



Golestan University
of Medical Sciences

International Journal of Healthcare Management and Development (IJHMD)



Instruction outsourcing models in higher education: A scoping review

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Abstract

Background: Outsourcing the principal mission of universities, namely instruction, is a new and rather disputable concept which was highly regarded in recent years in terms of the increased number of university students, the necessity of improvement of educational quality, as well as the need for further emphasis on the improvement of efficiency in higher education. This scoping review aims to identify and investigate the higher education outsourcing models in higher education.

Methods: Articles for outsourcing higher education were extracted through Web of Science, Scopus, PubMed, EMBASE, and ERIC with the inclusion criteria of the English language. The third type of Arksey & O'Malley's framework (2005) was used to analyze the articles.

Results: Eleven articles and ten models were identified, including swirling model, program outsourcing model, course outsourcing model, full-service contracting model, specialized trainer model, business-like model, tutoring model, workforce model, Internet-based distance education approach, and deemed university model. Depending on the educational tasks that are outsourced, the outsourcing partner, the kind of outsourced services, and the instructional approach, these models have significant variances and similarities.

Conclusion: Different models might be applied for a given purpose based on the outsourced services' nature, outsourcing objectives, country's current conditions, the capacity of the outsourcing universities, as well as available high-capability institutes.

Article History

Received: 21 April 2022
Received in revised form: 20 July 2022
Accepted: 1 August 2022
Published online: 04 April 2023
DOI: [10.29252/IJHMD.1.1.15](https://doi.org/10.29252/IJHMD.1.1.15)

Keywords:

Education
Outsourced services
Contracts

Article Type: Original Article



Highlights:

What is current knowledge?

With the help of instruction outsourcing, universities may achieve a desired level of performance control and quickly respond to their students while also enjoying a significant decrease in administrative costs and the economies of scale of other universities and institutions.

What is new here?

There are several models with multiple advantages and disadvantages for instruction outsourcing which are conducted for various purposes. Universities can use a combination of instruction outsourcing models for their purposes.

Introduction

Outsourcing in universities is a generally accepted approach as well as a strategic option capable of yielding considerable financial-economic and managerial benefits. Universities, like other commercial and service-providing companies, traditionally prefer to outsource support services, such as the activities of libraries and computer sites, but outsourcing their primary responsibility and goal, i.e. education, is a relatively new and controversial concept (1-6). Outsourcing the services in universities leads to the reduced expenses, increased efficiency, increased creativity, and improved access to various knowledge resources, and this is why it has been growing significantly in recent years (7).

Despite considerable advantages, outsourcing in universities is exposed to numerous challenges calling for special attention. The major key factors involving in the outsourcing of services include the lack of control over the contract's partner, quality of services, and non-fulfillment of customer satisfaction that are common in all commercial and service-providing organizations; however, the non-personal nature of colleges and the necessity of

focusing on culture and society are unique factors that are exclusive to the universities and higher education (8, 9).

Universities are increasingly leaning toward instruction outsourcing as a consequence of the rising student population, the need to enhance educational quality, and the need to concentrate on increasing efficiency (9). Instruction outsourcing means concluding a contract between a university and an external institute (or person) to provide the educational services, on the basis of which the educational missions are accomplished by the external institutes or persons instead of the university and its faculty members. The outsourcing contract of these services is concluded for different time periods and via different ways (2, 10). Universities can outsource their educational services according to the instruction outsourcing criteria, which include financial factors, human resources, service quality, legal and ethical concerns, culture and prevailing values, and efficiency management. In addition, the educational services that may be outsourced include curriculum creation, student training, student evaluation, teacher training, academic supporting services, occupational counseling, and student job-finding (2, 11, 12). To date, various viewpoints were proposed in regard of higher education outsourcing. In this regard, the outsourcing opponents commonly point to the factors such as weakening of colleges, doubtfulness of the educational quality and student assessment, contingent utilitarianism of the institutes, disregarding of the academic values and culture, and focal emphasis on financial incentives (2, 12, 13), besides considering the university faculty members' opposition as the major barrier to the implementation of this approach (2). On the other hand, the proponents of this approach argue that by outsourcing of instruction the quality of education can be improved as a result of a standard curriculum and education, so that the universities, needless of the specialized experts of each area and without employing new professors, will be able to import some new and distinct levels of specialty and culture through external providers. With the help of instruction outsourcing, institutions may achieve a desired level of performance control and quickly react to their students while also enjoying significant savings on administrative costs and the economies of scale of other universities and institutes (2, 14, 15). The argument presented by the opponents

and proponents of instruction outsourcing may vary with the higher education outsourcing models and methods. Therefore, in addition to the recognition of instruction outsourcing criteria and scrutiny of its various aspects, the universities should know various methods and models and then adopt an appropriate approach for outsourcing of the educational services based on their culture and policies, current needs, outsourcing objectives, as well as current circumstances.

Higher education outsourcing was highly regarded, especially in USA, in recent years. The studies conducted in this regard are limited to the investigation of advantages, challenges, and problems of outsourcing. There isn't a thorough study that specifically focuses on different models and methods of higher education outsourcing, as well as on their various aspects and features. The majority of studies on this topic have focused on outsourcing nursing education and using part-time professors and clinical staff (10, 16, 17). On the basis of this, the current research aims to examine several models of higher education outsourcing.

Methods

The present work was conducted via scoping review and based on Arksey & O'Malley's framework. This review is compatible with the third type of this framework, the purpose of which is to summarize and publish the research findings (18).

A. Identifying studies

The systematic search was performed with English language and without any time limitation in the intended databases including Web of Science, Scopus, PubMed, EMBASE, and ERIC; for this purpose, a combination of MeSH and other keywords such as contracting, outsourcing, instruction, education, training, teaching, learning, school, university, and college was used. Furthermore, in addition to the online searching, the resources of relevant papers were reviewed.

B. Included studies

The inclusion criteria were determined based on the viewpoints of authors including: investigation of educational services (not support services) outsourcing, investigation of higher education, and provision of a method or model for outsourcing.

C. Extracting information

After the studies had been searched, the duplicate instances were excluded, and the study titles and abstracts were then reviewed in accordance with the research question. The entire texts of the articles that had been included were then carefully read in order to be further evaluated and checked for compliance with the stated inclusion criteria. All of these steps were conducted by two of authors independently. Moreover, to investigate the papers and extract their data, a data extraction table was used, which consisted of the sections such as author, year, country, study objective, study design, and main results. All extracted information was entered into an information summary form. The results were summarized and reported based on instruction outsourcing models, advantages and disadvantages of instruction outsourcing models, outsourced educational functions, instruction method, the nature of outsourced services.

Results

A. Study selection

The systematic search led to identification of 409 studies; subsequently, after omitting the repetitive cases, 310 studies entered the title and abstract screening phase and three were imported from the list of relevant studies resources. By surveying the study titles and abstracts, 257 research were left out. Only 56 studies were examined in their entirety using the provided inclusion criteria, which ultimately resulted in the inclusion of 11 publications in the review. Figure 1 shows the flow diagram for PRISMA. A review of the included studies showed that the largest portion of these studies have been conducted in developed countries, especially USA, and developing countries, except for India and Pakistan, have had no contribution to studies on this field. Even while online education was always considered one of the strategies for instruction outsourcing before 2000, it has just been given special attention as of 2003. Table 1 lists the characteristics of the listed studies.

B. Instruction outsourcing models

As can be inferred from findings of the present study, totally 10 models were identified, which included: swirling model, program outsourcing model, course outsourcing model, full-service contracting model, specialized trainer model, business-like model (Quasi-Contracting), tutoring model, workforce model, internet-based distance education approach, and deemed university model.

These models were surveyed based on a variety of factors, such as the contract partner, the educational functions of higher education (education, curriculum development, and student assessment), the teaching methodology, and the types of outsourced services (non-credit courses, credit courses, and degree programs) (22). Table 2 presents the findings of the comparative analysis of various models.

Swirling model: This model describes the complex pattern of the students' enrollment in various educational institutes, and refers to the replacement of the

scores of educational courses held by different institutes and dual enrollment. These institutions are situated outside the university setting in which the student is enrolled and are not subject to university oversight. In addition, they may include public universities, private universities, and online education institutions. On the basis of this approach, students enroll in educational courses at these institutions (many institutes) and then transfer the degrees and credits they have earned from these institutes to their own university of study; thus, they get their academic degrees based on these scores (12).

Program outsourcing model: Based on this model, the university contracts out with an institute, which is mostly private and might work in another country, to provide its educational programs via online or presence-based courses and then grant relevant degrees to the students (degree-granting program). The granted degrees may include undergraduate degrees or dual degrees, such as Master of Public Health (MPH) or Master of Business Administration (MBA) degrees, for medicine students. In this model, the university casts its control over the process of student admission as well as content of the curriculum; on the other side, besides providing technical expertise and skills, the contractor party is also active to provide the supportive services for students, marketing, and attracting the students. In USA, many universities contract with a higher education company named Higher Ed Holdings, which grants various degrees, such as Master of Science (M.Sc.) and Master of Arts (MA) in nursing, to the graduated students (12, 23).

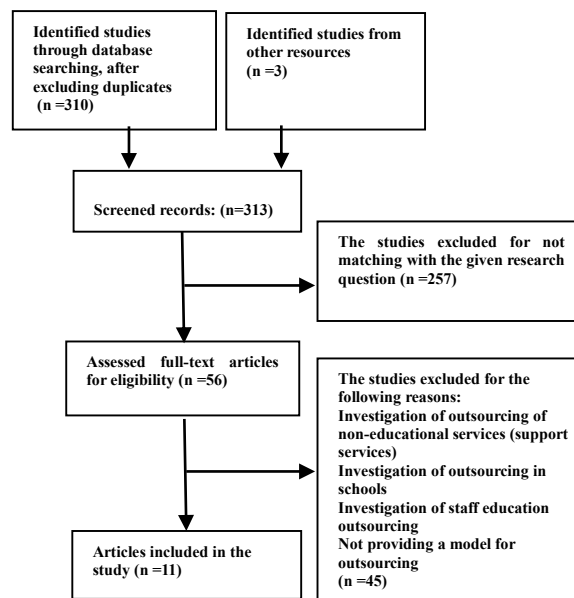


Figure 1: PRISMA flowchart of study selection process

Course outsourcing model: Based on this model, the college contracts out its general educational courses or pre-requisite courses via an outsourcing contract to a private company to provide them via presence-based or online courses. In this model, as opposed to the program outsourcing model, the contractor creates and implements the educational package; however, the college retains control over the degree-granting programs and assigns points for successfully completed courses while bearing no responsibility for the course content or instruction. In this paradigm, the majority of the outsourced courses are non-credit courses, while degree-credit courses are less likely to be outsourced. In this model, similar to the previous one, the contractor party serves in the areas such as providing supportive services for students, marketing, and attracting the students as well (12). The difference of this model compared to the specialized trainer model is in the nature and specialization level of the courses, so that in this model, in contrast to the specialized trainer model, the specialized courses are not outsourced.

Specialized trainer model: Based on this model, education is outsourced to a specialized trainer that provides the curriculum and required trainers for a field of specialty, which requires suitable equipment, expertise, and skills. This approach may be used when a university has a faculty shortage or a lack of experts in advanced specializations and, as a result, chooses to outsource its specialized courses to other universities or institutions that are well-equipped with the necessary technology and resources. By concluding outsourcing contracts with other universities and benefitting from senior specialized experts in some certain fields, the universities not only outsource the education and utilize other universities' capacity for educating the students, but also they provide the ground for enhancing and empowering their professors so that, in long term, they can take the advantage of their own professors' capacity and also feel needless of other universities. One of the applications of this model is for outsourcing the specialized courses of medical sciences such as advanced pharmacology as well as outsourcing some programs such as infants nursing degree programs to other universities (2, 10)

Table 1: Characteristics of the included studies

Author/ year	Country	Study objective	Study design	Main findings
Alene Russell/ 2010 (12)	USA	Investigation of participation of private-governmental sector in instruction outsourcing	Review	Swirling pattern: According to this model, many students get the scores needed to receive their degrees from various institutions, and the institutions and universities also accept many of the scores that students receive from external institutions. Program-outsourcing model: This model refers to outsourcing the instruction to other institutes or universities (mostly private), which grant academic degrees to the students. In general, the colleges are responsible for the academic content of the programs. Course-outsourcing model: In this model, the private company compiles and implements a full educational package, and the college has no responsibility in regard of education and curriculum but it can cast its control over the degree-granting process to the held courses. Additionally, this strategy concentrates on general education courses, with relatively little outsourcing of degree-credit courses.
Thomas Bailey/ 2004 (2)	USA	Investigation of effective barriers and factors influencing the growth of instruction outsourcing	Qualitative study	Full-service contracting model: In this model, a full-service contractor, besides providing the curriculum and supplying the required trainers, makes relevant actions in terms of marketing, increasing the financial resources, as well as other curriculum management activities. Specialized trainer model: Based on this model, providing the specialized courses is outsourced to another specialized trainer, such as a specialized institute or university, and then the other party of the contract supplies the required trainer and curriculum on a field of specialty, which needs professional and specialized equipment, expertise, and skills. Online education model: In this model, the online educational institute provides the online educational courses and programs for the students enrolling in colleges.
Timothyj Schibik/ 2004 (7)	USA	Investigation of business-like model in education	Review	Business-like model: This concept entails giving the part-time academic staff the responsibility for developing curricula, academic advising, and other educational tasks.
Joshua R. Conradson/ 2014 (5)	USA	Investigation of higher education outsourcing	Review	It is very common to apply part-time staff and professors for teaching a certain topic or educational course so that the universities commonly welcome this approach to supply their required human force and reduce their expenses. Tutoring: In this method, the higher education institutes contract out their tutoring services to some tutoring (private teaching) corporations in order for them to provide online or presence-based tutoring services for students of the educational institutes.
Elizabeth J. Halcomb/ 2010 (19)	Australia	Investigation of application of sessional staff	Review	Workforce model: This model is utilized to outsource nursing education, specifically in M.Sc. level. In this model, commonly a group of sessional staff, including industry experts, retired or prior-to-retirement individuals, part-time teaching staff, and specialized instructors in the field of researching, is used.
Joseph T. Dipiro/ 1999 (20)	USA	Investigation of distance education	Review	Internet-based distance education programs: Due to a lack of physical space, several colleges primarily employ remote learning to provide educational services. However, several other colleges outsource their academic programs in order to preserve their resources and expand the range of programs they offer. In recent years, the online programs, which grant undergraduate or post-graduate degrees as well as non-credit courses were widely developed, but meanwhile they are not much common in the field of health science education.
David Charles Steinberg/2004 (11)	UK	Investigation of E-learning business model for higher education	Review	E-learning business model: This model has been considerably expanded in recent years in terms of the increased number of students, reduced capacity and quality of educational facilities, as well as reduced budget and financial resources. Its constituting components include: E-learning curriculum development, managed learning environment, trainer's support, management of organizational change, and marketing. In order to successfully provide and hold degree-granting online programs or online courses, educational policy-makers may make use of the necessary services and integrated technology via the E-learning business model.
Adeel Khalid/ 2012 (21)	Pakistan	Investigation of online education	Case study	Computer-based distance learning approach: In this approach, some of the educational courses are provided via online courses with capability of global provision from anywhere around the world. This method provides the instructor and students with an opportunity for interaction.
M Anandkrishnan & Amitabh Jhingan/ 2011 (17)	India	Participation of private sector in higher education	Review	Deemed university model: This model, which is well-known in Indian universities, applies to institutions that were established at the behest of legitimate organizations and with the blessing of the country's university grants commission (UGC), and that conduct both public and private operations. Based on this model, a specialized association provides a specialized degree program and grants degrees for undergraduate (BS), postgraduate (M.Sc.), and doctorate degrees.
Carole Kenner/2006 (10)	USA	Investigation of impact of instruction outsourcing on excellence of education	Case report	Sometimes, in terms of the shortage of faculty members or specialized individuals in advanced specialties, such as pharmacology, it occurs to outsource the main specialized courses. For instance, OU CON (University of Oklahoma, College of Nursing) has leased out its babies nursing program to the ASU (Arizona State University) so that the students may attend the major sessions of the infants nursing course through videoconferencing. In fact, ASU serves as an assistant for OU-CON, and also some colleges of this university also play the role of ASU's assistants.
Anita Finkelman /2008 (16)	USA	Investigation of nursing instruction outsourcing	Review	One of the serious barriers to a desirable education in nursing colleges is the lack of sufficient financial resources and competent specialized experts, so that these colleges attempt to exploit a variety of approaches to overcome this problem. One of the recommended solutions for this issue is to hire retired faculty members who can teach online courses. Therefore, prior to the retirement of the professors, these schools should give the appropriate facilities, equipment, and educational courses for distant education to the prospective teachers, so that they may acquire the necessary skills for this form of education. In this regard, these colleges should encourage the instructors toward part-time education. For instance, the University of Oklahoma College of Nursing has formed two alliances with other educational institutions to extend resources. One alliance is with the Indiana University School of Nursing to share its advanced pharmacology course to tackle the shortage of its in-house expertise. Another instance is the sharing of specialist courses for the newborn nurse practitioner program with Arizona State University, which already offered the courses online, and Oklahoma, which has outstanding clinical practice locations. This partnership allowed the University of Oklahoma College of Nursing to offer the new master's program more quickly and more cost-effectively than would have otherwise been possible.

Table 2: The comparative investigation of instruction outsourcing models

Model	F ¹	Outsourcing partner	OEF ²		IM ³		NOS ⁴			
			T&L ⁵	CD ⁶	SA ⁷	Online	I-P ⁸	CC ⁹	NCC ¹⁰	DP ¹¹
Swirling Model	1	Multiple Institutions	✓	✓	✓	✓	✓	✓	✓	✓
Program-Outsourcing Model	1	Private Education Company	✓	-	✓	✓	✓	✓	✓	✓
Course-Outsourcing Model	1	Private Education Company	✓	✓	-	✓	✓	✓	✓	✓
Full-Service Contracting Model	1	On-Line Training Vendor	✓	✓	-	✓	-	✓	✓	✓
Specialized Trainer Model	2	Equipment Vendor/ Another University	✓	✓	-	✓	✓	✓	✓	✓
Business-Like Model	4	Part-Time Or Adjunct Instructors	✓	✓	✓	-	✓	✓	✓	✓
Tutoring Model	1	Private Education Company	✓	-	-	✓	✓	✓	✓	✓
Workforce Model	1	Sessional Staff	✓	-	✓/-	✓	✓	✓	✓	✓
Distance Education Approach	4	On-Line Educators	✓	✓	✓/-	✓	-	✓	✓	✓
Deemed University Model	1	Private And Public Academic Institutions	✓	✓	✓	-	✓	✓	✓	✓

1.Frequency 2.Outsourced educational functions 3. Instruction method 4.The nature of outsourced services 5.Teaching& learning 6.Curriculum development 7.Student assessment 8.In-person 9.Credit-bearing courses 10.Non-credit courses 11.Degree-granting programs 12.Only General Courses 13.Only Specialty Course

Full-service contracting model: Based on this model, the contractor party is committed to develop the curriculum and supply the trainers; besides, it provides services such as marketing of the university's services, job-finding for graduated students, supplying the financial resources, and other program management activities. Three methods are used to carry out this model: 1) public enrollment

in open enrollment courses, which are promoted by the institution; 2) contractual or ordered educational courses for companies and their workers; and 3) simultaneous and non-simultaneous e-learning for students. This paradigm is inconsistent and misaligned with the academic culture and comprehensive goals of higher education due to its primarily for-profit orientation (2).

Business-like model: This model has been implicitly referred to and named by different titles, such as assistant instructors, part-time instructors, part-time teaching staff, and part-time professors, in several studies. In this model, instructors work on a contractual basis and are recruited from outside the university (faculty or non-faculty members) or from non-educational positions inside the university; then, responsibilities, such as dissertation advisor, compensatory education, and curriculum development that were previously performed merely by faculty member, are relegated to them. However, owing to the extensive supervision exercised by schools over academics, outsourcing does not take place in its entirety. By outsourcing the instruction to part-time professors, universities can ensure that the educational content of their courses is up-to-date, benefit from the expertise of senior specialists in certain fields, enhance the quality of education and research, and enable their faculty members to participate in valuable and essential activities such as research, counseling, and management. On the other hand, in case of an unexpected increase in the demand for programs or courses, the part-time professors can become accessible in a short time and at a low cost, and provide the university with self-sufficiency and needlessness from employing new members of faculty in some fields of study (2, 7, 16, 24).

Tutoring: In this model, companies with specialized expertise in tutoring are used. Accordingly, instead of employing tutors (private teachers) who might be not welcomed and used by students, the universities tend to contract out with tutoring companies that provide the online or presence-based tutoring courses to the students. In this method, students can get access to their desired educational services at their own desired time, which are in favor of the students and the university (5).

Workforce model: This model has been proposed for outsourcing the nursing education at Bachelor of Studies (BS) level and is widely used for outsourcing of the professional courses, particularly clinical apprenticeship courses, for the purpose of which the clinical specialized experts are applied as trainers. Four groups are utilized in this strategy to outsource the instruction: retired people, specialized industry experts (clinical specialist experts as the industry members in the area of health), and part-time employees. These groups include academics with advanced degrees in research. The individuals' low commitment capacity as a result of not having access to common university facilities and their poor teaching abilities are some of the limitations of this method; as a result, these people should receive the necessary training in learning skills and educational strategies prior to employment.

The role of academic nursing is very extensive, and thus the player of such a role should be very skillful in regard of education of nursing knowledge development (researching) in addition to education of nursing care-providing (19, 25). The studies on this field have shown that a large number of the nurses, despite having

the required clinical and professional competencies, might lack the necessary knowledge and skills required for teaching and handling the classroom sessions. In order for training the teaching skills to clinical nurses, the faculty members of the college can be used (26, 27).

Distance education approach: This model is known with different names such as internet-based distance education programs, E-learning business model, and compute-based distance learning approach, which can be implemented via different methods. On the basis of this model, it would be possible to outsource the credit (compulsory) and non-credit (optional) courses as well as to grant academic degrees. Furthermore, this approach can be held both as one-sided and interactive so that, in some cases, the instructor and students can interact with each other. Online laboratory (experimental) educations and student evaluations are subject to several restrictions since the degrees or certifications associated with online courses are not often approved for industry. Despite the difficulties and issues listed above, using online courses may result in lower prices, the utilization of the most recent technology, and flexibility in how educational courses are held (2, 11, 20, 21, 28).

Deemed university model: This model has prevailed in India in recent years, and is referred to as deemed university. More than half of these universities are private. Deemed university is indeed an institute that is founded with advice of a legal association (e.g. medical association, nursing association, dental association, pharmaceutical association, Central Council of Homoeopathy [CCH], etc.) and approval of University Grants Commission (UGC) in a specialized field of study. These universities and institutes, some of which include Institute of Liver Sciences as an educational hospital, Gandhi Institute of Technology & Management as a private engineering institute (for providing pharmaceutical programs, management, etc.), Foreign Business Institute of the Ministry of Economy of India as a governmental college, and Higher Education Academy as a university of medical sciences, are accredited to grant BS, M.Sc., and Doctor of Philosophy (Ph.D.) in medicine, dentistry, nursing, physiotherapy, engineering, medical education, dental surgery, etc. (17, 29).

By examining the characteristics and uses of various higher education outsourcing models, it can be concluded that each of these models has pros and cons that should be considered before adoption and use, especially for higher education in the medical sciences. Table 3 provides a summary of the models' benefits and drawbacks.

Table 3: Advantages and disadvantages of instruction outsourcing models

Model	Advantages	Disadvantages
Swirling model	Utilizing potential of different institutes Reduced executive problems Increased efficiency	Problems in monitoring the institutes Problems in selecting the appropriate institute
Program outsourcing model	Reduced executive problems Increased efficiency Using specialized professors of each field Providing supportive services for students	Problems in monitoring the institutes Problems in selecting the appropriate institute Legal constraints
Course outsourcing model	Increased efficiency No need for employing more professors Providing supportive services for students College's control over the degree granting	Non-applicable for specialized courses Non-applicable for credit (compulsory) courses Problems in student assessment Problems in selecting the appropriate institute
Specialized trainer model	Using specialized professors of each field Improved educational quality No need for employing more professors High motivation of professors due to good payments High participation of professors in extra educational programs	Lack of capable institute in some fields of study Problems in selecting the appropriate institute Low educational quality in some institutes Problems in monitoring the institutes Problems in student assessment
Full-service contracting model	Increased efficiency Reduced executive problems Providing job-finding services for students Marketing of university's services	Mismatching with the objectives of higher education and academic culture Problems in monitoring the institutes Problems in student assessment Non-applicable for many programs
Business-like model	Increased educational quality due to the use of specialized professors Increased competition among professors Increased flexibility in educational programs College's control over the professors Quick responding to the increasing demands of the field of education Increased interaction with professors of other universities No need for employing more professors	Financial limitation for attracting specialized professors Legal constraints Low motivation of professors for insufficient payments Poor coordination with professors of the college
Tutoring model	Increased flexibility in students' schedules Reduced executive problems No need for employing more professors	Non-applicable for credit and specialized educational courses Problems in monitoring the institutes
Workforce model	Increased interaction between industries and universities Education based on industry's needs Practical skills and experiences of the experts of industries Solving some problems in the industries Low costs compared to the non-outsourcing conditions	Low knowledge of the industry's instructors Low commitment of instructors to the university Non-familiarity of majority of instructors with teaching techniques Limitedness of the courses outsourceable to industries Problems in student assessment
Distance education model	Reduced costs Resolving the problem of physical space shortage Optimal use of available resources of university Increased flexibility in implementing the educational programs	Non-applicable for practical and laboratory courses Problems in student assessment Problems in monitoring the institutes Low acceptability of certificates of online courses for industries
Deemed university model	Possibility of outsourcing the educational programs at all levels High applicability for various fields of medical sciences	Lack of capable institutes in some fields of study Legal constraints

Discussion

The present study was conducted in order to identify and investigate the higher education outsourcing models, which led to identification of 10 models, including swirling model, program outsourcing model, course outsourcing model, full-service contracting model, specialized trainer model, business-like model, tutorial, workforce model, distance education approach, and deemed university model. Outsourcing the teaching to part-time instructors (a business-like model) and the remote education method were two of these models that were used more often than others in a variety of higher education fields. With the exception of the workforce and business-like models, one or more institutions serve as the contracting party in each of these models. However, in the case of the distant education method, a contract may be reached with both an individual and an institution.

The distance education approach has a wider range of applicability than other models, and the contractor party is either a person or an institute. This approach is among the dominant models in post-graduate education, which has been growing considerably in recent years.

It has a number of financial and social benefits thus many institutions use it to quickly acquire the information and technology required for competitiveness (30). The method of distant learning may be used to outsource degree programs in the area of health sciences as well as credit and non-credit courses (2, 5, 12). Due to the large extent of this model, adopting an appropriate method for outsourcing depends on various factors such as nature of the outsourced services, accessible facilities, and outsourcing objective. Moreover, in some cases, all functions of the higher education are outsourced; whereas, in some other cases, the student assessment process is not outsourced and remains under the college's control.

Due to its simplicity and lack of requirement for basic infrastructures, the business-like model has risen significantly in recent years; nevertheless, since it is only relevant to non-credit courses, it is not appropriate to all institutions and academic subjects (7). Furthermore, it is very similar to the workforce model; since, in both of these models, the contractor party is a person (instead of an institute) and the part-time instructors are used for the given purpose. Nevertheless, specialty and authority of the instructors are different in these two models. Thus, the instructors in the business-like model have more authority and controls on functions of higher education rather than staff model, in the workforce model, the staff are mostly selected from among the specialized experts of the given field, and the model is applied for outsourcing of the practical courses either on presence-based or online basis (7, 19, 25).

One of the most common methods used in the workforce model is outsourcing the instruction to industry experts, as it not only improves the educational quality due to the extremely high-level practical skills of these individuals, but also can result in an improved relationship between the university and the given industry (19, 31), which may be followed by future advancements and improvements. Health centers and hospitals are widely regarded as the education industry in the disciplines of medical sciences, allowing the specialized specialists of each field to provide an exceptional contribution to the education of BS and post-graduate students in a variety of fields of expertise (32, 33). Another model, which seems very similar to the workforce model due to the outsourcing of specialized and professional courses, is the specialized trainer model. This model is widely used in medical sciences due to the nature of education of this field of study as well as the necessity of providing specialized courses. In this model, the universities utilize the services provided by other specialized educational institutes or universities to provide their specialized and professional courses. Even though this approach may result in higher-quality education, selecting and implementing a competent, highly-capable institution for the intended purpose is one of the key problems in using this model (2).

Three models, namely program outsourcing model, course outsourcing model, and tutoring, are very similar to each other; so that, in all these three models, the contract is concluded with a private company, a limited number of functions are outsourced (specifically in tutoring), and the intended education is provided via both presence-based and online courses. In these methods, instruction outsourcing may result in changed and modified government education, aided academic innovations, enhanced responding to the pupils, as well as higher efficiency since the contract is formed with private institutions (34). In the tutoring and course outsourcing models, it is not possible to outsource the degree programs and credit courses, while the program outsourcing model has been proposed specifically for outsourcing the degree programs. Although the program outsourcing and deemed university models have been developed particularly for this reason, it is also conceivable to outsource degree programs in three additional models, including the specialized trainer, distance education, and deemed university models.

The deemed university model is indeed the most recent model for higher education outsourcing and the only one provided in the developing country India, whereas other models have been initiated from developed countries, and USA in particular. Furthermore, compared to other ones, this model exhibits some fundamental differences. As a result, in this model, the other party to the contract might be fresh, mostly private universities that have been founded with the express purpose of delivering education from a novel perspective. In addition, these universities are run by pertinent specialized associations, and by offering cutting-edge programs and advanced trainings, they will be qualified to award

academic degrees in the specified specialized fields. In this model, all functions of the higher education are outsourced to the contracting universities, and thus the college itself has no control over the education; in addition, as a consequence of the capacity of the contracting universities as well as their specialized expertise in the field of medical sciences, this model is featured with a significant extent of applicability in education of medical sciences. However, in spite of all these considerable advantages, it essentially requires fundamental infrastructures and entails long-term planning (17, 29).

A notable point that is common in all of these models is the process of monitoring and assessment of the contracting individuals and institutes, i.e. the other party of contract, as well as the process of outsourcing, which is considered the principal component of success of the universities and achievement of the expected objectives. Therefore, universities should establish and use acceptable techniques for rating and evaluating the performance of educational service providers, as well as for carrying out the process of student evaluation (5, 35, 36). On the whole, based on all the above-mentioned points, it can be said that instruction outsourcing is not an integrated phenomenon, and thus the colleges can adopt and utilize various types of the available outsourcing models depending on the factors such as nature of the outsourceable services, objectives of outsourcing, country's current conditions, accessible facilities, specifically availability of highly-capable institutes, and capacities of the outsourcer university (2).

Conclusion

There are several models with multiple advantages and disadvantages for instruction outsourcing which are conducted for various purposes. The business-like model (part-time instructors) is a prevalent model and has considerably grown in recent years in terms of its low complexity and needlessness for fundamental infrastructures. In the medical sciences, the specialist trainer model is often employed. In this strategy, universities provide their specialized and professional courses by using the services offered by other universities or specialized educational institutions.

Acknowledgements

The authors would like to thank all the researchers that their results were used for the present study.

Funding source

No Funding

Ethical statement

Not applicable

Conflict of interest

The authors declare that they have no competing interests.

Author contributions

Conception and design: HR and SA. Literature search: SA and NRa. Analysis and interpretation of data: SA, NRa and NRo. SA was a major contributor in writing the manuscript. NRa, NRo and HR: reviewing and editing of the manuscript. All authors read and approved the final manuscript.

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How to Cite:

Ravaghi H, Alidoost S, Rafiei N, Rouhi N. Instruction outsourcing models in higher education: A scoping review. *IJHMD*. 2023; 1(1): 15-20.



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