CHAPTER 8
SUMMARY AND CONCLUSIONS

8.1 INTRODUCTION

The synthesis of the learning issues is discussed in this chapter in the context of dynamic business environment. The results and findings of the research study are summarized and some suggestions are made for institutes, particularly for students who want to practice ICT within the institutes. The support for the results/findings of the study from recent published literature is also presented. Further, significant research contributions, implications for researchers and practitioners, limitations of the study, and the possible directions for the future learning are outlined.

8.2 SUMMARY OF MAJOR FINDINGS

The findings of different components of the research, i.e. questionnaire survey and case study analysis are synthesized according to the research objectives. The main research objective was to identify the role of ICT outcomes. Accordingly, a summary of the findings are presented here, reflecting upon the achievement of the research objectives. The study brings out that the framework for learning for ICT should be evolved keeping in view the project goals and the contextual factors namely supportive environmental factors. Based on the research findings, important areas have been identified which are discussed in the following sections.

Comparison of Education Sector

The study aimed at exploring the difference between the two sectors in terms of the role for ICT. Some of the significant findings of this part of the research are as follows:

There is significant difference between education sector in terms of macro variables.

The service institutes have significant difference in terms of Learning Discretion, Rewards and Institutional Flexible Boundary (cross-case analysis given in chapter five). This is also supported by the nature of sectors. The manufacturing institutes leave less room for
flexibility and autonomy, since it has mostly interrelated processes and it is difficult to isolate the contribution made by an individual. Hence, the reward system is having significant difference with respect to services institutes.

There is almost negligible difference in terms of Management Support, Intelligence Generation and Intelligence Dissemination for education sectors (given in chapter five). This is because the process of intelligence generation and dissemination, and management support is not affected by the nature of sectors. Moreover, Management Support is independent of nature of institutes. It is primarily dependent on the management policy and philosophy of the institutes.

In view of the above research findings, it can be safely concluded that the research objective related to the difference between the education sectors institutes has been adequately addressed in the research.

**Relationships of Key Variables**

The relationships of key research variables have been established by both the questionnaire survey and the case studies and the research findings on this front are summarized as follows:

The case studies reveal that the Institute's vision for student students plays an important role for implementing learning behavior within the institutes.

The case studies also show that the institutes structure affects the implementation of student students practices. The hierarchical institutes structure does not help to promote student students. The institutes structure which provides scope for flexibility to the students is important for successful implementation of student students practice.

The case studies also show that appropriate risk management structures help to manage the risk associated with the learning efforts.

The case studies reveal that having appropriate performance evaluation systems help to stimulate students' behavior among the students.

The relationships of key research variables are consistent in terms of regression analysis of macro and micro variables in questionnaire survey as well as case studies except in case of
Risk-Taking, Rewards, Institutional Flexible Boundary and Time Availability. The major predictor in case of macro analysis of questionnaire included Intelligence Dissemination, Intelligence Generation, Management Support, and Learning discretion. Similar findings have been study material by various researchers including Zahra (1991) and Hornsby et al. (2002). In micro analysis, it was found that two variables namely, Institutional Flexible Boundary and Risk-taking emerged as enablers of ICT Outcome from the case studies. The two other variables including the Time availability and Rewards emerged as the linkage variables from the case studies and structural equation modeling. The study corroborates the results published by Nonaka and Takeuchi (1995), and Zahra et al. (1999) who identified effective communication and use of rewards being critical for student learning process.

The regression analysis indicates that Intelligence Dissemination and Learning Discretion are two major predictors of Education and Learning outcomes. Management Support impacts Education significantly whereas Intelligence Generation is critical for Learning outcomes. This study corroborates the research published by Kanter (1983) and Pinchot (1985). These authors emphasized on open communication for fostering information sharing and empowerment has been proffered as a critical element for education.

The moderator method of analysis has shown that ICT outcomes are highest when Management Support is highest and the Risk-Taking is moderate. ICT outcomes are highest when Management Support and Institutes Flexible Boundary are high. Further, the analysis shows that ICT outcomes are highest when Learning Discretion and Institutes Flexible Boundary are moderate. Moreover, ICT is highest when Management Support and Reward are also high. Similar research findings have been study material by researchers including (Stevenson and Jarillo, 1990) and (Hornsby et al., 1990). These authors study material that learning discretion, education rewards, time flexibility, and loose intra-institutional boundaries are crucial for ICT outcomes.

Structural equation modeling analysis has allowed a more rigorous examination of the interrelationships between the direct measures of the ICT Outcomes and the hypothesized constructs of supportive environment. Structural equation modeling has further identified the simultaneous impact of role including Risk-Taking, Management Support for ICT, Learning Discretion for the students, Institutional Flexibility for the students in accessing
study material and classes, Intelligence Generation for various subject matter, Intelligence Dissemination of domain knowledge and Time Availability due to lack of travelling.

**Validated Conceptual Framework**

The validated relationships at macro level helped in the development of the validated conceptual framework as envisaged in the objective of the research. The objective has been probed in depth at the micro level as well and a validated framework exhibiting relationships among micro variables has also been developed, which can safely be treated as the validated model brought out by this research. The key findings related to validated conceptual framework for learning are as follows:

The validated conceptual framework for learning generated by questionnaire survey has been corroborated by the case studies to a great extent. The variations in questionnaire survey are corroborated by micro level analysis of questionnaire survey.

Although the Intelligence Dissemination, Management Support, Intelligence Generation and Learning Discretion are major drivers, Institutional Flexible Boundaries and Risk-taking emerged as the most important enablers. Time Availability and Rewards emerged as the most important linkages for ICT outcomes (findings from case studies).

Although Intelligence Generation doesn't affect Education directly, but it has indirect relation with the ICT Outcomes.

- Based on our research, the discoveries propose that wherever instruction is under the weapon, it more often than not winds up getting slaughtered. Despite the fact that time weight may drive understudies to adapting increasingly and accomplish more, and may even make them feel more inventive, it really causes them, as a rule, to think less innovatively. Our review recommend that time weight influences learning results in various routes relying upon whether nature permits understudies to concentrate on their learning, passes on a feeling of important criticalness about the jobs needing to be done. Our review demonstrates that the additional time weight understudies feel on a given day; the more improbable they could think creatively. Clinicians have since quite a while ago trusted that taking in results comes about because of the arrangement of huge number of partners in the brain, trailed by the determination of affiliations that might be especially intriguing and valuable. Sentiment
time weight is related with disappointments. Our research additionally proposes that low
time weight doesn't really cultivate imaginative deduction – yet that it can do as such when
understudies are urged to learn, to play with thoughts, and create something genuinely new.
For most organizations, the most ideal approach to keep away from undue time weight is to
elloquent objectives at all levels of the establishments that are sensible and deliberately
arranged, maintaining a strategic distance from the optimum predisposition that torment a
considerable measure of understudy arranging.

The above research discoveries, mirroring the accomplishment of research targets, all things
considered, prompted to the era of some vital recommendations, which have been somewhat
tried in the event that reviews.

8.3 IMPLICATIONS OF RESEARCH

8.3.1 Implications for Researchers

This research has several important implications. From a theoretical perspective, the current
research provides an important empirical step towards understanding the supportive drivers
of student students. As already noticed, the literature around there has been fundamentally
normative in which most researchers have developed conceptual schema which requires
empirical testing, or are based on limited case study analyses.

This study presents an empirical analysis that emphasizes the key supportive drivers that are
likely to impact student learning outcomes. This focus clearly distinguishes this research
from previous studies that tend to be concerned with more generalized assessments of
institutes’ readiness to initiate student students efforts.

The results can be used to steer further research in student students. The validated model
includes management support, intelligence generation and learning discretion. As compared
to results published by Hornsby (2002), the findings of this study emphasizes on the
importance of intelligence generation and dissemination as important predictors of student
students which has not been included in earlier studies. Thus, the major writings in this area
can therefore be used to guide further research into student students by focusing on the role
of these factors uncovered in this study. These findings contribute to the theory of
intelligence generation proposed by Nonaka and Toyama (2002). Further research may be taken up to explore the relationship of this variable and the outcomes of student students.

This study adds to the existing literature by identifying the role of intelligence generation and dissemination and highlight importance of future research with it. It is the perceptual perspective that may turn out to be most critical for future research. The future research may include these factors to understand the influence of these two variables namely, intelligence generation and dissemination with student students outcomes.

The results also indicate that before implementing any kind of change management initiatives including learning change, the institutes are likely to analyze the supportive environment for implementing such behavior. Further research efforts should aim at developing on this theory to measure the individual elements of intelligence generation and intelligence dissemination, management support and learning discretion and its relationship with student students outcomes. Such a tool can be of prime importance to the institutes which can help the institutes to identify the elements to create appropriate environment for encouraging ICT activities (Jawaroski and Kohli, 1993).

The case study results reveal that the structure, systems and Institute’s vision plays important role in implementing student students practice. Future researchers may focus on identifying the different types of structure which help to implement various practices of student students. Also the researchers may study the various systems which stimulate student students behavior within the institutes. The future researchers may also study the impact of structure and systems on student students outcomes.

8.3.2 Implications for Practitioners

The instrument developed in this study also has practical implications for students. For example, the tool can be used as an assessment tool for evaluating student training requirements in students and education. This kind of tool may further help the institutes to understand if they have the necessary supportive environment to initiate student students. The results can help the institutes to identify the gaps. This tool can therefore be used as a diagnostic tool for student students. Many institutes have initiated such programs in recent years to identify areas requiring attention to encourage learning activities (Hornsby, 2002; Kuratko and Montagno, 1989). The results of one empirical analysis indicated that a training
program designed to enhance student students appreciably affected perceptions of the environment by students (Kuratko et al., 1990). Along these lines, the instrument created in this review can be utilized as an investigative apparatus for recognizing whether the foundations has the vital condition for starting understudy understudies exercises and the preparation needs to motivate the students for education. This research has also the practical implications in terms of managing change within the institutes. The tool can be used to identify the preparedness of the institutes to adopt learning change. The present study also contributes towards the theory of learning revitalization of the institutes to gain competitive advantage (Volberda, 1998).

The research findings related to institutional structure would help the students to design proper structure for implementing ICT. The various processes and systems which help to implementing ICT would guide the mangers to design the right kind of systems which promote ICT.

8.4 MAJOR RECOMMENDATIONS

Findings of the questionnaire survey as well as case studies have been reflected upon and some major recommendations have been generated in order to help the institutes understand the supportive environmental factors necessary for implementing ICT Outcomes. The recommendations have emanated out of various components of research and are tagged with specific macro/micro variables and relevant research component.

Designing right kind of institutional structure and processes and systems to implement ICT

Introduction of an effective Intelligence Dissemination process is recommended in order to implement ICT within institutes (Intelligence Dissemination – ICT Outcomes).

Top management should dedicate reasonable time to learning on supportive Intelligence Dissemination strategy. Moreover, Intelligence Generation should also be encouraged within the institutes facilitated by the top Management Support and Institutional Flexible Boundary. More emphasis on inter-departmental collaboration and cross functional teams should be there. The exertion ought to be coordinated towards outfitting the community aptitude of the understudies inside the foundations (Management Support - Intelligence Generation – Institutional Flexible Boundary)
Institutional Flexible Boundary is recommended to enable movement of students and resources with the focus of optimum utilization of resources. This should be supported by management to make it more effective. Nevertheless, there should also be proper monitoring systems to control the resources allocated towards various ICT activities. The students could be made accountable towards their activities (Institutional Flexible Boundary-ICT Outcomes).

It is recommended that the institutes should have Management Support for ICT activities since it has emerged as a major driver, which acts as a pivot variable to influence the interrelationships between Institutes Flexible Boundary, Risk-Taking and Rewards. These important interrelationships show that to have better ICT outcomes, management should support these activities by providing institutional flexibility which can further stimulate risk-taking (Management Support- Institutes Flexible Boundary -Risk-Taking).

To implement ICT, the management should Reward the students for good ideas, which will motivate them (Management Support- Rewards).

Institutional Flexible Boundary and Risk-Taking has emerged as major enablers. Thus, to have proper implementation of ICT, the institutional should have institutes structure, which can further enable institutional flexibility (Institutes Flexible Boundary - Risk-Taking-ICT Outcomes).

Time Availability and Rewards have emerged as major linkage variables. Although, these variables do not affect the ICT outcomes directly, it is found in the research that these variables have significant impact on the ICT outcomes indirectly in terms of motivating students for ICT activities. Hence, the institutional should also focus on these variables (Time Availability-Rewards-ICT Outcomes).

It is recommended that the institutes should have proper institutes structure and systems to facilitate the Learning Discretion, which has emerged as major driver of ICT (Institutional Flexible Boundary-Learning Outcomes).

Due to its greater degree of technical, product, and market uncertainties, education needs, higher degree of cross functional coordination and a greater sense of urgency. The business unit institutes structure is more costly due to duplication of resources, but better suited to
education than either the functional or the matrix institutes. Due to its dedicated cross-
functional resources and clear accountability for results provide the required level of
coordination, focus, and speed. In spite of this, its higher cost might not be suited for mature
businesses. It generally pays to separate the start-up and growth businesses from mature
businesses.

In other instances, where self-sufficient business unit is not recommended includes
situations where recent institutional change has happened. This is because frequent hamper
education. Such type of self sufficient business unit is also not beneficial if some sharing of
functional resources is required.

Although structural solutions are readily implemented, but it is best not to engage in a
search for _ideal_ institutes for education. In spite of availability of choices, the best results
may be achieved by focusing on neglected task of developing the competencies of the
students and capability to learning within and across boundaries through proper education,
training, coaching, and mentoring.

The institutes will do better if it focuses on creating conditions that encourage competent
and committed students to volunteer to lead new business initiatives. These students should
be allowed to recruit other believers who have the necessary skills, and the team must have
sufficient autonomy and resources to proceed.

The two basic approaches through which students can be motivated to undertake education
includes motivation by increasing the individual's perception of rewards from education,
relative to its perceived risks. One of the methodologies is to offer financial incentives
commensurate with the higher personal risk. But with a caution that this should be perceived
as fair for its success. But studies suggest that use of incentives may lead to resentment
among other members of the institutes.

The other approach which learning s best in such situations include offering plenty of
recognition and career advancement as reward, and reduce the perception of personal risk
considerable. This can be achieved by creating a mistake tolerant management culture.

The institutes must provide sufficient resources and autonomy to decide which risks to take
and how quickly to move within decided parameters.
8.5  SIGNIFICANT RESEARCH CONTRIBUTIONS

The study provided some new evidence on the relationship between student students and its antecedents. The analysis indicated that intelligence dissemination (ID), learning discretion (WD) and management support (MS) were some of the most important drivers of new venture creation. The predictors of new venture creation are intelligence dissemination, management support and learning discretion whereas the predictors of educations include intelligence dissemination, intelligence generation and learning discretion. This shows that for new venture creation, it is important to have management support and proper processes for intelligence dissemination. Then again, for trainings to succeed, it is imperative to have legitimate procedures for intelligence era and dissemination as well. The study suggests that both new venture creation and educations require learning discretion to succeed. However, the study suggests that it is more important for new venture creation to be supported by management for the venture to succeed. This further approves the need of having legitimate procedures for dissemination of data at all levels, accentuates on having appropriate administration support and learning discretion for fruitful new pursuit creation. The findings have contributed towards the existing theory of ICT by extending the previous research (Hornsby et al, 1999; Covin and Slevin, 1991). The positive nature of the relationship points out the fact that the students should be given the autonomy in terms of abilities and selection of venture ideas for encouraging ICT. This further approves the need of having legitimate procedures for dissemination of data at all levels, accentuates on having appropriate administration support and learning discretion for fruitful new pursuit creation.

Additionally, it is vital to have administration bolster as far as monetary support for ICT exercises.

The exceptionally focused and dynamic condition prevalent in many divisions is compelling many establishments to embrace a learning procedure, which is looking for upper hand through training on a managed premise. The current debate is more on ‘how’ of students and the present study suggest some of the critical routes to follow. This requires the top management team to create an institutional setting that focuses the attention of individual participants on education as an important and expected activity and enables and directs group and institute behaviors towards learning ends. The team will also use appropriate processes to capture knowledge created in the education process and operate in a manner.
that enables integration of knowledge. Institutionalizing elements of students is crucial for sustaining competitive institutes.

The significant research contributions with respect to ICT outcomes are discussed as follows:

In order to investigate the supportive institutional factors that encourage student students, an empirical analysis has been conducted.

Case studies on three organizations have been done in detail. The parts of structures and frameworks have been concentrated through SAP-LAP system of learning with regards to ICT Outcomes.

The learnings from the poll review ponder and the contextual investigations have been blended where various essential discoveries have been study material, which give a directing structure figuring out how to execution of ICT approach.

A ‘ICT Model’ has been evolved, which may be used as guiding framework learning by the institutes and students intending to use the ICT approach.

Inter-strategy influence relationships have been identified and complementary nature of certain institute level macro strategies has been established. This would guide the students in evolving and properly implementing the ICT strategies at institute level.

This study adds to the literature on ICT by recording the existence of an underlying set of institutional factors that should be recognized in promoting learning activities within an institutes. The five factors which describes by the Er. Hornsby et al. (2000) through CEAI (CE Assessment Instrument) were management support, learning discretion/autonomy, rewards/reinforcement, time availability, and institutional flexible boundary which represent a parsimonious description of the supportive institutional factors that influence learning activity within established institutes. These five factors accounted for 46 per cent variance in the student learning activities (Hornsby et al., 2002). The inclusion of two factors, i.e. risk-taking propensity and intelligence generation and dissemination explained the variance of 76 per cent (Bhardwaj et al., 2006).
The current research provides an important empirical step towards understanding the supportive factors that stimulate ICT. As previously noted, the literature in this area has been primarily normative. This study presents an empirical analysis that emphasizes the key supportive factors that impact student learning outcomes. This focus clearly distinguishes this research from previous studies that tend to be concerned with more generalized assessments of institutes’ readiness to initiate ICT efforts.

This highlights the importance of future research with the CEAI instrument. It is the perceptual aspect that may become most important for future research. The instrument developed in this study also has practical implications for students. For example, the modified CEAI can be used as an assessment tool for evaluating student training requirements in education. Many institutes have initiated such programs in recent years to identify areas needing attention to encourage learning and risk-taking activities (Kuratko and Montagno, 1989; McWilliams, 1993). Therefore, the instrument developed in this study can be used as an investigative tool for identifying whether the institutes has the necessary environment for initiating ICT activities and the training needs to motivate the students for enhancing mass education.

8.6 LIMITATIONS OF THE STUDY

The limitations of the study are given as follows:

- Strict random sampling has not been utilized for the questionnaire ponder. Further, purposive sampling has been utilized for the pilot study and contextual investigations.
- Questionnaire outline and information gathering depends on the supposition that different ICT procedures can be defined and actualized in remain solitary way. Be that as it may, the examination discoveries have drawn out that different ICT systems are corresponding and nearness of basic institutional drivers are critical for ICT Outcomes. The outcomes likewise build up the entomb relationship.
- More number of contextual analyses in these two parts can be embraced to comprehend the effect of these part in more extensive viewpoints. The factors, for example, institutional adaptable limit and rewards can be considered in points of interest in future research. Also, the part of knowledge Dissemination and Intelligence era can be investigated advance.
• As the vast majority of the institutional were not willing to unveil the genuine evaluated information identifying with the particular ICT exercises as far as aggregate number of items/administrations/markets recognized, the ICT Outcomes has been measured in subjective terms through ICT Outcomes in correlation with likely Outcomes of ICT approach where these steady factors are not accessible.

• The outside natural components, for example, mechanical dynamism and market potential have not been incorporated into the experimental review.

• Student level techniques can be taken up for further research, which has not been incorporated into this model.

8.7 STUDY IS RELEVANT TO WHOM

The study is relevant in the following ways:

Business institutional that intend to implement or adopt ICT approach. The „ICT Model”, which has been evolved in this research, can serve as guiding framework for learning for implementing the ICT. The inter relationships explained through interpretive matrix can be useful in understanding the impact on CE outcomes. This interpretive matrix may also be useful in understanding the various processes for implementing CE within the institutes.

Researchers and academicians pursuing CE research. The results can be used to steer further research into CE activities.

8.8 SUGGESTIONS FOR FURTHER LEARNING

The suggestions for future learning are given below:

An empirical study may be carried out taking into account the inter-strategy influence relationships and requirements of inter-strategy support, as brought out in this study.

Study on ICT approach may be carried in select institutes that may be willing to share actual quantified data in terms of ICT outcomes.

A study may be made covering numbers of institutes/institutes from USA, Europe, Japan and India to bring out the unique institute level ICT practices pertaining to supportive institutes drivers of ICT outcomes in various countries in view of differences in learning culture and management systems/practices.
Further research can be taken up by examining appropriate rewards and incentives, time available for students to experiment and innovate, and the level of institutional support, researchers will be able to more clearly measure factors that influence students’ ICT efforts.

Further research efforts into student learning environments need to give special attention to the eight supportive factors uncovered in this study, especially, the role of intelligence dissemination and intelligence generation in implementing ICT outcomes.

Future research can also in student external environment as a major variable to understand its impact on ICT activities within the institutes.

Moreover, the student level strategies including the vision for ICT and leadership can also be an important contribution towards ICT research.

The areas for additional research are proposed, corresponding roughly to the antecedents and outcomes portions, respectively, of the model. Further research is needed to clarify the linkage between the presence of specific qualities or properties in an institutional context and individuals’ (such as middle-level students) decisions to act learningly. Important contributions in this area have emerged from the research of Ginsberg and Hay (1994), Hornsby et al. (2002), Hornsby and Kuratko (2003), Quinn (1985), and others, yet significant research questions remain. Moreover, these outcomes are merely illustrative of the type of effects possibly resulting from learning behavior. A relatively small percentage of corporations can accurately claim to exhibit extensive learning activity within the ranks of their members (Morris and Kuratko, 2002). While past research on specific elements of the proposed model has demonstrated some significant relationships (i.e., role and self-study material outcomes, Hornsby and Kuratko, 2003), additional research should be conducted to further delineate the roles of all students’ levels in the student learning process.

While this study suggests the existence of a set of factors necessary for education, additional research addressing the relationship to such measures as the number of ideas generated in an institutes; time spent on learning ideas; and students willingness to break through institutional boundaries. Second, while this study has initiated an important exploration, clarification, and refinement of these factors, it is necessary to further support the relationship between the measures of individual new business activities. For example, researchers may link this framework of learning ‘s three dimensions to financial measures of
institutional performance. While institutes initiate education efforts for varying reasons, ultimately, senior management expects education efforts to improve the institute’s financial position. Consequently, future researchers could study the relationship between education dimensions and financial performance measures. Finally, additional research into whether or not such variables as sector type and culture play a role in the student learning drivers is necessary. In summary, this study provides empirical evidence regarding the existence of supportive drivers believed to enhance education within the education sectors. The study’s results and proposed framework of learning offer a foundation for developing a reliable and valid measure of the institute’s supportive drivers for education for education sectors.

8.9 CONCLUDING REMARKS

The main objective of this study was to study the key supportive institutional factors that stimulate ICT and develop a tool that measures these factors. To accomplish this purpose, the study collected data from 181 students in 39 institutes. Results from the study can, thus, help to define supportive institutional factors zone of influence and set the stage for better environment to enhance learning activities. The role of institutional factors for implementing ICT has been discussed. After identifying different institutional factors from literature, a discussion has been followed by an empirical study conducted to identify these key supportive institutional factors. The results of the study and their implications for research and students’ practice have been discussed in detail.