholar, ProQuest, Elsevier, PubMed, ISI (Web of Science), Barakatks, Scopus در سال‌های ۲۰۲۰-۲۰۱۹ استفاده شد.

جستجوی مقاله‌ها به‌طور عمده و با استفاده از کلیدواژه‌های بین-المللی‌سازی، نوآوری، آموزش پزشکی، و معادل انگلیسی آن‌ها Internationalization, Innovative, Medical Education انجام گردید. فرآیند انتخاب مقالات بر اساس این راهبردی انجام شد: در انتهای جستجو، تعداد ۱۳۶ مقاله به دست آمد و از بین ۹۳ مقاله پس از غربالگری عنوان و چکیده، ۴۸ مقاله پس از مطالعه چکیده و ۳۹ مقاله پس از بررسی متن کامل مقالات کنار گذاشته شدند و در نهایت ۱۳ مقاله واجد معیارهای ورود به مطالعه بر مبنای محتوای موضوعی با بین المللی‌سازی شناخته شد.

یافته‌ها: نتایج نشان داد که اگر بسته تحول و نوآوری در بخش بین المللی سازی تحقق یابد، در حوزه آموزش پزشکی دستاوردهایی حاصل می شود شامل: تدوین اسناد آموزش پزشکی پزشکی منطقه ای و بین المللی، تدوین شاخص های عملکرد بین المللی و الگوی نظارت، طراحی الگوی برای بهره مندی از مبادلات علمی بین المللی، ایجاد الگوی انعطاف پذیر در برنامه درسی آموزشی برای گسترش جذابیت دانشجویان بین المللی، اعتبارنامه بین المللی دانشگاه های علوم پزشکی ایران.

نتیجه‌گیری: پژوهش فوق می‌تواند چشم‌انداز جدیدی در راستای تغییر سیاست‌های کلی مدیران و مسئولان دانشگاه‌های علوم پزشکی کلان منطقه به ویژه کلان منطقه یک در راستای بازبینی برنامه‌ها بسته های تحول و نوآوری، ایجاد کند.

واژه‌های کلیدی: بین‌المللی‌سازی، تحول و نوآوری، آموزش علوم پزشکی، نظام سلامت

میڈیکل اعلیٰ تعلیم میں تبدیلیاں اور نوآوری کو عالمی سطح پر پیش کرنا

بیک گراؤنڈ: میڈیکل یونیورسٹی کی اعلیٰ تعلیمات کو انٹرنیشنل سطح پر اس وجہ سے پیش کیا جانا چاہیے کہ اس سے تعلیمی معیار بڑھتا ہے اور کم مدت نیز طویل مدت میں یونیورسٹی کے معیار میں استحکام لانے میں مدد ملتی ہے۔ اس تحقیق کا هدف میڈیکل کی اعلیٰ تعلیم میں بہتری لانے کی غرض سے اس تعلیم کو عالمی سطح پر پیش کرنا اور اس میدان میں مزید مہارتوں میں بہتری لانا ہے۔

روش: اس تحقیق کے لئے فارسی اور انگریزی کی میڈیکل ویب سائٹوں Google Scholar, ProQuest, Elsevier, PubMed, ISI (Web of Science), Barakatks Scopus میں سنہ دوہزار سے دوہزار انیس تک کے مقالات کی سرچ کی گئی۔ اس کے علاوہ Innovative, Medical Education, Internationalization جیسے الفاظ سے بھی سرچ کی گئی۔ پوری سرچ میں ہمیں ایک سو چھتیس مقالے ملے اور اس کے بعد مزید تحقیقات کے بعد ترانے مقالے ہاتھ آئے جس میں سے مزید چھان بین کرنے کے بعد ازنائیس مقالے حاصل کئے گئے۔ اس کے بعد مزید غور سے مقالوں کا مطالعہ کیا گیا جس کے بعد ازنائیس مقالے ہاتھ آئے اور آخری میں ماہرین نے تیرہ مقالوں کو معیاری قرار دے کر انہیں عالمی سطح پر پیش کئے جانے کی اجازت دی۔

نتیجے: اس تحقیق سے پتہ چلتا ہے کہ اگر میڈیکل تعلیم میں حاصل ہونے والے نئی تحقیقات اور تبدیلیوں کو عالمی سطح پر پیش کیا جائے تو ہمیں یہ موقع مل سکتا ہے کہ ہم علاقائی اور عالمی سطح پر میڈیکل تعلیم میں حاصل ثمرات کو تدوین کرسکیں، بین الاقوامی سطح پر میڈیکل عملے کے لئے بہتر قوانین وضع کرسکیں۔ اور بین الاقوامی طلباء کو اپنی یونیورسٹیوں میں تعلیم حاصل کرنے کی ترغیب دلا سکیں۔

سفارش: اس تحقیق سے میڈیکل یونیورسٹیوں کے سربراہان اور نصاب تدوین کرنے والے بہتر معیار سے آشنا ہوسکتے ہیں۔

کلیدی الفاظ: تحقیق، تبدیل اور نوآوری، میڈیکل

INTRODUCTION

In IRAN 1404 OUTLOOK DOCUMENT, Iran is a country with the first scientific rank in the region of Southwest Asia. It is necessary for the medical sciences departments to move the universities of the country towards internationalizing their education (1). In this context, the Health Development Plan, implemented by the Iranian Ministry of Health and Medical Education, deals with the internationalization of universities (2). Since the universities of medical sciences as one of the institutions of higher education are largely influenced by the conditions of internationalization, the place and importance of educational institutions in the internationalization programs of higher education system should be considered (3).

Universities are urged to expand the internationalization culture among all members of a university (whether they are employees, students, or professors). Today the word internationalization has been raised as the main goal and the strategic center in universities (4). Therefore, the internationalization of the university is one of the main aims of higher education in universities. In addition, recognizing the components towards the internationalization of a university is necessary. In general, the main objective of the internationalization of higher education is development of knowledge, ability, attitude, and values that are internationally recognized (5). For the word internationalization, there are definitions and perspectives from the viewpoints of the owners. The English term internationalization consists of two parts: international and institutional. In the internationalization word, *ization* represents a process that implies a change. Internationalism has the *ism* suffix and implies ideology, and internationality has a suffix *ity*, and emphasizes the status of the international conditions of higher education. The use of the term "internationalization" began in the higher education sector at the early 80's and its definition were introduced 20 years ago by Jane Knight. The most frequently cited and most widely accepted definitions of internationalization were mentioned by Knight: "The process of integrating an international, intercultural, or global dimension into the purpose, functions or delivery of post-secondary education (6). Boström described internationalization of higher education as a process of integrating international, intercultural, and global dimensions into academic goals and practices, and realizing it in a manner that would promote respect for cultural differences and traditions (7, 8). Internationalization is not an objective but an important resource in the development of higher education towards a system in accordance with international standards as well as an answer to its globalized environment (3). Internationalization strategies are not limited to the exchange of students and the admission of international students (1996) and are classified into two main streams and strategies: beyond the boundaries and at home. Cross-border internationalization refers to activities that take place in other countries, often related to transnational and cross-border education. Also, a campus-based activities is called internationalization at home (4). Internationalization has

exerted a profound effect on the structure, methods, programs, and performance of higher education and universities in the world. Most notably the expansion of the market for higher education and the possibility of farther higher education and the university admission to the title of an international industry are the international accreditations of universities and colleges and the increase of foreign students (9).

The internationalization of the higher education system has many positive consequences, such as the development of intercultural communication skills (10), education for the global citizen (11), technology transfer (12), increased study fields (13), strengthening of diplomatic relations (12), opportunity for Attraction of foreign elites, increase of international cooperation, research and production enhancement, economic efficiency, and financial benefits.

The most important reasons for the internationalization of higher education are:

Higher education leaders have increasingly strived to internationalize their institutions for economic, political, academic, and sociocultural rationales (11, 14).

Political rationales, particularly post-September 11, have emphasized the need to equip students with an awareness of world cultures and skills necessary to address national security and foreign policy concerns (15, 16). Economic rationales have included the desire to prepare students for domestic and international careers, generate income for the institution, and contribute to economic development and competitiveness (17, 18).

Sociocultural rationales have highlighted the need to develop students' intercultural communication skills, which are necessary to address the increasing of cultural and ethnic diversity within and between countries (19, 20).

Academic rationales have emphasized that: to strengthen liberal education, it is critical to provide opportunities for students to (a) gain a knowledgeable and diversified worldview; (b) comprehend international dimensions of their major fields of study; and (c) develop global and critical thinking skills (21, 22).

The process of internationalization of higher education (Figure 1) includes:

- Awareness: The purpose of this phase is to create awareness among staff, faculty, and students about the importance and benefits of internationalizing the university.

Commitment: The commitment phase means integrating an international dimension into teaching/learning, research, and service functions of the university.

- Planning: Planning is the creation of a comprehensive plan or strategy for internationalizing the university.

- Operationalization of the program: Operationalization of the program involves applying different aspects of internationalization strategies and creating a supportive culture in line with the internationalization of the university.

- Audit: The purpose of auditing is to continually evaluate and enhance the quality of various aspects of the university's internationalization process.

- Strengthening: Recognizing and rewarding the participation of faculty and staff in international actions and activities (23).

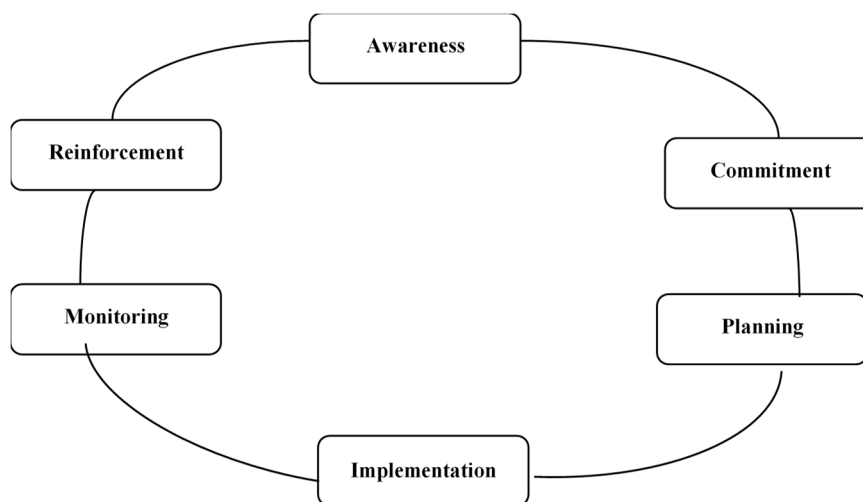


Figure 1. The process of internationalization of higher education (23)

Based on research related to the internationalization of universities, three main domains of the internationalization process can be observed: 1) Transition from one country to another by various means, such as media (books, electronic media, etc.), physical mobility (conferences, studying in abroad, faculty member exchange, etc.) curricula and joint research projects, as well as transnational education. 2) International education and research through cross-border and transnational programs, telecommunications and other international forms (e.g., foreign language knowledge and comparative regional studies and international communications. 3) Communication and transnational discourse through student mobility and studying abroad (24). By reviewing the definitions of the experts in this context, the following definition can be suggested for internationalization: Internationalization is a systematic and integrated process that integrates international horizons with the mission, goals, functions and organizational culture of the university with the aim of emphasizing international quality, standardization, and competitiveness with respect to the cultural and racial differences. According to Iran's territorial planning document, three international medical universities must be established by the year 2025 and criteria have to be set at international levels. One of them is obtaining the score higher than 500 on the SCIMago, Shanghai Jiaotong or QSTimes ranking scales. Given these capacities, medical universities in Iran can be one of the regional powers, and to achieve this goal, a defined framework has been developed in Iran to recruit students internationally (25). Internationalization is a multidimensional process, accompanied by political, economic, educational, cultural and social, academic and technological requirements. Three important enabling factors for managing internationalization of higher education in Iran are: Leading the establishment of effective activities and improvement of strategic and cultural infrastructures of higher education centers that promote international activities (5). The territorial planning of the changes and innovation in medical education curriculum

reinforced the purposeful interaction and communication between the regional universities and the creation of the changes and Innovation discourse in the academic environment. The potentials of each of these universities can be used to create regional benefits (26). In the program of changes and innovation of medical education internationalization package, four policies outline the twelve general policies and orientations, set forth, in the new horizons of Iran's higher education system in the field of health as follow: 1) Developing new sciences with an emphasis on interdisciplinary areas and focusing on new sciences and technologies, participating in regional and global training areas, promoting human resources in higher education, and creating wealth of Knowledgebase in the field of higher education (25).

Internationalization of medical universities requires the establishment of communication channels with internationally accredited universities, the exchange of scientific information with international scientific associations and giving authority to medical universities to register international students (1).

Today, internationalization is not a passive and isolated phenomenon, but a reaction and activities to the role of higher education assistants in the knowledge-based society (11).

Joshi & Ahir in a research entitled: "Higher Education in India": About the issues related to access equity, efficiency, quality and Internationalization, showed that, despite continued efforts to improve the quality of higher education in India, effective measures are needed to create international competition. That is, higher education must be effectively addressed through an efficient framework to combat global competition (27). In this regard the most important goals of the internationalization package of medical education are:

- Improving and expanding the global presence of medical universities in international scientific forums and recognizing the scientific and educational capabilities of the

- Islamic Republic of Iran in the field of medical sciences worldwide Identifying the health education markets existing in the region and around the world for the presence of international universities in the international arena.

Establishing partnerships with the industry and economy of the various nations through research collaborations with them and enhancing the useful scientific and cultural diversity by exchanging students with the world's top universities (25)

Managers and experts in the field, administrators and vice chancellor for the education of universities, and university presidents have all played a role in revising this document, and this will surely lead to the commitment of staff and environmental managers to execute this document optimally.

The rich human resources, facilities, scientific capacity, and achievements of the country's medical universities in recent years provided the perfect conditions for becoming an influential international center.

This research could provide a new perspective for changing the general policies of managers and officials of macro-regional medical universities, especially the macro-region 1, in order to review the programs of transformation and innovation packages.

Until the authorities, beneficiaries, and stakeholders of higher education reach a common understanding and theoretical consensus on the profits and benefits of the country's scientific and technological communities, internationalization will not only be achieved but it can also create threats and problems.

In this sense, as long as each of the direct and indirect factors related to internationalization is not integrated into the network and they do not understand their role and participation, this issue will not have any particular achievement in universities, especially Iranian medical universities. We hope that by utilizing this massive network, we will see a change in the field of medical education.

Therefore, the present study aims to Internationalize the Transformation and Innovation Approach in Health Higher Education.

METHODS

In this review study, published articles were searched in Google Scholar, ProQuest, Elsevier, PubMed, ISI (Web of Science), Barakatks and Scopus databases from 2019 to 2020. Also, keywords of the Internationalization, Innovation, and medical education were used. Totally speaking, 136 articles were found; however, out of 136, 93 articles were selected after studying their titles and abstracts, 48 papers were chosen after studying the abstract and 39 papers were omitted after full-text review. In summary, 13 articles matched the inclusion criteria based on the subject content with internationalization, innovation, and medical education.

RESULTS

The review of the articles attributed to the internationalization showed the introduction of indices.

Hamidifar et al., concluded that to achieve the desired level of internationalization of higher education, four key domains must be managed and led, including environmental analytical study, development of a coherent and targeted strategic plan, operating and organizing of infrastructures, and continuous, effective monitoring, and evaluation (4). Haqqdost et al. stated that internationalization of medical sciences requires the attention to the international relations at high levels of management and leadership, as well as the provision of adequate welfare for the international faculty members and the students (28). Rezaei et al. examined the experience of Isfahan University of Medical Sciences in editing an internationalization program. It showed that at present, Iran is not in a good position in terms of internationalization, therefore, the revision and improvement of international higher education should be more on the agenda of curriculum planners (25). Salajega et al., introduced the educational and research indices, student recruitment, international community membership and networking, administrative staff, students, educational curriculum, an international reputation, university management, and faculty members the most important international desirable indicators and components of education (3). Zamani Manesh et al., in their model focused on the underlying factors (political and security conditions, cultural and economic conditions, global and regional conditions) and super structural factors (management and human resources, scientific collaboration, space and equipment, curricula, extracurricular activity, supervision and review, and academic culture) for the internationalization of medical universities (1). Zamani Manesh et al., in Effective factors on Internationalization of Medical Education from Faculty Members' Viewpoints in Shahid Beheshti University of Medical Sciences noted that, all the identified factors influence the internationalization of medical education and among these factors, the increase in financial credits for internationalization, the increase of optimistic attitudes towards the presence of international students, facilitating the issuance of visas, attention to internationalization in university perspectives, improvement of the organizational structure for international cooperation and communication are more important (9). Malekzadeh stated that the National Cancer Institute, the National Institutes of Health, the British Academy, and the World Cancer Society provide study opportunities for researchers and scientists in developing countries, which is one of the important approaches to internationalizing medical curricula (26).

Chang and Lin (2018) in a research entitled: applying CIPO indicators to examine internationalization in higher education institutions in Taiwan showed that, there is a wide gap between the importance and the possibility of internationalization in the input dimension and part of the context dimension. In addition, from the perspective of students and faculty members, there is a long gap between expected and actual results in the criteria of context, input, process and outcome (29).

Roga et al. (2015) in a research entitled internationalization

of higher education by analysis of factors influencing foreign students' choice of higher education institution showed three most important factors as: Academic quality, international reputation of students and staff. As well as factors such as access to parking, sports facilities, and location (30).

Bao's (2009) study on the development of faculty members and campus internationalization showed that, faculty members participating in the Chinese Cultural Exchange Program (CCEP) have helped internationalization of campus, by creating new courses, data collection for research, adjusting learning styles, working with international students, and guiding international programs and activities (31).

Therefore, in line with this issue, the health system managers by considering the approaches of changes and innovation packages (approved in 2015) in medical education should provide the basis for establishing the international education program of medical education in Iran, and increasingly, try to internationalize their educational center for the economic, political, educational, social, and cultural reasons. According to Iran's prospective document, in 1404 Iran will be productive with effective interaction in international relations, possess advanced knowledge, as well as be capable of producing science and technology. As an informed country with diverse capacities in the three domains of higher education (production, transfer, and dissemination of sciences), Iran works to improve its position in the internationalization level. Therefore, designing a strategic and managerial perspective and the appropriate process for achieving the predetermined goals is also crucial and, given the presence of potential management, the internationalization capacities based on the international preparedness program are expected to expand the universities of metropolitan regions.

DISCUSSION

According to the findings, Kelly and Moogan (2012) suggested that leadership and management are the main issues of concern to policymakers, educational experts, and leaders in internationalization of universities (32). Internationalization of universities also requires strategic and long-term policy-making to take appropriate action to improve research, educational and service activities and, on the other hand, to internationalize university activities as a dynamic framework for coordination among different departments. The quantitative and qualitative enhancement of research and education activities is not only sufficient to gain a prominent position in the international arena but also it is crucial to outline a strategic and managerial perspective and to design an appropriate process consisting of a set of organizational activities for achieving the predetermined targets. In Iran, relying on effective leadership and management, strategic planning and the implementation of ongoing and program-related activities, the future of internationalization of higher education is potentially promising (4).

To facilitate the process of internationalization of universities, suggestions are as follows:

- Conducting the workshop and other professional

developmental opportunities on international issues for the university administrators.

- University administrators deliver international lectures for growth and development of university managers.
- University administrators conduct training courses to enhance the verbal abilities of managers.
- Editing of strategic and operational documents for internationalization of medical universities.
- Bringing out the issue of internationalization in university documents.
- Instructing faculty and non-faculty members to promote international insight and conducting international requirements appropriately.
- Presenting content and curriculum in a way that is attractive to non-Iranian students.
- Conducting new courses covering international issues.
- Conducting courses on dialogue training, multiculturalism, and familiarity with international issues.
- Program for development of English and other languages at universities
- Targeting university agreements
- Providing conditions for the presence of non-Iranian students and faculty members.
- The adoption of scientific and production activities in science competition.

In the past, the concept of internationalization was a marginal phenomenon and was more widely recognized by the attraction of international students. But in the past half-century, with the spread of factors such as globalization, new technologies, international marketing, and international competitiveness, this phenomenon has become more and more of the focus of educational systems in different countries and has played a key role in almost all accredited higher education institutions and processes. Accreditation, intra-organizational evaluation, targeted agreements, and participation in international research have been addressed. Therefore, universities and higher education centers, as one of the educational institutions in Iran, should play an international role. The prerequisite for active participation in the internationalization of health education of higher education in Iran is effective management and leadership in the internationalization of higher education management structures in academic and research areas of education and the national environment.

In academic leadership strategies of health education, "attention to internationalization as a priority" is the most influential issue. According to the Supreme Leader's recommendations for the promotion of medical science education, educational transformation and innovation packages have been developed with the aim of promoting innovation and systematic utilization of the country's capacities in this field. The approval of the Land Planning Document by the Supreme Council of the Cultural Revolution provides a way to organize transition programs in medical science education with a regional perspective.

Ethical considerations

Ethical issues including plagiarism, informed consent,

misconduct, data fabrication and/or falsification, double publication and/or submission, redundancy, etc. have been completely observed by the authors. The ethics committee of Sari Islamic Azad University accepted this research, ethics code of this study is IR.IAU.SARI.REC.1397.032.

ACKNOWLEDGEMENT

We thank from the staff of ethics committee of Sari Islamic

Azad University of accepted this research.

Financial Support: This research is only accepted by research Committee of Sari Islamic Azad University without any financial Support.

Competing interests: The authors declare that they have no competing interests.

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