THE EXPANSION OF TECHNOLOGY IN THE MANAGEMENT OF GOVERNMENT ENGINERING COLLEGES IN RAJASTHAN WITH A FOCUS ON INFORMATION TECHNOLOGY

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Abstract

In several earlier studies it was revealed that engineering colleges are being marginalized from the mainstream education industry due to their inability to participate in the transformation of best practices due to their reluctance to utilize information technology. The responses to the surveys were sufficient to reach some comparisons over a period of time about the growth of technology and the Internet in this sector, the factors that influence the use of technology, and additionally some insight into the opinions of the management and administrators who are non users and underprivileged users of technology and the Internet. This paper concludes that penetration is relatively high in resent years.

College administrators who use IT have tended to be "dabblers" (i.e., have bought technology piecemeal with no long-term plan or even specific professional use) or "technophiliacs" who may have invested, expensively, in technology in the early stages and perhaps have lost faith when the technology did not live up to expectations. All administrators are concentrating on acquiring hardware they are not putting attention on software development.

A cost and benefit analysis would illustrate that they can displace some of their marketing and promotional expenditure to the new media, which promises a much wider coverage of the market and a much more efficient automated mechanism.

Government engineering colleges could learn gradually how to take advantage of the information technology in order to reduce their operational cost.

Key Words: - Information Technology, Networking, Management and Administration.

Introduction

The vast majority of college establishments around the globe are small and medium sized, belongs to local entrepreneurs or government sector, predominately employ members of the host society. Despite their location, size, collectively, small and medium-sized education institutions are extremely important to national economies as they provide potential man power opportunities and support the integration of local economy in

peripheral areas, even during recession periods.

These educational organisations provide a variety of benefits by enabling students to have direct contact with the local industries and host population. Therefore, they contribute significantly to the authenticity and quality of the "education system." Their size allows flexibility and specialization and thus they are able, more so than large, rigid, affiliated institutions, to identify niche markets and promote achieving differentiation and competitive advantage. They also have the flexibility to alter their portfolio characteristics, as well as form horizontal and vertical alliances to achieve economies of scope. They attract students spending to the host destination and the consequent "secondary spend" stimulates the multiplier effects, generating several rounds of economic activity at destinations.

However, colleges suffer a wide range of disadvantages that effectively jeopardize their profitability and competitiveness, as well as their contribution to regional economies. These disadvantages tend to result from their lack of capital; deficient economies of scale and underutilized economies of scope; peripherality; insufficient management and marketing skills and expertise; inadequate bargaining power within the distribution channel; and lack of representation in the emerging electronic marketplace (Buhalis, 1999; Furr & Bonn, 1998). Therefore, to the degree that the public and private sectors need to enhance their competitiveness and reinforce the prosperity of both enterprises and destinations, decisions makers should

identify methods in order to encourage the utilization of the strategic tools introduced by Information Technology (IT). This research paper quantitative research undertaken in government engineering colleges of Rajasthan, attempts to identify the use/ non use of technology and the Internet. Mary Parker Follett (1868–1933), who wrote on the topic in the early twentieth century, defined management as "the art of getting things done through people". She also described management as philosophy.

Technology has become a main source of sustainable *competitive advantage and a strategic weapon*, especially in the education industries due to the pivotal role information plays in the description, promotion, distribution, amalgamation, organization, and delivery of educational services. Technology can offer significant advantages in operational (e.g., quality management systems), tactical (e.g., financial management), and strategic management (e.g., decision support systems) to educational sector. Increasingly the use of IT is a major prerequisite in forming strategic alliances, developing innovative service methods, communicating with students and employees, and satisfying industry demand. Both students and staff also tend to place a greater value on organizations that utilize IT. The Information Society is a learning society where the core is networking and creativity (Castells 1996, Castells and Himanen 2002).

Globalization accelerated time-based competition, qualitative dynamics, rapid development of technology and especially ICT developments are bringing significant change to society, business and organizational structures and our ways of working and learning

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(see *e.g.* Ackoff 1999 and Senge *et al.* 2005).

Expansion of Information Technology in Government Engineering Colleges of Rajasthan

A more recent surge in the use of information technology has been credited to the Networking. From its humble beginnings in the 2004 the Information Technology has blossomed in the recent years with explosive growth, including commercial networks and services. Estimates vary as to the usage of the Information Technology but educational institutions have been scrambling to have an electronic presence.

Increasingly, educational regions are managed by administrators and govt. bodies that tend to belong to the public sector and aim to coordinate and regulate the educational industry at the significant level. It also proposes to provide a networking for information sharing and ultimately for joint activities of key students and to provide training in technology and marketing via the new information technology.

Methodology

Secondary data were used to identify critical areas that merited further investigation; however, every situation demands consideration of the type of approach to data collection and that means making presumptions about the respondents that will be interviewed, in this case college principals and registrars. Although alternative research methodologies were considered, including personal interviews the questionnaire instrument was chosen for comparison purposes;

the survey in 2004 had been conducted successfully by postal questionnaire.

In addition, the questionnaire was seen as most suited to the task of gathering a broad base of mostly factual information from a large population. In the case of all three of these surveys, preliminary semi-structured interviews were carried out in an attempt to highlight the issues in the current literature and to clarify the understanding of the target respondents regarding terminology. Having addressed these issues, a structured questionnaire was designed and piloted prior to each of these surveys.

However, it was clear from the lack of data giving any preliminary insight into the use of the information technology in different government engineering colleges.

The 2004, 2007, and 2008 questionnaires were in several similar sections. They contained data about the engineering colleges itself and its main source of revenue, about the background, about students' profile, about use of information technology in general and, additionally in different key departments, about the use/non-use of the information technology. The questions were mostly closed with three open-ended questions included for further expressions of opinion by the Principals.

The population was all Government Engineering Colleges in Rajasthan, and a random sample of was targeted with a postal questionnaire in 2007. There were 65% returned questionnaires in 2007, acceptable by postal survey standards. This compares well with the survey in 2004, again a postal survey to a random sample with a return rate of 38%. The responses contained a well proportioned cross section in

terms of size of college and variety of locations.

The questionnaire was coded, and analysed with the percentage method and graphical presentation of the data. At this level of data refinement statistically significant results were revealed in 2004 and are commented on here again, though the surveys of 2007 and 2008 did not reveal the same statistically significant results using the same method for analysis.

Results

The three surveys produced some similar findings in terms of the demographics of the colleges and their management styles. By the help of data surmised in Table -1 the use of information technology can easily be identified.

The managers in 2007 and 2008 are seemingly better technology user than those of 2004, although this may be accounted for in terms of the higher automation of people.

Table -1

Use of Information Technology in Government Engineering Colleges of Rajasthan: 2004, 2007, 2008

1.	Use of Information Technology	2004	2007	2008
a	Finance	20%	35%	37%
b	Library	10%	50%	85%
c	Admission	-	75%	70%
d	Examination	25%	35%	40%
e	Administration	05%	25%	50%
f	Student Welfare	-	10%	15%
g	Training & Placement	-	60%	70%

The use of Information Technology in Government Engineering Colleges of Rajasthan is rapidly increasing. This shows that awareness of automated

systems is high. The use of information technology in finance is 20% in 2004 but the data collected in 2007 shows 35% use. Between the two data collected the trends show a hype of 15% which is remarkable.

In case of library facility automation in first year it was only 10% but in 2007 the growth of 40% is their which is higher than any other area & in year 2008 it again show an increasing trend 85%.

In admission activity of Government Engineering Colleges of Rajasthan 2004 the entire process is manual but it shows a tremendous growth in 2007 the growth of 75% but again the data show a decrease of 5% that is exceptional and very rare in nature.

From the beginning year 2004 growth is of 25% was their but slowly is grows to 35% and then after 40%.

Administration showing the management of all colleges in 2004 it was only 05% which was very less, but after that in year 2007 & 2008 the is increases by 25% and 50%. As far as student welfare is concern earlier it was nil but in 2007 and 2008 it increases from 10% to 15%.

Lastly training and placement in2004 it was nil but in 2007 it was 60% which increases by 70% in 2008.

Even though there seems to be some change in attitude towards technology it can probably be accounted for in a general terms with the pervasion of technology into the management, not to any specific activities. These are limited incidences but, nevertheless, indicative of proactive technology management of some college principals.

Of those who were *not using technology* in any form, in 2004, the most cited reasons for not using

technology were "time" and "not needed." Few were worried about costs or lack of training.

Conclusions

There has clearly been an increase in the uptake of technology in this sector. The previous research in 2004 indicated that some factors played a key role in the use of technology. These were mainly the investments, requirements and availability. All were found to be statistically significant factors in the use of technology. This may imply that they are self-taught or taught informally by colleagues. This may also indicate that technology is easy to buy by the box and load and go, or perhaps they are failing to maximize the potential of their hardware and software purchase. It may also mean that buying technology is now perceived as a low-risk activity with relatively low cost considerations, or, after years of caution, that technology has finally established itself as part of the institution and social infrastructure.

A more detailed qualitative study would be required for fuller analysis, though certainly technology training continues to be a key issue. Administrators are relying on asking the staff at the point of check in or filling in of the registration form.

For those at present who do not use technology they at least acknowledge the inevitability of using it in the future. Consequently, these current nonusers will be forced to adapt and adopt. There may always be those who resist technology and prefer a "hands-on" approach or choose to keep their college information in manual form rather than release it for wider consumption. It is clear to the whole of

the educational industry, chain, consortia, and independents that the Internet is having an impact, though indications are that the independent sector is in the early stages of adoption in terms of technological capability and not yet fully exploited. This may be due to the confusion in the entire system for educational products and exacerbated by the additional intermediaries emerging on the Internet.

Recommendations

A cost and benefit analysis would illustrate that they can displace some of their marketing and promotional expenditure to the new media, which promises a much wider coverage of the market and a much more efficient automated mechanism. Government engineering colleges could learn gradually how to take advantage of the information technology in order to reduce their operational cost. To a certain extent this becomes the standard of the educational industry and whoever is lagging behind will be unable to attract students for their services. As a result, they connect all their working through networking have clear and efficient procedures. The most pivotal change is the revolution experienced through the development of the technology. The information technology is gaining commercial viability and is particularly suited to colleges where it enables the institutions to keep its doors open 24 hours a day, at minimal cost. Software is now designed for those inter- and intranet connections allowing access to internal databases and applications and secure access from external sources. Secure financial transactions are now being established and the Internet

emerges as a means of achieving true electronic interconnectivity with all colleges. Government engineering colleges that are not represented will fail to bridge this distance with society and suffer competitive disadvantages.

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