

# Dental Entrepreneurship – A Transitional Phase to Generation Next

Abhinav Singh<sup>1\*</sup> Bharathi Purohit<sup>1</sup>

1. Peoples College of Dental Sciences, Department of Public Health Dentistry, Peoples University, Bhopal, India

\* E-mail of the corresponding author: [drabhinav.singh@gmail.com](mailto:drabhinav.singh@gmail.com)

## Abstract

Being your own boss, setting your own hours, making a decent living and helping people in need are the major allure for entrepreneurship among dental professionals. The success of a dentist in providing oral health care quickly, completely, painlessly, and at a reasonable cost requires the collaborative effort of what can be referred to as the dental enterprise. Dental enterprise includes the dental schools, dental associations, dental industry and a number of dental government agencies. National Institute of Dental and Craniofacial Research (NIDCR) recommends management skills, entrepreneurship, and technology transfer should be included in dental education. The future of health care is hard to gauge, but one thing seems certain: The prognosis for entrepreneurs in health care-related fields is decidedly upbeat. Small businesses are gaining a foothold in a broad array of medical technology and health care industries. Entrepreneurs in field of health care are focusing on making health care more convenient. The Governments need to still continue reducing the administrative burden on entrepreneurs, and coordinate among their agencies to ensure that the necessary resources are directed where they are needed.

**Keywords:** Dental enterprise, entrepreneurship in dentistry, dental technology, continuing dental education, India

## 1. Introduction

Entrepreneurship is the act of being an entrepreneur, which can be defined as one who undertakes innovations, finance and business acumen in an effort to transform innovations into economic goods. This may result in new organizations or may be part of revitalizing mature organizations in response to a perceived opportunity. The most obvious form of entrepreneurship is that of starting new businesses; however, in recent years, the term has been extended to include social and political forms of entrepreneurial activity. When entrepreneurship is describing activities within a firm or large organization it is referred to as intra-preneurship and may include corporate venturing, when large entities spin-off organizations (Shane, 2003)

The behavior of the entrepreneur reflects a kind of person willing to put his or her career and financial security on the line and take risks in the name of an idea, spending much time as well as capital on an uncertain venture. Knight classified three types of uncertainty: a) Risk, which is measurable statistically (such as the probability of drawing a red color ball from a jar containing 5 red balls and 5 white balls), b) Ambiguity, which is hard to measure statistically (such as the probability of drawing a red ball from a jar containing 5 red balls but with an unknown number of white balls) and c) True Uncertainty or Knightian uncertainty, which is impossible to estimate or predict statistically (such as the probability of drawing a red ball from a jar whose number of red balls is unknown as well as the number of other colored balls) (Knight, 1921). The acts of entrepreneurship are often associated with true uncertainty, particularly when it involves bringing something really novel to the world, whose market never exists. However, even if a market already exists, there is no guarantee that a market exists for a particular new player.

A successful entrepreneur in healthcare is essentially someone who is willing to risk their finances, understand the health care market inside out, has a clear vision about the future of his/her business and work hard for a lengthy amount of time to succeed. If we are interested in entrepreneurship in health care then we also need to understand and appreciate the role and limitations of new and developing technologies, on-going regulatory issues and identify

the skill sets required to build a great team around you (Grazier and Metzler, 2006).

Being your own boss, setting your own hours, making a decent living and helping people in need are the major allure for entrepreneurship among dental professionals. When patients visit a dental office they expect a diagnosis and resolution of the problem. They expect to leave the office with their problem solved completely, with minimum physical and psychological discomfort, and at a reasonable cost. The success of a dentist in providing oral health care quickly, completely, painlessly, and at a reasonable cost requires the collaborative effort of what can be referred to as the dental enterprise. Dental enterprise includes the dental schools, dental associations, dental industry and a number of dental government agencies. The necessity for cooperation among the components of this enterprise cannot be overemphasized, since good oral health is vital to the quality of life of each citizen.

## **2. The dental enterprise and technologies**

In its Strategic Plan released in 1997, the National Institute of Dental and Craniofacial Research (NIDCR) identified three major initiatives: research opportunities, research capacity, and health promotion (National Institute of Dental Research, 1997). The NIDCR listed the enhancement of its training and career development programs to attract and retain exceptional individuals in craniofacial, oral, and dental research as the goal of its research capacity strategic initiative with the objective of developing and expanding the dental profession's capacity in contemporary basic and clinical research. In July 1999, the National Institute of Dental and Craniofacial Research (NIDCR) convened a Blue Ribbon Panel that recommended management skills, entrepreneurship, and technology transfer should be included in dental education (National Institute of Dental and Craniofacial Research, 2000). In 2003, the panel's recommendations were implemented in an NIDCR-funded pilot project, "Workshop Course to Promote and Develop Dental Products and Technologies." As part of this study, a one and one-half day workshop was developed and offered on a voluntary basis to dental students, residents, dental faculty, and students. To identify competencies and teaching formats, M.B.A. programs at the University of Pennsylvania's Wharton Business School, the Harvard Business School, and the University of California, Berkeley, Hass School of Business were analyzed. Based on the analysis of these business school curricula, it was concluded that to provide educational experiences in the entrepreneurial sciences, a course specifically designed for dental students was needed. Accordingly, the course was designed to provide: 1) an understanding of the dental business world, 2) the procedures to comply with regulatory requirements, 3) the public and private financial mechanisms of research support, 4) the processes of disclosure and protection of intellectual property, 5) the approaches for marketing and licensing, and 6) the methods to develop business plans and forecasts. The results of post-workshop discussions and feedback indicated that faculty participants thought the workshop's courses would be helpful to the commercialization of their inventions. In addition, in the post-workshop survey, student and resident participants expressed the view that the program could be applicable to the commercialization of ideas that might emerge during their practice. During the workshop discussions, question and answer sessions, and in their case study reports, many of the dental students who had previous experience working in basic research laboratories but had abandoned research work expressed an interest in returning to research if the area or topic of the research project would lead to the development of a product for immediate use in dental practice. This information is of importance because a large majority of dental school graduates express no interest in basic or clinical research or in entering academic careers after graduation. This lack of interest in academic careers over the past several decades has resulted in an alarming number of unfilled full-time faculty positions in dental schools in United States (American Dental Education Association, 1999). In contrast, the dental students who participated in the workshop pilot study expressed the view that pursuing research and an academic career might be more appealing if their research was product oriented (Edward et al, 2004)

A new model of dental curriculum for research non-intensive institutions has been reported based on one of the pilot studies (Iacopino et al, 2004). Introducing changes into the established dental curriculum takes time and require convincing a number of committees and administrators that the change will add value to the existing program.

Pilot studies are needed to develop appropriate curriculum modules, identify and assemble a faculty to teach the new modules, and present and finally evaluate the new curriculum module. If the results from these pilot studies suggest that the new experimental curriculum module is of interest, is well received, and is useful, then the academic committees and administrators are more likely to consider the incorporation of the workshop topics into the established curriculum. Upon completion of the pilot study, a tested and refined curriculum module will be available for dental schools to serve as an important component of a comprehensive research curriculum or a module that can

be part of a research track within a dental curriculum.

### **3. Entrepreneurship in continuing dental education**

Recognizing the need to offer its members and the dental community a way to select continuing dental education (CE) with confidence and to promote the continuous improvement of CE, the American Dental Association Continuing Education Recognition Program (ADA CERP) was established in 1993. Through an application and review process, the ADA CERP evaluates and recognizes institutions and organizations that provide continuing dental education. The program assists regulatory agencies and organizations that have CE requirements to identify CE providers whose activities are acceptable for credit (ADA, Continuing Education Recognition Program, 2011.)

The ADA's Council on Dental Education and Licensure (CDEL) and its Continuing Education Recognition Program (CERP) Committee are considering modifications to the Eligibility Criteria for participation in ADA CERP. The Council is proposing that commercial entities, defined by CERP as companies that produce, market, re-sell or distribute health care goods or services consumed by, or used on, patients should no longer be eligible to apply to become ADA CERP approved providers of continuing dental education (CE). The proposed change would only apply to companies that manufacture or market healthcare products or services. It would not apply to dental organizations or schools, education companies, or providers of patient care such as hospitals, group practices, etc (ADA, 2011).

The significance of continuing dental education is well appreciated, along with its benefits to the profession. The preeminence of dental schools in providing lifelong learning opportunities and freedom from commercial involvement that existed even twenty years ago has changed. Less than a quarter of continuing education takes place in school, and the focus there is increasingly on material with deep scientific background and hands-on learning. The newest innovations and those with the greatest commercial potential are taught elsewhere. Proposed changes in the ADA CERP standards would take on a purist approach that could place dental schools at a severe disadvantage while allowing for profit institutes to flourish and thus further undermine the role dental schools can play in providing quality professional development experiences (Liberto, 2005).

### **4. Transition from a xenodontic to biodontic dental practice**

Throughout the twentieth century, dentistry advanced through the science of better inert reparative materials and their related techniques. Although the diffusion of consequent discoveries has been slow, the twenty-first century will be marked by a biologically grounded approach to oral health care. This transformation from a xenodontic to a biodontic model will be assisted by the cooperation of the entire dental enterprise and by students who are well prepared in the biological sciences (Rossomando, 2006)

Like any evolutionary step, adaptation will be required of the dental enterprise. Manufacturers must recognize the need to adjust their products, and educators must redo their curricula. As a result of the transition from xenodontic to biodontic dentistry, dental offices will not have to change the services they provide in any drastic way. Their responsibility will remain to repair, restore, and replace teeth and tooth structure lost to disease. What will change is how they do this. Instead of using xenodontic materials like metals, plastics, and ceramics, they will use biodontic materials like those derived from stem cells or other biologically obtained materials. It will be the ease of use, the opportunities for greater success, and the enhanced patient satisfaction that will drive the transition from xenodontic to biodontic dental practice.

Based on the historical trends of acceptance time for innovations in dentistry, the transition from xenodontic to biodontic dental practices might be expected to take several generations. This would be true if not for one critical factor: the intellectual level of the students entering dental schools today. These students are not only more cyber savvy than previous generations, but they enter dental school with a better biological background than before, and they are taught more biological science in dental school than before. As a result, the use of biodontic products for repair, restoration, and replacement is more acceptable to them than the use of xenodontic products.

Fortunately, there are those in the dental enterprise who have recognized this change. Several schools have already altered their curricula to increase the number of basic science hours. Some dental manufacturers have acquired biotech start-ups, recognizing that the need for biodontic materials will increase as soon as these students graduate. Some manufacturers, recognizing the rapid rate of change, have joined with dental schools in ventures that

promote the use of new biodontic products and equipment by the students. Given the role of dental students as agents of change and the support of all components of the dental enterprise, it should come as no surprise that the transition from xenodontic to biodontic dental practice may take less than a generation (Rossomando, 2006).

### **5. Entrepreneurship in dentistry - Indian context**

Concept of entrepreneurship has assumed super importance for accelerating economic growth both in developed and developing countries. It promotes capital formation and creates wealth in country. It is hope and dreams of millions of individuals around the world. It reduces unemployment and poverty and its a pathway to prosper.

India is ninth in the Global Entrepreneurship Monitor (GEM) survey of entrepreneurial countries. It is highest among 28 countries in necessity based entrepreneurship, while 5th from the lowest in opportunity based entrepreneurship (Entrepreneurship in India). The liberalization, which started in 1991, and the information technology boom of the mid-late 90's, have been significant factors, leading to a wave of entrepreneurship sweeping through the country. Indians have entrepreneurial capacity. However the society and government are not very encouraging towards entrepreneurship. To a large extent, the Indian society is risk averse. People usually seek secure and long-term employment, such as government jobs. The physical infrastructure needs to be improved. Social attitudes, lack of capital, inadequate physical infrastructure and lack of government support are major factors of hindrance.

The number of dental professionals in India has increased from 60,000 to 1,75,000 and is projected to be more than 3,00,000 in the next five years. Every year more than 25,000 dental graduates are added to this list. The number of dental institutions has also correspondingly increased from 120 to 289 in the past ten years. India has the maximum number of dental schools in the world (approximately one third) (Sivapathasundharam, 2007). Yet, dentistry in India has been deprived from this technology boom. This is a result of pressures applied to the educational system. Numerous dental schools are running in India, lacking the basic infrastructure requirements (Singh, 2010). Some of the reasons that may have a strong impact on entrepreneurship in dental enterprise in India include:

**Revamping Education** - It is strongly believed that education, innovation and entrepreneurship go hand in hand – especially technology innovation. We need to encourage out of the box thinking as part of our education system. Students should be encouraged to consider entrepreneurship as a viable career option. This could be the single biggest factor that could foster entrepreneurship in dental education. Young college graduates are at an age when their inherent risk is at the least to becoming an entrepreneur. Educating them early enough would also give them ample time to shape up their skills and experience that can prepare them for their entrepreneurial journey. If we miss out on the technology innovation and we don't really revamp up our education system and associated research activities immediately then we might end up excluded and left behind.

**Tackling corruption for growth and development** - Corruption is a serious global problem. It stifles broad-based economic growth, slows development and the costs of corruption fall disproportionately on poor people, more specifically in developing countries. The pliable Universities and Councils were used to bend rules, fuel corruption and violate standards of quality for accelerating the business of medical and dental education. It is therefore not surprising that many of those involved in establishing the money-spinning colleges are power-brokers working in tandem with the leading lights of profession and the industry

**Availability of funds** - The cost to do a technology startup has gone down drastically. Reduced hardware costs, bandwidth costs have dropped, cloud computing and open source technologies make it really cheap to launch a technology startup.

**Lack of good mentors** - Dental education in India does not have a large pool of successful entrepreneurs who have built global level schools and are keen on mentoring the next generation of entrepreneurs. We probably need someone to lead & pave the way just like what NR Murthy did to the outsourcing market in India.

Building a health care business from scratch is not easy but not impossible either. Many ideas can reach a dead end with ethical and funding issues occurring and causing problems. However many great successful entrepreneurs in healthcare have soldiered on and have discovered or launched innovative products and companies. Like any other technology-driven business, continuous learning becomes a way of life and a successful entrepreneur must feel

comfortable about reading and listening to leaders in the health care business as well as other fields. A variety of skills are often necessary and its not often that one person can bring all of the knowledge and resources required, so the key is to bring in the right people who share your vision and are willing to do their bit.

There has been significant entrepreneurial response to the changes in the scientific and social underpinnings of health care services delivery. However, a growing portion of the economic development driving health care industry expansion is threatened further by longstanding use of financing models that are suboptimal for health care ventures. The delayed pace of entrepreneurial activity in this industry is in part a response to the general economy and markets, but also due to the lack of capital for new health care ventures. The recent dearth of entrepreneurial activities in the health services sector may also due to failure to consider new approaches to partnerships and strategic ventures, despite their mutually beneficial organizational and financing potential. As capital becomes more scarce for innovators, it is imperative that those with new and creative ideas for health and health care improvement consider techniques for capital acquisition that have been successful in other industries and at similar stages of development. The capital and added expertise can allow entrepreneurs to leverage resources, dampen business fluctuations, and strengthen long term prospects.

## 6. Conclusion

The future of health care is hard to gauge, but one thing seems certain that the prognosis for entrepreneurs in health care-related fields is decidedly upbeat. Small businesses are gaining a foothold in a broad array of medical technology and health care industries. Entrepreneurs in field of health care are focusing on making health care more convenient. The Governments need to still continue reducing the administrative burden on entrepreneurs, and coordinate among their agencies to ensure that the necessary resources are directed where they are needed. The physical infrastructure needs to be improved. Socially, the Indian society is adapting to a more risk friendly environment and also looking for jobs in the private sector.

## References

- ADA CERP (Continuing Education Recognition Program) At: [www.adacerp.htm](http://www.adacerp.htm) . Accessed: April 20, 2011.
- ADA. Proposed Changes to the ADA CERP Eligibility Criteria. At: [www.ada.org/sections/educationAndCareers/pdfs](http://www.ada.org/sections/educationAndCareers/pdfs). Accessed: April 24, 2011.
- Edward F. R, Hubert B, Bernard W. J. Developing Competency in Research Management, Entrepreneurship, and Technology Transfer: A Workshop Course. *J Dent Educ.* 68(9): 965-969, 2004. Entrepreneurship in India At : [www.internationalentrepreneurship.com/asia](http://www.internationalentrepreneurship.com/asia)
- [Grazier KL](#), [Metzler B](#). Health care entrepreneurship: financing innovation. *J Health Hum Serv Adm.* 2006 Spring; 28(4):485-503.
- Iacopino A, et.al. Preserving the pipeline: a model dental curriculum for research non-intensive institutions. *J Dent Educ* 2004;68(1):44-9.
- Knight, Francis A. *Risk, Uncertainty and Profit*. Boston, MA: Hart, Schaffner & Marx; Houghton Mifflin Co. 1st edition, 1921.
- Liberto VN. Entrepreneurship in continuing dental education: a dental school perspective. *J Am Coll Dent.* 2005 Summer; 72(2):10-1.
- National Institute of Dental and Craniofacial Research. Competencies in the 21<sup>st</sup> century: report of the NIDCR Blue Ribbon Panel on Research Training and Career Development to Meet Scientific Opportunities of the 21<sup>st</sup> Century, 2000. At: [www.nidcr.nih.gov/research/blueribbon/summary.pdf](http://www.nidcr.nih.gov/research/blueribbon/summary.pdf). Accessed: April 26, 2011.
- Report of the AADS president's task force on future dental school faculty. Washington, DC: American Association of Dental Schools (now American Dental Education Association), 1999.
- Rossomando EF. The dental enterprise: its transition from xenodontic to biodontic dentistry. *J Am Coll Dent.* 2006 Summer; 73(2):32-4.

Rossomando EF. The dental enterprise: its transition from xenodontic to biodontic dentistry . Compendium of Continuing Education in Dentistry. June 2006, Volume 27, Issue 6.

Shane, Scott. "A General Theory of Entrepreneurship: the Individual-Opportunity Nexus", Edward Elgar, 2003.

Strategic plan, shaping the future. NIH Publication No. 97-4174. Bethesda, MD: National Institute of Dental Research, 1997.

Sivapathasundharam B. Dental education in India. Indian J Dent Res 2007; 18:93.

Singh A. The same mistakes. British Dental Journal. April 2010, 208, 273.

This academic article was published by The International Institute for Science, Technology and Education (IISTE). The IISTE is a pioneer in the Open Access Publishing service based in the U.S. and Europe. The aim of the institute is Accelerating Global Knowledge Sharing.

More information about the publisher can be found in the IISTE's homepage:

<http://www.iiste.org>

The IISTE is currently hosting more than 30 peer-reviewed academic journals and collaborating with academic institutions around the world. **Prospective authors of IISTE journals can find the submission instruction on the following page:**

<http://www.iiste.org/Journals/>

The IISTE editorial team promises to review and publish all the qualified submissions in a fast manner. All the journals articles are available online to the readers all over the world without financial, legal, or technical barriers other than those inseparable from gaining access to the internet itself. Printed version of the journals is also available upon request of readers and authors.

### **IISTE Knowledge Sharing Partners**

EBSCO, Index Copernicus, Ulrich's Periodicals Directory, JournalTOCS, PKP Open Archives Harvester, Bielefeld Academic Search Engine, Elektronische Zeitschriftenbibliothek EZB, Open J-Gate, OCLC WorldCat, Universe Digital Library, NewJour, Google Scholar

