CHAPTER 8

CONCLUSIONS, FINDINGS AND RECOMMENDATIONS

8.1 INTRODUCTION

This chapter is divided into seven sections. The next section 8.2 presents the major conclusion and finding drawn from the overall research work. Section 8.3 provides the findings and conclusions drawn from the content analytical study performed on the selected NPTEL contents of CG. Section 8.4 presents the inferences derived out from the social survey conducted with learner respondents for the arrival of ‘Strategic Components’ of instructions. Section 8.5 narrates the conclusions and recommendations drawn from the proposed e-content development model. This is followed by suggestions for future research work in section 8.6.

8.2 MAJOR CONCLUSIONS AND FINDING

8.2.1 On the Selection of CG for Case Study

1. It is observed that both the student as well as teacher respondents of South India, when combined with each other have rank ordered “Computer Graphics” as the subject content among Computer Application courses that is most preferable for e-Mode of delivery. This preference is based on concept instructions; usage of multi-media components; possibilities of dividing subject contents/topics into small and independent modules.
8.2.2 On the Instructional Effectiveness of Existing e-Contents of CG of NPTEL

2. It is clearly demonstrated through this research study, that the instructional strategy followed in the CG subject e-contents of NPTEL is found to be both informative as well as instructive, and media components have been effectively used. It is also reported through investigation that no explicitly developed instructional model has been adapted. The entire instructive strategy followed is found to be linear.

8.2.3 On the Suggestion of Modular Approach for CG e-content

3. It is concluded that the instructional approach as well as instructional strategy that is to be adapted for e-mode of delivery of CG, needs to be treated differently from that adapted by certain existing techniques used for the same subject content in similar e-Modes of delivery. In addition, the technique proposed by this research study augments many documented findings of literature. The major finding of this research work suggests modular approach in the form of objects for e-content development and delivery. This inference has been clearly demonstrated through experimentation and validation in this research work. These are supported by the experimental and analytical results that are documented in this thesis.

Various other conclusions and findings drawn out of this research work are presented below. They are grouped under different components
(considered in similar lines for the research) based on research questions and research objectives specified in chapter I.

8.3 CONCLUSIONS ON CONTENT ANALYSIS

4. The introductory module of CG is found to be about 7 times more informative than instructive. The learning ability is found to be predominantly demonstrative followed by integrative.

5. The module on ‘Display Devices’ of CG is found to be almost equally informative as well as instructive. The learning ability is once again found to be predominantly demonstrative followed by integrative.

6. The ‘2D Transformation’ module is found to be about 9 times instructive than informative. The informative part of this module is virtually activating simple basic information; where as the instructive part of the same module is virtually demonstrative.

7. The ‘3D Graphics’ module is found to be twice instructive than informative. As long as the learning abilities are concerned, the informative part of this module is even though found to be predominantly demonstrative; other portrayals also do exist unlike other modules. But in the case of instructive part of the same module it is found to be virtually demonstrative.
CONCLUSION

It is concluded that the instructional strategy adapted in the e-content of NPTEL on CG is both instructive as well as informative. Media components have been effectively used. However, no specifically researched upon instructional model has been adapted for the development. ‘Application’ and ‘Activation’ of the ‘First Principles of Instruction’ have been found to be sparingly applied. An important finding of this e-content is that the entire e-content of CG is linear in its instructional approach.

8.4 CONCLUSIONS ON INSTRUCTIONAL PREFERANCES FOR e-MODE OF DELIVERY

Pre-tests for determining instructional effectiveness so as to arrive at instructional constituents for the proposed model have been conducted. These pre-tests have been done through social survey. Concluding remarks on the constituents derived out of the survey are presented below.

8. Most of the learner respondents prefer 3 to 15 minutes duration for viewing one e-content episode.

9. Most of the learner respondents prefer 10% to 50% volume of animated graphics in one e-content episode.

10. Almost all learner respondents prefer for small and independent modules and segments for e-learning.

11. Most of the learner respondents prefer for logical sequencing of modules.

12. Almost all learner respondents prefer for stressing of concepts in instructions.
13. Most of the learner respondents do not prefer for many numerical examples.

14. Most of the learner respondents do not prefer for many questions on critical/analytical ability testing.

15. Almost all learner respondents do not think that large detailed pictures and diagrams would be impressive.

16. Almost all learner respondents do not think that elaborate menus for navigation would be needed.

17. Almost all learner respondents do not think that long duration videos would be necessary for impressive instructions.

18. Almost all learner respondents need elaborate introduction for both current as well as pre-requisite topics.

Finding

It is found from the social survey that e-content instructional episodes need to be in small and independent modules. The social survey conducted on learner respondents has revealed that too much usage of videos and detailed pictures might not be impressive. Merrill’s cognitive structure components may well be applied in objects and segments.

8.5 ON PROPOSED INSTRUCTIONAL MODEL

Observation

The proposed instructional model has incorporated certain essential features that are observed:

i. The model incorporates small and independent objects for instructional episodes that has many advantages.
ii. The model incorporates i. ‘Real World Problem’; and ii. Merrill’s Cognitive Structures;

iii. The SCO under ‘Black Box’ is observed to be highly complex in its meta data design and programming.

iv. The model has been subjected to experiment and validated through survey on user/learner respondents.

v. The meta data suggested by the research work is the main document that manages the ‘Black Box’. It executes instructional episodes through extracting required objects for instruction. It decides on episodic objects and pre-requisite objects for each segment for effective instructions.

Conclusions

19. User learner respondents have expressed their overwhelming impressions on the effectiveness of the proposed e-content instructional model.

Recommendation

Thus the proposed instructional model for instructing CG through e-content has been evolved, experimented and validated. Therefore the model is recommended for adaptation for instructing similar e-contents.
8.6 SUGGESTIONS FOR FUTURE WORK

1. This work has limited its scope only to the course on ‘Computer Graphics’ of Computer Applications. This research could be extended in proposing a suitable instructional model that would be tried out on other Computer Application subjects.

2. Research on SCO under ‘White Box’ with user preferable selection may be tried out through extensive research.