Summary

Rapid strides in the sphere of technology and maintenance of high pace of economic growth require a transformation in workforce towards manpower equipped with a high degree of skills in widely diversified vocational oriented field. The same is also true for the technical field. As a result there is an exponential growth on the capacity and dimension of technical education system in the post-independence era. There are many areas related to the technical field which needs to be studied by the researchers. In order to face the challenges of new millennium, these areas require immediate concern. Therefore, the investigator thought it better to Study the Growth, Motivational factors and Academic Success in Technical Education in Uttar Pradesh.

Chapter one of the research work included the historical background of education in general and also the start of vocational / technical education in India. It also included the classification of different type of institution in India, Definitions of the terms used in research work, Objective of the study, Hypothesis of the study and the Delimitations of the study. The present study has attempted to achieve the following objectives:

1. To trace the historical development of technical education in Uttar Pradesh.
2. To identify the trend of development of technical education in Uttar Pradesh in terms of number of institutions.
3. To study the motivational factors of students who joined Technical Education in terms of gender (male and female), different religion (Hindu and non Hindu) social background (rural and urban) and medium of Instruction (English and Hindi).
4. To study the linkage between success in selection in technical education vis-à-vis academic background (CBSE, ICSE, UP and other state boards) and social categories of students (Schedule caste, Schedule tribes, backward classes and General).

To achieve the objectives of the present study, following hypotheses were formulated and tested:

1. After Independence Technical Education has grown slowly but with a rapid rate during last ten years i.e. there is a J-shaped trend in the development of technical education in Uttar Pradesh.
2. There is no significant difference in motivational factors of male and female students.
3. There is no significant difference in motivational factors of students belonging to different Religions (Hindu and Non Hindu).
4. There is no difference in the motivational factors of students of different social background (rural and urban).
5. There is no significant difference in the motivational factors of Hindi and English medium students.
(6) There is no significant difference in the motivational factors of the students belonging to different boards of the country (CBSE, ICSE, UP and other state boards).

(7) There is no linkage between success in selection in technical education vis-à-vis different social background of the students (i.e. students belonging to rural and urban sectors of the country).

(8) There is no linkage between selection in technical education vis-à-vis students belonging to different social categories (i.e. students belonging to schedule caste, schedule tribe, backward classes and general category).

Chapter two the research work dealt with the review of related literature. It has been divided into two sub parts i.e. related researches done at International level and National level. Researches done at National level are further divided into two parts i.e. researches done in the field of vocational and technical education and researches done in the field of achievement / academic success.

Chapter three was devoted to the research design followed in the study. The methodology and procedures used for conducting the present study included the method, the population and sample, the tools, collection of data and statistical techniques. Descriptive survey method was used for examining various hypotheses as have been formulated in the study. Since the number of students in the population was too large the researcher first selected some engineering college through lottery system from the total population of engineering Institutions. Before doing this, the entire population of engineering institutions was divided into four categories namely Deemed Universities, Government Financed Engineering Colleges, Self-Financed (Private) Engineering Colleges and University Departments. A lottery was drawn separately out of the list of the institutions in each of these four categories and it was ensured that one institution of each type was selected for inclusion in the sample. The composition of population, sample, total students and total number of students who provided data is as given in the table below.

**Composition of Population and Sample**

<table>
<thead>
<tr>
<th>S.No</th>
<th>Categories of Institutions</th>
<th>Total Institutions</th>
<th>Sample Institutions</th>
<th>Total Students</th>
<th>Total number of students who provided data</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Deemed Universities</td>
<td>03</td>
<td>1</td>
<td>420</td>
<td>405</td>
</tr>
<tr>
<td>2.</td>
<td>Government Aided Engineering Colleges</td>
<td>12</td>
<td>1</td>
<td>160</td>
<td>150</td>
</tr>
<tr>
<td>3.</td>
<td>Self – Financed Engineering Colleges (Private)</td>
<td>111</td>
<td>1</td>
<td>120</td>
<td>113</td>
</tr>
<tr>
<td>4.</td>
<td>University Departments</td>
<td>11</td>
<td>1</td>
<td>70</td>
<td>60</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>137</td>
<td>4</td>
<td>770</td>
<td>728</td>
</tr>
</tbody>
</table>
The names of sample institutions in the above mentioned four categories are-
Motilal Nehru Institute of Technology, Tiliargunj, Allahabad, Deemed University,
Kamla Nehru Institute of Technology, Sultanpur, Government College, Kali Charan
Nigam Institute of Technology, Banda Private Institute and J.K Institute of Applied
Physics and Technology, University department, University of Allahabad.

For the purpose of present research the researches used questionnaire to
get the best results. The questionnaire used in the present study had two parts. The
first part i.e. part A included the triographical description such as name, fathers
name, age, sex, institution, course, branch, year, name of the institution, from
where passed intermediate (+2), name of the board, percentage of marks in
intermediate, whether belong to rural or urban area, caste, category, fathers
profession, mothers income (if working), father’s income, mother’s education and
attempts made to clear the engineering entrance test. The second part of the
questionnaire included the motivational factors for joining technical education
programme. About eleven motivational factors have been formed in part B. A
student was permitted to choose one or more reasons for joining the technical
courses. In four colleges/institutions offering B.Tech/B.E. programmes, all the
students studying in 1st year B.Tech /BE. programmes were included in the
sample. The researcher initially contacted the academic directors of the aforesaid
institutions and obtained the list of students studying in first year in different streams
of B.Tech./B.E. courses. For developing the questionnaire five
teachers/administrators were consulted to elucidate points/questions to be included
in the proposed questionnaire. On the basis of the discussion and hints given by
these experts, a tentative form of questionnaire was developed which was again
discussed with these experts. On the basis of the suggestions given by the experts
the questionnaire was finalized. For language clarity and ease in the
communication the questionnaire items were given to ten students and they were
requested to ask any question for clarification. On the basis of their queries minor
changes i.e. language/terminology of the item of the questionnaire were made. For
the purpose of collection of data the questionnaire was administered personally to
groups of students doing B.Tech /B.E. course. This gave an opportunity to the
researcher to personally establish a rapport, explain the purpose of study, and
explain the meaning of the items that may not be clear. The availability of a number
of respondents in one place made possible an economy of time and expense and
provided a high proportion of usable responses.

After collection of the data, scoring was done and data was recorded in the
form of table. First of all the filled questionnaire were seen for completeness. In
some cases data was missing. The researcher made an attempt to collect missing
information and completed the questionnaire. However in few cases, some vital
information couldn’t be collected and researcher was bound to delete these cases
from the sample. As such only 728 students provided complete and usable data
and were included in the structural sample. The statistical techniques used for the
purpose of data analysis were Percentage, Graphical Representation and Chi-
Square test.
Chapter four of the present research work was devoted to data analysis and interpretation. For the sake of convenience and clarity this chapter was further divided into following parts –

Part 1 - Analysis of Developmental Trend of Technical Colleges in U.P.

Part 2 - Analysis of Data related with Motivation Factors.

Part 3 - Study of Linkage between Success in Technical Education vis-à-vis Academic Background (i.e. different boards in the country), Social Categories (i.e. schedule caste, schedule tribe, backward class and general categories) and Social Background (i.e. rural and urban background).

In Part one the researcher has attempted to analyse the developmental trends of the technical education in Uttar Pradesh. For the sake of clarity, part-1 was further divided into following three sub-sections -


Section C - Growth of Self-Financed Engineering Colleges in Uttar Pradesh from 1900 – 2007.

In part two the researcher attempted to analyse the data related with motivations factors for the students in pursuing technical course for higher studies. For the sake of clarity, part-2 of chapter four was further divided into following five sub-sections-

Section A - Analysis of Motivational Factors for Male and Female Students.

Section B - Analysis of Motivational Factors for Students Belonging to different religion (Hindu and Non-Hindu).

Section C - Analysis of Motivational Factors for Students Belonging to Different Social Background (rural and urban).

Section D - Analysis of Motivational Factors for English Medium and Hindi Medium students.

Section E - Analysis of Motivational Factors for Students from Different Boards (i.e. ICSE, CBSE, U.P Board and other state boards)

In this part the researcher has attempted to identify and compare the motivational factors that compelled the students to join technical education in terms of gender, religion, social background and medium of instruction and for students from different board of the country.

For achieving and fulfilling the above objectives the researcher collected a sample of 728 students studying in B.E and B.tech. There were in all eleven motivational factors on which opinion/viewpoint of 728 students was sought.
In order to compare the motivational factors in terms of gender the researches collected and tabulated the data for boys and girls separately. To compare the motivational factors for students belonging to different religions the researchers collected and tabulated the data under four categories i.e. Hindu, Muslims, Sikh and Christian. Since the number of students belonging to Muslim, Sikh and Christian community were very less therefore, the researcher combined the students belonging to these three religions under the Non Hindu category of students to make it more comparable. To compare the motivational factors for students belonging to different social background the researchers collected and tabulated the data under the sub-category rural and urban background. To compare the motivational factors of students of different medium of instructions the researchers collected and tabulated the data for Hindi and English medium students separately. For doing the analysis of motivational factors students of different boards of the country the researchers collected and tabulated the data pertaining to students who did their class XII from CBSE, ICSE, UP and other state boards.

The students gave their responses in ‘Yes’ or ‘No’ form on the following eleven motivational factors –

1. I have an interest in the technical field.
2. I have an inborn aptitude in technical field.
3. My parents desired that I should join this course.
4. My father is also an engineer.
5. My brother is doing engineering.
6. My friends have inspired me.
7. This profession provides dignity and status.
8. This profession fetches good income.
9. It offers better future prospects.
10. It gives platform to enhance creativity.
11. It provides opportunity for global interaction.

In part three the researcher attempted to study the linkage between success in selection in technical education vis-à-vis academic background and social category. For the sake of clarity part-3 was further divided into following two sub-sections-

Section A - Study of Linkage between Success in Selection in Technical Education for Students of Different Boards.

Section B - Study of Linkage between Success in Selection in Technical Education and Social Category of Students.

In this part the researcher has established a linkage between success in selection in technical education vis-à-vis academic background and social category of students. To study the linkage between success in selection in technical education and academic background, a comparative study of students belonging to different boards such as ICSE, CBSE, UP board and other state boards was made in relation to their performance in class XII board exam. In order to study the linkage between success in selection in technical education and social categories academic percentage of class XII students belonging to different social categories were taken into consideration.
Chapter five was devoted to conclusion and suggestions. For the sake of convenience and clarity of this chapter was divided into following parts.

- Part II – Conclusions of the Study.
- Part III – Educational Implications of the Findings.
- Part IV – Suggestions for further Studies.

In part one testing of the hypotheses was done. In part two the findings on basis of the analysis and hypotheses testing were revealed. The findings were –

(i) There is a J–shaped trend in the development of technical education in Uttar Pradesh.

(ii) It is seen that in the past two decades the number of self-financed engineering colleges have increased many folds as compare to government financed engineering colleges. There is a mushrooming growth of self financed (Private) engineering colleges after 1990.

(iii) There is significant difference in the motivational factors of male and female students on ‘Inborn Aptitude’, ‘Friend Inspiration’ and ‘Enhances Creativity’.


(vii) There is no difference in opinion between the students of different social background that is Rural and Urban on ‘Parents Desire’, ‘Father Being an Engineer’, ‘Friends Inspiration’, ‘Provides Dignity and Status’, ‘Enhances Creativity’, and ‘Global Interaction’ motivational factors.

(viii) There is difference in opinion between the English and Hindi medium students on ‘Interest’, ‘Inborn Aptitude’, Provides Dignity and Status’, ‘Fetches Good Income’ and Better Future Prospects motivational factors.

(ix) The students with Hindi and English medium do not differ in their opinion on ‘Parents Desire’, ‘Father Being an Engineer’, ‘Brother Pursuing

(x) The students belonging to different boards differ significantly on ‘Inborn Aptitude’, ‘Fetches Good Income’ and ‘Provides Better Future’ motivational factors.


(xii) There is a significant linkage between success in selection in technical education vis-à-vis academic background of students in relation to their academic performance in XII boards examination.

(xiii) There is a significant linkage between success in selection in technical education vis-à-vis students belonging to different social categories in relation to their academic performance in XII board examinations.

In part three the implications for the research work discussed. The present study has its implication for educational administrators, teachers/educators and parents. “Education for all” and “The Purpose of Education in a democratic society is to prepare the child not only for a good life but also for an efficient life” becomes meaningful only when we have updated knowledge about the educational institutions, opinion of students about their career choices, the vocational interest and occupation aspirations, pattern of success of students in different professional colleges, pattern of success of students belonging to different boards of the country etc.

In part four suggestions for further studies were included. The investigator is hopeful that the findings of the study will be beneficial to the students and the authority responsible for the improvement and development of the contemporary education. The following suggestions were made for further studies in this field.

1. The present study was confined to analysis of developmental trend of technical degree colleges in Uttar Pradesh. The same can be done for the other states and union territories and country at large.

2. The researcher studied only the developmental trend of degree courses in Uttar Pradesh due to paucity of time. It can be further extended to study of the growth of technical diploma courses in the state.

3. The study was limited to the growth of private and government financed colleges in Uttar Pradesh. It may be further extended to the study of the different branches of engineering colleges in the state.

4. The researchers studied the motivational factors of male and female students in general. It is found that there is no difference in the motivational factors of boys and girls in pursuing engineering courses for higher studies. It is felt that this may not be same for the girls belonging to rural sector. A separate study may be undertaken in future for the same.

5. Since, there is significant linkage between success in technical education and different boards of the country and there is a difference in the
success pattern of students in technical education for different boards. It is suggested that there should be one common board in the country. This will bring a uniform pattern in the selection in various professional colleges of the country.

6. Due to paucity of time the researchers could only study the colleges under UPTU. A similar kind of study may be undertaken for state IIT’s. Also a similar type of study may be undertaken for Medical students, Legal students Arts, Science and Commerce students etc.

7. The present study revealed that there is a J-shaped trend in the growth of technical education. This means that in the past two decades the number of engineering colleges have increased considerable. It is suggested that research may be undertaken to check what percentage of those who finish graduation course work towards post graduation and what percentage of students go for doctoral degree.

8. Research may also be undertaken to see as to what percentage of engineering graduates & postgraduates prefer taking up teaching as profession.

9. The present research findings shows that the increase in self–financed (private) engineering colleges is many times more than the government aided engineering colleges. A research may be undertaken to check how far privatisation has helped to enhance the quality of higher education with special reference to technical education.

10. Research may be undertaken to find out how the tendency to de-emphasize on the responsibility of government in matter of higher education (technical education) has benefited the society.