Original Research

‘Linking research to action’ in Iran: Two decades after integration of the Health Ministry and the medical universities

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Abstract

Objective: To examine the impact of integration of the Iranian Health Ministry and medical universities, which took place in 1985, on ‘linking research to action’.

Study design: A qualitative study including 18 in-depth interviews and 10 focus group discussions with different stakeholders ranging from researchers, policy makers and service providers in medical and non-medical groups.

Methods: A thematic framework was used to identify various positive and negative aspects of the integration on ‘linking research to action’ to date.

Results: The positive influences on universities that have been established since integration and/or in the peripheral provinces are more prominent. Distribution of health manpower in various parts of the country has almost unanimously been stated as a positive after-effect. On the other hand, the negative influence most agreed upon was the deviation of larger universities from their main commitment of knowledge production, due to over-indulgence in service delivery.

Conclusions: Before making any decisions about changing the current structure of the health-research system, the country’s national innovation system should be defined. This is because national research problems are not confined to integration and health research, and cover more general aspects. Therefore, any change in integration and health research should be considered secondary to the latter.

Introduction

Since the Islamic revolution in 1979, significant measures have been taken to improve the healthcare system in Iran. One of these measures was the integration of medical and health education into health services, forming a new Ministry of Health and Medical Education (MOHME). Integration was undertaken initially to increase medical admissions. This objective was achieved, such that in 1994, the number of medical students had increased 5.8 fold compared with 1970. Following the approval of integration, the system passed through three organizational phases. In Phase 1, all activities related to health care, medical education and research were assigned to the new ministry, and two distinct organizations were formed within that ministry: the

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universities of medical sciences and the provincial health organizations. In Phase 2, the provincial health organizations were integrated into the universities present in the province, and the chancellors were given the authority to function as the minister’s representatives as service providers. In Phase 3, the universities in the province took over all educational, research and health service activities, and the provincial health organizations were dissolved.³

MOHME consists of deputies of health, education, research, student affairs and logistic services. There are 40 medical universities in the country which are responsible for the health care and management of 30 provinces (some large provinces such as Tehran have more than one university). Each university has deputies of health (public health and curative affairs are usually separate), education, research, student affairs and logistic services. The same university is in charge of the health network. In all, the universities cover approximately 400 districts. Medical universities can make decisions regarding the following issues through their board of trustees: budget, allocation of local revenues, contracts with the private sector, financial and materialistic aid, contractual and financial regulations, how affiliated units are run, granting research and provision of fees for compilation, teaching and translation, and approval of faculty members’ employment criteria.⁴ On the other hand, different schools (medical, public health, dentistry) are all under the university’s authority. There are more than 13,000 faculty members working in MOHME.⁵

Integration has received a lot of attention to date. Many measures have been taken for and against integration; in 2004, the Parliament passed a resolution that would hand over medical education to the Ministry of Science, Research and Technology again, and a few weeks later voted otherwise.⁶ This issue was raised again in June 2009 with the new government proposal to decrease the number of ministries in Iran.⁷ Although the topic has been discussed many times, there are not many published studies available on the topic, which is somewhat unique. Currently, two important reports on this field are available: a study carried out at MOHME’s request in 1997 to examine the effect of dissolving regional organizations and integrating their responsibilities into medical universities by studying the changes over a 4-year period;⁸ and the assignment report on integration presented by the World Health Organization’s (WHO) consultants in 2006.⁹ Both studies placed more emphasis on medical education and service delivery, and less emphasis on research.

In its 2004 report, WHO placed more emphasis on ‘linking research to action’ which is now a global challenge, and demanded that countries take serious measures for utilization of evidence.⁹ The report recommended that countries should focus on bridging the knowledge-do gap by enforcing knowledge translation. The Canadian Institute of Health Research defined knowledge translation as ‘the exchange, synthesis and ethically-sound application of knowledge — within a complex system of interactions among researchers and users — to the capture of the benefits of research through improved health, more effective services and products, and a strengthened health care system’.¹⁰ The global ministerial forum of 2008 in Bamako emphasized the issue through ‘promotion of knowledge translation and exchange through the application of effective and safe interventions, evidence-informed policies, policy-informed research, and publication’.¹¹

The aim of this study was to examine the impact of integration of the Health Ministry and medical universities on ‘linking research to action’ or ‘knowledge translation’.

Methods

A qualitative study was carried out on two groups: medical and non-medical professionals. Two issues were taken into consideration while defining the subgroups of the study: the position of the individuals (macro—micro); and being part of the research system (policy maker and/or manager of research systems or researcher) or not being part of the research system (other than research system policy makers, managers or practitioners). The study’s subgroups are shown in Table 1.

Researchers were selected from the faculty members of Tehran University, Tarbiat Modarres University, Tehran University of Medical Sciences (TUMS) and Golestan University of Medical Sciences. Tehran University is a non-medical university and Tarbiat Modarres University’s School of Medicine is a medical school outside MOHME’s authority. Tehran and Golestan Universities of Medical Sciences are under MOHME’s authority. TUMS is a large, established university that offers multiple postgraduate programmes and meets national standards of educational and research performance. Golestan University of Medical Sciences is a peripheral university, responsible for education and research in graduate programmes, and delivery of service to a medium-populated province which has more regional duties.

In-depth interviews were held with policy makers and decision makers, and focus group discussions (FGDs) were held with researchers and practitioners. Interviews and discussions were done until the point of saturation. In total, 18 individual in-depth interviews and 10 FGDs were held, each of which lasted for 1.5 to 2 h. In this study, operationally ‘linking research to action’ or knowledge translation has been considered as the collection of activities that range from ‘designing the research question up to application of its results with the aim of improving health and healthcare services’. A knowledge translation model was the framework for preparing in-depth interviews and/or FGD guides.¹² Apart from the current topic under study, the barriers and solutions of knowledge translation have also been studied, the results of which have not been presented in this article.

Data analysis

The in-depth interviews and FGDs were documented by a note taker and audio-recorded. Qualitative analysis was performed through the thematic framework method; the documented group discussions and interviews and their transcripts were studied by two members of the group, and the primary categories were extracted independently. In the event of disagreement between the two individuals, the category was chosen by the study group. The core categories were similarly extracted and finalized considering the primary categories.
Results

The four core categories extracted were the positive aspects of integration, the negative aspects of integration, barriers to the success of integration and recommendations.

The following presents the opinions of individuals by group. Excerpts of individuals’ statements which demonstrate their outlook towards the study categories are shown in italics.

Positive aspects of integration

Medical group

The first benefit of integration has been the expansion of specialized human resources which took place as a result of increasing the admission capacity of universities. They could be considered as the human resources for both ‘push’ (doing research and providing evidence) and ‘pull’ (acquiring knowledge and implementing evidences) strategies that can affect ‘linking research to action’. Integration has also affected faculty members’ perspectives and created an interactive environment between researchers and decision makers.

Following the establishment of universities in the periphery, membership of the faculty board became an incentive and led to recruitment of specialized manpower in these areas. The dispersion of faculty members in various provinces led to recruitment of researchers (especially in far flung areas which was very difficult).

Through communications between researchers and service providers, community-based research became the norm among faculty members, and a strategic perspective was created among professional groups. Interaction between researchers and decision makers has improved because of integration; therefore, it has had a positive effect on ‘linking research to action’:

I was a physician before integration took place. Unlike now, there was no connection between knowledge production and utilization.

Integration is a remarkable network between those with questions and those who can answer these questions, because it is an integral context.

The quality of management has improved in the health sector through production of information required for decision making in service delivery. Unified management for service delivery and research, which has led to a single authority of hospital, health units and university activities, has facilitated this phenomenon.

Non-medical group

Some believed that integration has not been altogether ineffective in ‘linking research to action’, and has helped the executive sector to utilize research for action through a unified stewardship:

Integration may have facilitated definition of necessities and also the connection between the executive and research systems to an extent. Any kind of proximity between service-delivering and research systems can facilitate the definition of necessities and application of research in solving community’s problems.

In addition, integration has led to greater uptake of specialized human resources through increasing medical and paramedical admissions.

Negative aspects of integration

Medical group

Integration has increased the universities’ workload and responsibilities, and led to diversion from education and

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<tr>
<th>Group</th>
<th>Subgroup’s characteristics</th>
<th>Groups or individuals interviewed</th>
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<tr>
<td>A-Medical</td>
<td>Managers and policy makers in MOHME or related organizations</td>
<td>Ex-minister of MOHME, Advisor to the Minister of MOHME, Director General of MOHME, MOHME senior experts (five in-depth interviews)</td>
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<td>Research managers and policy makers in MOHME</td>
<td>MOHME’s Deputy of Research and Technology, medical university chancellors and deputies of research affairs, research centre directors (five in-depth interviews)</td>
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<td>Researchers in units under MOHME’s authority</td>
<td>Faculty board members and basic science, health and clinical researchers from Tehran University of Medical Sciences*, Golestan University of Medical Sciences* and the Health Ministry’s Headquarters (three focus group discussions)</td>
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<td></td>
<td>Healthcare and service providers</td>
<td>Clinicians delivering health care in specialized hospitals, managers and health service providers (three focus group discussions)</td>
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<tr>
<td>B-Non-medical</td>
<td>Managers and policy makers outside MOHME</td>
<td>A member of parliament, and Director of the Centre of Biological Products (two in-depth interviews)</td>
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<td></td>
<td>Research managers and policy makers outside MOHME</td>
<td>Director General of the Ministry of Science, Research and Technology, Research Director General of the University, and Research Director and Deputy of the University (four in-depth interviews)</td>
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<td>Researchers in units not under MOHME’s authority</td>
<td>Faculty board members from Tehran University and Tarbiat Modarres University* (three focus group discussions)</td>
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<td>Non-health-related service providers</td>
<td>Production unit managers, industrial factories (two in-depth interviews, one focus group discussion)</td>
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MOHME, Ministry of Health and Medical Education.

* See text for explanation.
research. As a result, universities spend more time on service delivery and research has confronted difficulties:

**The structure of integration is destructive to knowledge and science.**

Large universities are particularly prone to this problem; as expanding frontiers of science is more important to them than service delivery, the overindulgence of faculty members (clinicians) in health care and lack of time allocation to research have affected their role in undertaking research and using research results for action.

The collaboration between researchers and decision makers is not sufficiently desirable. As one of the managers of a large university said:

*There are no organized connections between hospital faculty members and health centres.*

The selected topics for research are not based on needs assessment. Therefore, they cannot answer the real needs of the health system.

**Non-medical group**

Most of these participants pointed towards the negative aspects of integration. They believed that, on the whole, integration of universities (medical or non-medical) into executive organizations was not right:

*I think integration of research centres into service delivering centres is a game like that of the ministries which is brought up every now and then.*

Two issues were raised here: (1) research funds are not usually spent correctly in ministries, because executive complications prevent these funds from being spent well on research; and (2) universities are not sufficiently independent — the more independent the university, the stronger it is. Therefore, universities affiliated with executive ministries are not sufficiently strong. The Industrial University’s experience with the Ministry of Industry was not successful either:

*The Ministry of Industry had a university but was unsuccessful because it couldn’t recruit good professors.*

The problem with MOHME is that the producer, user and evaluator are all part of the same structure; this brings the authentication of evaluations under question, and is a result of lack of independence of sectors. On the other hand, the few medical schools that are not affiliated with MOHME (e.g. Tarbiat Modarres University’s School of Medicine) are successful in applying their research. Even though they have confronted problems in entering hospitals, they are now receiving requests for proposals from the private sector.

Since MOHME is responsible for all matters related to research, education and health care as a result of integration, procedures are performed unprofessionally and have led to shortcomings in all sectors. For example, clinicians and medical students have become too involved in treatments, and the quality of research has declined. Also, large universities get involved in all fields; this not only leads to the mishandling of executive matters, but also reduces the university’s credit.

**Barriers to the success of integration**

**Medical group**

The barriers to integration have been defined at various macro to micro levels. It makes no difference which ministry’s supervision the university is under, because policy making at macro level has not changed in the country’s research system:

*Research utilization would have remained the same even if integration had not taken place.*

At the managerial level, it can be said that the theory of integration is good but the problem lies in its planning and execution. That is why integration has not materialized and has remained a structure:

*I think integration hasn’t happened at all. Integration was structural, and did not affect performance.*

Weakness in management has led to weak ‘linking research to action’. Even when it does take place, it is not systematic. Likewise, where procedural management is concerned, academics’ connections with executive fields have not been defined, no clear-cut regulations exist and they are dependent on the researcher or manager. The faculty members’ promotion criteria bear witness to the fact that there is no prerequisite that is in any way related to integration. Therefore, the effect of integration on changing the universities’ and the ministry’s roles has been psychological and not practical.

As far as the health system’s managers are concerned, integration has caused the unilateral shift of human resources from the university to executive posts (faculty members may be given managerial posts in MOHME, but managers with executive experience from MOHME are never seen among faculty members).

Three negative phenomena have followed this matter: (1) (Since integration) managers at MOHME are themselves researchers and either do not accept academic research results easily or do not trust others’ results. (2) MOHME feels it is capable of doing research itself and does not need the university to answer its questions. Also, MOHME headquarters employees who interact with international experts are more than academic researchers. (3) ‘Intellectual rights of publishing in peer-reviewed journals’ are not followed in the executive system; there are a number of cases in which the service provision system managers only permit research if their names are listed as researchers. These matters cause mistrust between researchers and decision makers.

On the other hand, where researchers are concerned, integration has only affected those faculty members involved in executive matters because procedures are not clear. Faculty members who are not involved in executive efforts have not been influenced at all.

**Non-medical group**

Yielding of research is relative to management at macro level and the country’s comprehensive research system. It should
not be limited to MOHME or be under the influence of integration. The country’s whole national innovation system (NIS) (including policy making’s components, execution and supervision) plays a significant role in its research outcome. The problem is that this system is not properly designed and executed. There is no clear supervision on the legislations that are passed. In fact, an appropriate NIS has not yet been designed. Basically, the national development system should be relying more on knowledge, and there should be less dependency on natural resources. The unhealthy competition, which is the result of the current economic dominancy of natural resources rather than reliance on science and technology, does not allow the domestic sector to be very active either, and hence it does not feel the need for research. For example, the pharmaceutical industry’s profit making and personal gains of drug imports prevented the pharmaceutical industry from flourishing.

Some believe that the problem of research in Iran is global. Dependency of research on the Government blurs the division between employer and employee, and does not create a competitive environment:

Policy making in research utilization for a country’s welfare and community health progress is not determined by integration. It is determined by more central and macro policies. Integration will have no effect in a country which does not have an appropriate NIS that can act in different positions.

In other words, where the country’s current rate of ‘linking research to action’ is concerned, there is still room for improvement and, generally speaking, scientific research is not given its due worth.

Recommendations

Medical group
Regarding the need to change the structure for the purpose of strengthening ‘linking research to action’, the participants’ recommendations were classified into the following three groups:

- One group believed that changing the current structure is not right. The current status can only be improved by promoting integrative systems management:

  If integration takes place, the whole community will become a research lab, i.e. it can be extended to all academic groups. The poor conditions that reside over the country’s research may have been present even in the absence of integration. So the important point is to change the research procedures in the country. It is better to leave the current structure of MOHME alone.

- Some believed in an intermediate state, especially in large universities where the goals of expanding frontiers of science and education stand out. It is therefore better to separate service delivery from the education department in these universities.

- The final group believed that change in the health structure is necessary. Affiliation of medical universities with the Ministry of Science was on their mind, such that the Health Ministry and community become the users of service production.

Non-medical group
Two ideas were proposed regarding a change in the current structure:

- Some agreed upon a structural change (on current grounds) for improving the situation, and believed that reforms should be made within the current system:

  Even if integration had not been right, its reversal is very costly.

  They also suggested grouping universities on the basis of current status, and that facilities should exist for large universities in order to allow more investment in the research sector.

- On the other hand, some believed that medical universities had found their due place and could now be separated from service delivery. Although the universities were completely dissociated from communities prior to integration, and integration has brought them closer, it is now time to separate the role of universities and service delivery. One should place orders and the other should receive them:

  One of the most prominent characteristics of educational and research sectors are their autonomy. Even now, the best universities in the world are independent; therefore it is important for universities to gain autonomy.

Discussion

Generally speaking, whenever a change is to be evaluated, it is better to have a comparison between the effect on indicators before and after the intervention (especially by means of controlled groups). However, evidence in policy making is quite different from clinical settings. Hence, the authors did not expect to determine the impact of integration on the basis of a comparison study. Moreover, the necessary data were not available, therefore explaining the qualitative nature of the study.

The study groups were selected according to the types of stakeholders. However, it must be taken into consideration that many individuals have accepted their juridical positions in compliance with the country’s current system. Especially where managers and policy makers are concerned, they were expected to reply under the influence of their official status. This is a characteristic of qualitative studies and is inevitable. Although different groups of stakeholders were interviewed, care should be taken in the interpretation of their results.

What is evident in the responses of the population under study is the specificity of the groups engaged in medical sciences, whereas the non-medical groups replied to the questions on a more generalized basis, and some did not
specifically discuss the integration of the Health Ministry and medical universities. This was more profound in the non-health-related service providers group (i.e. the last row in Table 1), which naturally did not have exposure to integration; even with the briefings before in-depth interviews and FGD sessions, they gave more general views toward integration rather than specific points about the integration of the Health Ministry and medical universities.

Those working in MOHME also had a positive perception of the effects of integration in the periphery. The following are the results of discussions held with the study population, and can be considered a summary of the participants’ opinions on integration. All medical groups believed that ‘integration has not completely happened’. Three reasons can be mentioned, all of which revolve around management:

- Integration had no effect on faculty members’ promotion criteria before conducting this study. A recent quantitative study on knowledge translation strategies in TUMS faculty members bore witness to the fact that most efforts are concentrated on strategies such as publication in peer-review journals (which are traditionally used in individual’s assessments). Also, strategies such as briefings with decision makers and presentation of research results (which have no promotional value) are not very common. A new set of criteria has developed and has been in effect since 2009. Utilization of research project results with the established impact on service delivery, management techniques and/or lifestyles is considered as a criterion in the new promotion criteria.

- Integration has not made a consistent impact on universities’ service delivery (hospitals etc). Clinical service providers actually have the same activities in educational hospitals as they did prior to integration. No connection has been made between service-providing hospitals and communities’ needs. Actually, integration happened in three stages. MOHME was formed in the first stage. In the second stage, the responsibility of the health sector and universities fell on the chancellors’ shoulders. Finally, the regional and provincial health organizations were dissolved and the medical universities were transformed into universities of medical sciences and healthcare services. Under the latter structure, as well as the usual deputies, each university has a deputy of health (and/or public health and curative affairs sector) who is in charge of service delivery. The problem is that in spite of the unified management of university and service delivery, integration and collaboration have not reached the university’s schools and departments, which are functional levels of research and education.

- In many cases, management of the country’s executive systems is taken up by people who only have academic experience. However, the reverse (teaching or academic responsibilities) is not true. In other words, the universities have retained the traditional system and no change has really taken place. Another study on TUMS academics and decision makers shows that collaboration between faculty members and decision makers outside the university is low.

Gibbons et al. divided academic institutions into two main categories. In Mode 1, the goal is production of high-quality knowledge; working groups are formed on the grounds of their specialties, and the assessment of activities in this field is based on the scientific quality of productions through peer review. In Mode 2, the goal of knowledge production is meeting the community’s needs. Grouping is done according to the skills and knowledge required in order to respond to questions. Here the groups are defined as interdisciplinary (such as the connection between basic and applied sciences). The performance of institutes are assessed externally since it is their responsibility towards the community that justifies their existence. The point worth noting is that integration of the Health Ministry and medical universities has not led to any change in the structure of universities and they continue to act in the same way. In other words, the universities’ modes have not changed, and still function as before, which is more in compliance with Mode 1.

One of the main models of knowledge translation is the ‘Promoting Action on Research Implementation in Health Systems’ model. Three main factors have been considered in implementing research results: evidence, context and facilitators. Context is of significance to the present study, which includes culture, leadership and evaluation. This explains that structural change can only be successful when it is accompanied by other factors that influence knowledge utilization. It seems that the same phenomenon occurred in integration and its effect on ‘linking research to action’. A structural change will not reach its desired goal in the absence of other changes. Apart from integration of the ministry’s structure, other necessary measures need to be taken for creating incentives and defining relative procedures. However, this has not received attention systematically.

Two issues make integration of the Health Ministry and medical universities unique. Firstly, integration cannot be performed in all higher educational specialties, as all faculties (engineering, social sciences etc.) would have to be transferred to their respective executive organizations (e.g. Ministry of Industry for industrial specialties, Ministry of Agriculture for agricultural specialties) and there would no longer be such a thing as the current university structure. The second issue is that almost all medical universities have undergone integration, and this has prevented a possible shortcoming from taking place. In that case, two types of universities would exist; those affiliated with MOHME and those not affiliated with MOHME. This difference between the two types of universities led to faculty members’ inclination to prefer the first type.

The participants believed that in specialties whose main universities were in the Ministry of Science, Research and Technology but whose executive organizations had founded a university, the new universities would have less chance of success compared with those that have remained with the customized structure of higher education.

Some think that dissociating medical universities from MOHME will not meet the health systems needs. In fact, according to national research’s macro management, the health research system is part and parcel of the NIS. According to a study carried out on the Iranian NIS, the most significant weaknesses in the system have been identified as lack of integrity between its components, lack of clarity in macro policies of science and technological development, unspecific priorities at the national level, and not taking intellectual properties into account. Without appropriate
changes in this system, the NIS will not reach a suitable goal, particularly in the health sector. The system’s shortcomings can be seen if one analyse’s Iran’s NIS headquarters. The appropriate intervention can then be chosen in compliance with integration costs. Publicizing research is a result of not having a comprehensive NIS. Only 3% of health research funds in Iran are provided by the private sector and the rest are provided publicly. This has led to defective research incentives and lack of appropriate use of capacities.23

In any case, one suggestion proposed by some groups which needs attention is ‘reviewing the role of big universities, keeping in mind their national commitment of knowledge production, and dissociating health service delivery and management in the areas under cover’. Three issues support this view: first, there is partial agreement that integration has had better implications in peripheral universities; second, the commitment of large universities to produce knowledge and expand frontiers of science; and third, accepting the autonomy of universities which is essential for their progress. When discussing structural change, the research system only represents one side of the coin. The other side, namely service delivery in areas under cover, must also be taken into consideration. Nonetheless, the most conservative measure that can now be taken is utilization of the opportunities created as a result of integration, defining procedures which strengthen ‘linking research to action’, and using capacities that have voluntarily and involuntarily been created in the current conditions.

Conclusion

There is no unanimous agreement on the impact of integration on ‘linking research to action’. However, most agree that through distribution of manpower, integration has met communities’ health needs in far-flung areas. However, there is doubt regarding the success of other aspects. Where the negative aspects of integration are concerned, overshadowing of universities’ educational and research commitments by service delivery was mentioned.

From the health research system perspective, the country’s NIS should be defined before making any decision on changing the current structure. The country’s main research problems are not confined to integration and medical sciences, and there are more general aspects. Any change in integration and health research system is secondary to these changes. Since it is believed that the commitment of large universities is to focus on education at a national level and development of research, the idea of changing the structure of large universities (i.e. separating service delivery from the university) has been proposed without dissociating them from MOHME. For this purpose, it is necessary to consider other aspects of education and research, i.e. the future of service delivery, upon dissociation from the university.

Ethical approval

The study proposal was presented to TUMS Deputy of Research Affairs and was approved by the ethics committee which functions in compliance with the Helsinki declaration.

Individuals were briefed on the objectives of the study and verbal consent was obtained at the beginning of each session.

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Competing interests

None declared.

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