ABSTRACT

Research in medical educational institutions is of significance to develop skilled professionals and to contribute to health care delivery. High level of institutionalization has impacted Ayurvedic education, learning and research and even its practice. Ayurveda, based on vedic paradigm of principles of equilibrium is different from experimental and validation approach of conventional medicine. The academic research in Ayurveda is under pressure to perform. Change mechanism in an academic environment is a challenge. Formation of an ‘Ayurveda Research Cell [ARC]’ helped the change process. Identification of performance parameters as publications [P1], projects [P2], processes & procedures [P3], products [P4] and patents [P5] provided orientation to the ARC activities. ‘Manthan’ a management tool when applied to this academic institute could remarkably improve individual performance and institutional outcome.

This unique, never before exercise in the academic field of Ayurveda can be used to overcome integration issues to develop research roadmaps.

KEY WORDS: Ayurvedic education, Ayurvedic research, Research Parameters, Manthan, Research Change Mechanism, Integrating Ayurveda, Ayurveda Institutionalization, Ayurveda Academic Research.

1. INTRODUCTION

Research is essential for development of any science. Research as a part of education helps to learn more, pursue interests and to develop the problem-solving skills. It is expected to challenge existing information in light of new and contribute to knowledge. To conduct research in higher educational institutions especially in medical professional institutions is important in view of its relevance to medical care.

In a medical institute in addition to teaching the faculty has also to undertake clinical, research and at times administrative activities. The role of a medical teacher therefore is important as a guide for mentoring a new professional for which one is required to remain updated to satisfy contemporary needs. Research is an important tool to this process.

Right from beginning research is considered an important component of postgraduate studies in the field of Ayurveda. Over last few decades the approach and methods have undergone qualitative changes. High level of institutionalization has impacted Ayurvedic education, learning and research and even its practice.

Having roots in vedic principles and on paradigm of principles of equilibrium which is different from reductionist, experimental and validation approach of modern day research, the academic research in Ayurveda is under pressure to perform.

2. BACKGROUND

2.1 Institutional Framework for Higher Education

India offers a variety of institutional systems in the field of higher education [Alok Chakrabarti, 2007]. This is reflected in variance of the courses and performance of the universities. The central government has taken several initiatives in establishing and funding few central universities, institutions of national repute and support such organizations. However, the higher education system remains primarily the responsibility of the state governments. Recently there is encouragement for private funding and national and international collaborations to bring in global competitiveness.

<table>
<thead>
<tr>
<th>Type</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Central Universities</td>
<td>20</td>
</tr>
<tr>
<td>State funded universities</td>
<td>217</td>
</tr>
<tr>
<td>Deemed universities</td>
<td>45</td>
</tr>
<tr>
<td>Private deemed universities</td>
<td>57</td>
</tr>
<tr>
<td>Private universities under state</td>
<td>05</td>
</tr>
<tr>
<td>Other private universities</td>
<td>10</td>
</tr>
<tr>
<td>Institutes of national importance</td>
<td>13</td>
</tr>
</tbody>
</table>

2.1 Research Importance at University Level

Teaching, research and technical services form basis of university activities. Research capability means the ability of individuals, organizations and systems to undertake and disseminate high quality research effectively and efficiently [Rechiel R. et al.].

2.2 Mandatory Requirement of Research

University Grant Commission [UGC] guidelines expects the teacher to work conscientiously and with dedication to provide professional growth through continuous study and research and perform their duty through teaching, learning, seminar, tutorial and research work [UGC regulations,2010]. As per UGC guidelines every teacher must earmark minimum of 6 hours for research activities out of the minimum 40 hours per week for 30 working weeks (180 teaching days) in an academic year [UGC regulations, 2010].

The new manual of ‘National Assessment and Accreditation Centre’[NAAC] considers 250 out of 1000 marks for self-appraisal of ‘Teacher Education Institutions’ for research at the institute level and 150 marks for the affiliated institutes[NAAC, SSR, 2014].

Self-appraisal is an important part of the performance appraisal process where one evaluates own performance and gives related feedback with views. Here also 350 out of 1000 are earmarked for research papers, books, publications, projects, guidance and academic contributions. Research publications in indexed national journals are now mandatory for promotion to posts of professors and associate professors.
Recently (September 2015) introduced ‘National Institutional Ranking Framework’ [NIRF] outlines a methodology to rank institutions across the country. The parameters broadly cover ‘Teaching, Learning and Resources, Research and Professional Practices, Graduation Outcomes, Outreach and Inclusivity, and Perception’. Excellence in teaching and learning is closely associated with the research of the faculty and students. Equally, faculty members are expected to make their knowledge and expertise available to benefit the society and industry. To measure the quantity and quality of research output Peer-Reviewed Publications, Citations of Research, IPR and Patents, Collaborative Work, Research Funding and Consulting are adopted with 100 marks with a weightage of 0.40. [NIRF, 2015]

Thus research is being given much greater significance for faculty and institutional appraisal.

3. RESEARCH IN AN AYURVEDA COLLEGE

3.1 Ayurved Institutes

India has rich tradition of teaching and learning from Vedic period and the knowledge was transferred orally from generation to generation. Ayurveda was also taught in Gurukul system [Svoboda RE, 2004]. To patronize and promote these systems, the Government of India, in 1995, established a separate department for Indian Systems of Medicine and Homeopathy (ISM&H), which is now known as AYUSH (Ayurveda, Yoga, Unani, Siddha, Homeopathy) [Kumar S, 2000]. In 2015, the Government of India to encourage indigenous systems of medicine has established a separate Ministry of AYUSH.

Ayurveda education in India is regulated by Central Council of Indian Medicine [CCIM], a statutory professional body established under the ‘Indian Medicines Central Council Act, 1970’ of Government of India. CCIM frames and implements the curricula and syllabi. At present, more than 320 Ayurvedic colleges offer a graduate level degree—―Ayurvedacharya‖ (Bachelor of Ayurvedic Medicine and Surgery (BAMS)) in India and 119 institutes offer post graduate courses in fourteen specialties [CCIM, India] [Table 2]. More than 3000 post-graduate and Ph. D courses are undertaken in these institutes. However, the contribution of research in Ayurveda like others comprises of (1) academic research at post graduate and Ph. D level, (2) funded research projects from government agencies and (3) funding from private sector, the pharmaceutical companies.

3.2 College of Ayurved, Bharati Vidyapeeth University

College of Ayurved [CoA] (est.1990) constituent unit of Bharati Vidyapeeth Deemed University, [BVDU] is approved by Central Council of Indian Medicine [CCIM] and Ministry of AYUSH, Government of India. College of Ayurved is offering under graduate (B.A.M.S.) course, the post graduate (M.D./M.S.) courses in fourteen specialties, Post-graduate Diploma in 6 subjects as also Ph.D. program in Ayurved and a Diploma in naturopathy and Yogic Sciences [BVDU CoA]. The BVDU has been re-accredited by NAAAC, Bangalore and has received ‘A’ Grade.

Since the academic year 1999-2000 the College of Ayurveda started with the post graduate and Ph. D. studies in 3 specialties; 8 more subjects were added in 2000 and again 3 new post graduate courses started from 2007, thereby covering all 14 departments as per CCIM norms for post-graduate studies and 6 PG diplomas.

All the faculty members are M.D. /M.S., the mandatory post-graduate qualification required in their respective subjects, as per CCIM norms, 14 are post-doctoral and 38 are pursuing Ph.D. The profile of 81 faculty members is provided in Table 2.

Table 2: Under graduate and post graduate courses in Ayurved

<table>
<thead>
<tr>
<th>Course offered</th>
<th>Ayurved college</th>
<th>Number of college</th>
<th>UG- B.A.M.S.</th>
</tr>
</thead>
<tbody>
<tr>
<td>PG Courses</td>
<td>320</td>
<td>119 (2899 Seats in 14 specialties)</td>
<td>M.D./ M.S. PG diploma</td>
</tr>
<tr>
<td>Ph. D. courses</td>
<td>09</td>
<td></td>
<td>Ph.D.</td>
</tr>
<tr>
<td>Ayurveda Universities of States</td>
<td>05</td>
<td>B.A.M.S. M.D. M.S. Ph. D. PG Diploma</td>
<td></td>
</tr>
</tbody>
</table>

The present day research requirements have made it necessary for institutions to follow specific guidelines and mandatory norms as provided by academic authorities. As per Post-Graduate Regulations 2012, one research paper published/ accepted in research journals and one paper presentation in seminar is now mandatory for PG scholars [MSR, PG 2012]. Institutional research in Ayurveda like others comprises of (1) academic research at post graduate and Ph. D level, (2) funded research projects from government agencies and (3) funding from private sector, the pharmaceutical companies.
Dr. Narendra Bhatt identified five performance areas named ‘-Ps’ that within the available organizational structure. ‘-Ps’ were established to document, identify and address issues faced both at individual and institutional levels in a coordinated manner. The Ayurvedic Research Cell (ARC) defined its main aim as follows. 

6.1 The Ayurveda Research Cell (ARC) defined its main aim as follows.

- To evolve research as a part of academic activities within the realm of Ayurveda, create awareness and acceptance of its academic role, bring in objectivity, help apply right methodology and thereby improve research outcomes.

6.2 Following objectives were monitored to streamline ARC activities.

- To stimulate thought processes & newer approaches within the academic field of activity
- To develop individual research skills and capacity
- To encourage group activities
- To create an interesting research environment

7. METHODOLOGY–TEMPLATES

Three templates, formats 1, 2 and 3 were prepared to focus respectively on individual, group and the institutional requirements. These three templates were interlinked to record, develop and strengthen individual capabilities, group dynamics and the institutional growth respectively.

7.1 ARC Activities

The ARC activity comprised of-

- Regular fortnightly meetings with individual faculty member
- Departmental group meetings as required
- Documentation in the form of minutes
- Follow up on predesigned templates
- Mini-workshops on specific research subject/s
- A major full day workshop

7.1.1 Step 1

Details of MD/Ph. D. and its Publication Status
- Details of Guided PG/PhD Outcome & its Publication Status
- Details of Ongoing/To be initiated PG studies
- Projects Undertaken and Its Outcome
- Reasons of non-publication/Non performance

7.1.2 Step 2

Special templates were designed to compile and follow up data at (1) Individual, (2) Departmental and (3) Institutional level. These three were interlinked with common objectives in the form of P1 to P5.

7.1.3 Step 3

Over detailed discussions the capabilities as individuals, as groups and as a department to work for research were observed.
Following points were attended during the meetings and group discussions.

- Does faculty regularly attended the discussions and actively participated?
- Does the faculty show creativity during discussion?
- Does faculty accept the challenge enthusiastically?
- Does faculty try to give new ideas or concepts and try to go beyond conditioned setups, think about all the possible options and think out of the box?
- Does faculty try to help others or motivate others during group activity?
- Does faculty try to apply knowledge or skills in new situations?
- Do they appreciate the ideas and qualities of others and feel comfortable sharing his ideas with others?
- During the discussion does the faculty often says, I'll never win, I'm just not qualified for research?
- Do they choose an activity/task according to his ability during a group work?
- Do they become argumentative during discussions?
- Does faculty show disrespect to the system or discipline of the institute?

7.2 Parameters

After evolving the templates for the content follow up and outcome analyses the following parameters for each faculty member were observed and analyzed in a strictly confidential manner.

The parameters analyzed were -

I. Interest/Initiative
II. Thought Process
III. Skills/Method
IV. Traits/Dynamics
V. Commitment
VI. Potential

These parameters were evaluated by three individual observers on a scale of 0 to 5 as (5 = excellent; 4=very good; 3=good; 2=satisfactory; 1=poor and 0=fail.)

8. OBSERVATIONS

Of the 81, 41 male and 40 female, faculty members in three designations of professor (21), associate professor (27) and assistant professor (33) and having varied experience of more than 25 years to less than 5 years; the following interesting observations emerged.

8.1 Individual Responses

The initial individual gradations were a matter of serious concern. The overall changes in the six parameters to gauge individual responses provide positive changes of more than double gradation as were observed after the ARC process. There is increased interest, thought processes and eagerness to look for methodologies. The potential seems to have improvised with mainly younger faculty members. Even the comparatively older group is found to be taking more interest having realized the need and better acceptance of research as a part of academic work. The most important observation is reduced resistance to research. This has encouraged ARC to move forward with optimism. A careful review of individual scores it was observed that a small number of individuals contributed to negative changes of more than double gradation as were observed after the ARC process.

8.2 Publications [P1]

More than 550 post graduate studies were undertaken at the post graduate level. Only 10 % this research work was published or presented as papers in conferences. Since 1999 up to 2012, starting of post graduate studies and with 61 post graduate guides only 180 papers were published of which only 5 % were in regular journals; most others were as articles in regional magazines or in proceedings of conferences or in journals without any qualitative review mechanism. It was interesting to observe that most of the faculty had not published their own post graduate or PhD studies. This was observed to be either due to poor quality in terms of objectivity or lack of confidence to get it published. Lack of positive outcomes or clear validation of hypothesis due to poor designs contributed to non-publication.

A joint critical review and analysis was used to initiate the dialogue with each faculty member. Several of good quality unpublished work was encouraged for publication. This not only provided significant yield of publications, a multifold rise in number (Graph 2), but helped analyze weaknesses in their research approaches and outcomes. It helped overcome prevailing situational weakness by open discussion rather than acceptance of it as an unavoidable means. It helped to look for means and methods within the present framework and limitations in which academic research in Ayurveda gets entangled. It helped us surface this inherent problem in a clearer manner without being felt shy off. The ARC encouraged and helped to look for solutions. It helped to understand how a little extra effort can help derive satisfying outcomes. During academic years 2013 – 2015 more than 150 research papers were published in peered review journals.

The quality of most of the publications was observed to be wanting. The ARC after this initial positive quantitative outcome has decided to put its efforts for quality publications with focus on newer approaches based on Ayurvedic paradigms so as to enable better research outcomes.

Graph 2 Publication of papers by faculty- 1996-2015

8.3 Projects [P2]

Research projects are important developmental tools at academic institutes. Research projects offer opportunities to the faculty and the post graduate scholars to develop skills, provide training to focus research activities in a time bound manner and make available resources that enhance activities. Successful implementation of a research project gives confidence to persuade and deal with new research ideas.

At CoA two major projects were initiated in 2004 and 2009 worth Rs.25, 00,000 and Rs. 20, 00,000 respectively. Several projects supported by industry collectively worth about Rs. 15, 00,000 were undertaken. Three major projects and few other projects though submitted to the Department now Ministry of AYUSH and to UGC in 2012 and 2013; however did not get any sanction. BVU offers projects having cost of not more than Rs. 50,000 every year.

It was observed that most of the faculty members (except very few) were less interested and less confident of developing research proposals. The indifferance to research as an academic activity was obvious. Lack of clear objectives and methodologies and lack of desire to take on responsibility contributed to apathy.

At ARC a systematic effort was made in the form of suggestions of topics, helping develop methodologies and deriving expected academic or clinical benefits to generate interest in small project proposals. Efforts were made to excite with new ideas and newer application of their past studies, observations or experiences. Having received good response a special request was made to the honorable vice chancellor who sanctioned additional amount to cover larger number of applications. 14 out of 17 applications received the grants and these projects are now in progress. Again this year 23 applications have been made awaiting approvals. These applications being restricted to associate and assistant professors only helped generate more interest in research.

Presently the ARC efforts are on to ensure that each of the 14 departments develop major research proposals within a time period before beginning of next academic year. Efforts are also made for interdepartmental and inter-institute joint research proposals.
8.4 Outcomes in the context of other parameters

To bring in an environment for research ARC took measured steps to encourage publication of papers [P1] and initiation of projects [P2]. The next three parameters, namely processes, products and patents could be attended in a small way only in view of lack of preparedness. ARC could achieve following.

8.4.1 Books - Exchange of ideas, teamwork and working for a common goal are necessary for good research. ARC succeeded in initiating three proposals of writing of texts – books in contributory manner. First draft manuscript of a text about ‘Asian Medicine’ is now undergoing editorial scrutiny. Similarly, another text related to glossary of classical clinical terminology is being attended to by a group of faculty. These efforts not only encouraged teamwork but contributed to help broaden the base of inquiry and how to use these inquiry tools in day-to-day academic activities. An effort to develop an E-journal on specific subject has been though partially attended is in need of long term commitment of skills and resources.

8.4.2 Specialty Clinics and Camps - Good clinical research is probably the most confidence building exercise for a medical institute. Clinical research in Ayurveda is faced with challenges of methods and modalities [Narendra Bhatt, 2015]. A critical observation at CoA hospital was poor availability of required number of patients where several research personnel chase the same population. ARC suggested to start specialty clinics in the areas of Arthritis and Diabetes so as to enable the faculty to choose the eligible patients. Though resisted initially for administrative and coordination issues the clinics have been started. The suggestion about organization of medical camps in surrounding areas has yet to take off.

8.4.3 ICT – E – governance is an accepted mode of administration. Use of information technology (IT) is now prevalent in every aspect of academic activities and research. ARC helped identify and encourage faculty to examine possibilities of use of IT. It was considered appropriate to use the available resources of the College of Engineering where two proposals were initiated; one related to e-governance of a department in the CoA and other to develop database on medicinal plants and formulations. However, both these proposals remained incomplete due to poor coordination between the institutes. ARC aims to complete these two proposals in nearer future with alternative arrangement. Despite the failure it is satisfying to observe generation of a new thought process for possible technological collaborations.

8.4.4 Equipment development – Ayurveda offers specific therapies in the treatment of several diseases. On several occasions ARC observed issues related to cumbersome methods to administer therapies by the researcher that led to poor documentation and reduced patient compliance. ARC encouraged and got involved into considering newer designs of apparatus / equipment and helped the researchers to outsource and develop modified easy to use that will help better documentation of benefits of the treatment and better patient compliance. Such three newly designed mechanical tools are being standardized for regular use. This not only resolved the issue of administration but helped creating excitement of novel concepts.

8.4.5 Patent Ideas

There is always interest in the idea of developing a patent. Research oriented towards patent requires careful planning, patience and clarity of methods. Several faculty members responded with their own out of the box thinking that were encouraged. In several cases the ARC could bring in confident that research discussions and deliberations increased teaching and training capabilities. This was more obvious when ARC could contribute to expanding clinical activities and help develop areas to focus on clinical research.

Carl Rogers famous for his innovative ‘Client-centered therapy’ applied the same to education and said that education is “facilitation of learning” and educator is “facilitator of learning” thus bringing in a to recognize and accept his own limitations [Rogers CR, 1969]. The ARC methodology identified with the faculty to recognize and overcome related issues and thereby helped to foster their individual capabilities.

8.4.6 Outcome

Over a period of two years the following outcomes were observed.

<table>
<thead>
<tr>
<th>Qualitative effect</th>
<th>60 %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Faculty Taking interest in discussions</td>
<td>60 %</td>
</tr>
<tr>
<td>Negativity convert into positivity</td>
<td>80 - 85 %</td>
</tr>
<tr>
<td>Negative response- faculty yet not taking interest in research</td>
<td>10 %</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Quantitative effect</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>publishing papers in peer reviewed journals</td>
<td>50 %</td>
</tr>
<tr>
<td>publishing papers in indexed journals</td>
<td>15 %</td>
</tr>
<tr>
<td>Minor projects – ongoing</td>
<td>28</td>
</tr>
<tr>
<td>Department interested for major project</td>
<td>08</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Institutional outcome</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>within department positive atmosphere and communication increased</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Special OPDs</th>
<th>One (1Proposed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Books proposals</td>
<td>Three</td>
</tr>
<tr>
<td>Processes</td>
<td>Four</td>
</tr>
<tr>
<td>Products</td>
<td>Five</td>
</tr>
</tbody>
</table>

9. DISCUSSION

Research as a necessary part of institutionalized academic learning and training at post-graduate level of Ayurvedic education has yet to take a desirable shape. Lack of adaptability of the system having different paradigm is the biggest challenge faced by the policy makers and the administrators.

As in most Ayurvedic colleges the ARC observed that discussion with the faculty on research caused a sense of anxiety in most whereas there was indifference by some or even a sense of disdain by few. Research as an accepted tool for learning, growing and training was lacking. The ARC made efforts to identify basic issues and looked for solutions from within. ARC activities were focused on bringing in a positive environment and acceptance of research as a desirable rather than shunned form of academic development.

Most challenging areas were about bringing in objectivity and learning to evolve methodologies.

With right leadership and efforts the performance parameters provided direction for ARC activities in a measurable manner. The ‘Manthan Model’ as applied to an academic institute helped identify five Ps, namely Publication [P1], Projects [P2], Process & Procedures [P3], Products [P4] and Patent [P5] as a part of academic research. The formats as a part of ‘Manthan’ process helped to measure individual and group efforts. Though variable individually the ‘Manthan’ served the purpose well with positive outcomes for the institute.

Practically every ARC meeting tried to stimulate new ideas to provoke thought processes. Of several ideas the faculty could help initiate several activities either individually or jointly. Several faculty members responded with their own out of the box thinking that were encouraged. In several cases the ARC could bring in confident that research discussions and deliberations increased teaching and training capabilities. This was more obvious when ARC could contribute to expanding clinical activities and help develop areas to focus on clinical research.

Ayurveda compendium Charak Samhita explained that teachers should be with much practical experience, wisdom, knowledge and communication to make them effective. They should be well equipped with every essential tool [Charak Samhita, 1984]. The four desirable factors in teachers namely, ‘warmth, enthusiasm, use of discovery-learning methods, and high level of cognitive organization’ are also qualities of teachers [Gaige NL, 1972]. Manthan process helped many faculty members to adopt changes. This in turn helped them to practice new teaching styles and improve teacher student relationships. Faculty reported that their confidence is increasing and their fear for research is decreased.

These results suggest that motivation and appreciation process helped to improve performance both at individual and institutional levels. The outcome showed that teachers knowledge about research grew during the whole process and that their attitudes to research became more affirmative. ARC approach helped the faculty to become aware of research opportunities in their own subject and thinking that were not thought earlier. Efforts by ARC to improvise communication between faculty members and departmental collaborations received positive responses.

The ARC efforts encouraged new ideas; and in a way succeeded to inculcate collective ideas like write a book or plan increased number of collaborative projects. Ideas to develop or modify therapeutic tools or instruments generated lot of interest.

What next?

It must be noted that much desirable is yet to happen. Overall process was time consuming and required sustained efforts. It was very slow. This was mainly due to serious apprehensions. Quality considerations at all levels does remain an area of concern. This being a basic issue we need interactive mechanisms. ARC plans more number of interactive meets in coming times. ARC is now in a position to take specific qualitative and subject specific tasks. ARC activities in its next phase will accelerate the process towards the 5 performance parameters. ARC is now in a position to initiate major projects that will help build up research as a dynamic and inherent part of the academic activities.

The future success of ARC would be to become an ongoing institutional process running on its own in coming times with collective efforts and defined goals.

10. CONCLUSION

Change mechanism in an academic environment is challenge. The challenge is of greater significance when it requires paradigm shift in the basic attitude towards research as a part of faculty development as in case of an Ayurvedic institute faced with need to adapt to research integration. Formation of an ‘Ayurveda
Research Cell [ARC] in an Ayurvedic institute helped the change process.

A well-studied plan to identify 5 Ps, five performance parameters, defined in terms of publications, projects, processes & procedures, products and patents provided orientation to the ARC activities. The preparation of three templates provided common interlinked objectivity for institutional research development.

‘Manthan’ as a management tool as applied to an academic institute could remarkably improve individual performance and institutional outcome. Positive attitude to research, acceptance of research as necessary part of academic activity, openness to new thoughts and recognition of need to look for methodologies and solutions beyond mechanical procedures were the most positive outcomes of this effort.

This unique, never before exercise in the academic field of Ayurveda can be used to overcome integration issues and to develop dynamic research roadmaps.

Acknowledgement

We express our sincere gratitude to Prof. Dr. Shivajirao Kadam, Hon’ble Vice Chancellor of Bharati Vidyapeeth Deemed University for this opportunity and continued support. We sincerely thank all the members of the faculty of College of Ayurveda for their cooperation.

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