CHAPTER 5
SUMMARY OF
FINDINGS, SUGGESTIONS AND CONCLUSION

5.1 FINDINGS

5.1.1 FINDINGS FROM ANALYSIS OF PERSONALITY DIMENSIONS
OF THE STUDENTS

1. All the students spend some additional hours at the AeL and the additional hours spent by the students per week at the AeL are minimum so that it implies that the five hours allotted by the Anna University are enough to the students.

2. The majority students (76.2 percent) depend on the AeL for getting Tamil translation for the difficult terms and technical expressions used in the subject that facilitate the students for easy learning.

3. Majority of the students (57 percent) view the AeL as the substitute to the home tuition because of the convenience enjoyed by the students from Tamil translation, usage at any time during the ‘twenty four hour day’ and handling the PC/ laptop at their own convenience. These facilities are not possible to them in the traditional learning methods. 43 percent of the students have the opinion that the AeL is not the substitute to the home tuition. In their experience, the AeL is only a supplement to the learning process and they depend upon the class room teaching as the primary means of learning.
4. The analysis of the marks of students in the first test under the E-Learning method shows that the majority students (49.5 percent) lag behind in their learning.

5. The marks obtained by the students in the second test show that the students have been benefited with the adaptive facilities from the AeL in the forms of Tamil translation, explanations of fundamental concepts etc. So, all the students’ performance has come closer with each other as a result of the AeL.

6. In the second test under the AeL system, it is noted that nobody gets low marks (0-4). And the majority students (80.1 percent) have secured high level of marks (8-10 marks). 19.9 percent students have got the medium marks(5-7). So, this shows that the students have been benefited with the adaptive facilities from the AeL in the forms of Tamil translation, explanations of fundamental concepts etc. So, all the students’ performance has come closer with each other as a result of the AeL.

7. Majority of the students (47.3 percent) strongly agreed to practice the AeL as a part of learning process and preparation for examination. 22.2 percent students agreed in this regard. These two segments are eager to adopt the AeL regularly. The Tamil medium students and the average students come under the two segments. 18.1 percent of the students expresses the reluctance to the AeL. This shows that they are satisfied with class room teaching only and their perception in the class room does not favour for the AeL. Minimum number of students (18.1 percent) do not take any stand in this regard and this implies that they are not familiar with the practice of studying from the computer monitor so that it is known that they should be guided and accustomed with this practice.
8. The consented segments (‘agree’ – 33.3 percentage: ‘strongly agree’
group 18.8 percent) form the majority in respect of the practice of taking
print outs from the AeL platforms. This implies that the students use the
AeL provision in an effective way. But at the same time, 21.5 percentage
students disagree this practice and 2.9 percent of the students strongly
disagree it. This means that they utilise the AeL at required extent not at
the maximum possible extent. 23.5 percent of the students are of neutral
and it is known that they are indifferent towards the facility.

9. Spending extra time for the AeL is supported by majority of the students
(36.2 percent) and it is strongly accepted by the 15.8 percentage to the
students. So, it is clear that the students are very much interested it this
new type of learning. On the other hand, 28.3 percentage of the students
do not agree it and 6.6 percentage of the students strongly refuse this. It
implies that their attitude is not favourable to this. 13.1 percentage
students do not take any stand in this regard.

10. In respect of the dependence on the AeL, majority of the students (36.7
percentage) strongly agree that they depend on the AeL. 29.9 percentage
students agree it. So, both the segments of the students depend on the
AeL for their effective learning. 2.9 percentage students strongly
disagree so that they learn from the lectures in the class rooms and self
studies. 15.2 percentage students follow them and they do not depend
upon the AeL. The state of 15.4 percentage students is neutral and they
do not clear in their way of learning.
11. The two disagreeing segments of the students (9.7 percentage for disagreeing: 18.1 percent for strongly disagreeing) do not think that the AeL is the only method to support the studies. They utilise the AeL but they do not have the hope towards the AeL beyond a certain limit. 24.2 percentage of the students are of neutral and they are not in a position to take any stand in this regard. This analysis shows that a part of the students are not in clear in their perception towards the usage of the AeL.

12. Majority of the students (34.2 percentage agree and 29 percentage strongly agree) have been accustomed with the habit of group study. So, if they are strong in this attitude, the AeL will not be useful to them. But, they should be trained to utilise the AeL at the maximum possible extent. But, small number of groups (5.9 percentage disagree strongly and 14.7 percentage agree merely) do not have such type of belief. They can be motivated easily to use the AeL for effective learning. The neutral group is of 16.3 percentage and the group should also be accustomed with the use of AeL in future.

13. Multi tasking is enjoyed by majority students (31.9 percentage) and it depends upon the capacity and curiosity of them. This type of tendency leads to multi speciality in them at the time of AeL. 26 percentage are also agreeing with it. But, 20.8 percent of the students disagree and minimum number of (2.9 percentage) of the students disagree with it strongly. This attitude shows that the students use their concentration at the time of AeL on learning only. Neutrality is the state of mind in this regard to 18.3 percent of the students. This perception of all the categories of the students are purely personal attribute and the provision of AeL need not be changed in any way.
14. In the case of depressed state of feeling at the time of seclusion, majority students (38.2 percentage) do not agree with it and it is ascertained from their perception, they are liking solitude. But, agreed groups i.e, students getting depression, are of 18.3 percentage (agreeing) and 13.8 percentage (strongly agreeing). 19.5 percentage of the students belong to neutral in this regard. This type of peculiar state of mentality depends on the personal life, environment from which they come from and manner how they were nourished from their childhood. But, it is one of the factors that determine the learning process.

15. In respect of the thinking before learning, most of the students (30.8 percentage) agree with it strongly and 30.3 percentage the students agree with it. The two groups makes majority in total and it implies that they think the subject (at little or large extent; for a few seconds or minutes but it is immaterial) before learning process is started. So, it is sure that the students may contribute to the existing stock of the subject matter in future.

16. Among the agreed students, 26 percentage agree with it and 16.5 percent strongly agree with it to make unexpected visits to friend’s place during the studies. It implies that they are confident in their studies so that they don’t mind it. At the same time, 27.8 percent students (maximum number of students in the total) do not agree with it. 10.2 percentage strongly disagree with it. It means that the students do not want to get diversion in their studies.
17. Majority students (29.9 percentage) strongly agree to like inspiring job rather than stable job. 18.1 percentage students agree to search the inspiring job. The students are variety seekers and they always like changes. On the other hand, the other students who do not like to take any risk want to get stable job. 24.2 percentage students and 7.2 percentage students come under this category and they are methodical in nature.

18. In respective of speculative in nature, most of the students (29.4 percentage) agree with it strongly and 26.5 percentage students agree with it. It implies that the students like speculation and it leads them to such attitude. At the same time, 13.8 percentage students and 14.3 percentage students do not agree with it and they want to be in safer side. 16.1 percentage students are of neutral.

19. Majority students (28.5 percentage and next 27.6 percentage) agree that they infer the feelings of others from their facial inferences. This shows the atypical attitude of the students. But, nearly less than half of the students (12.4 percentage for strongly disagreement and 14.7 percentage for agreement) refuse such type of mentality. This is the regular nature of the students. 16.7 percentage of the students do not take any stand in this regard.

20. While making representations, majority of the students (27.4 percentage) limit the matter themselves efficiently. 19.2 percentage students strongly agree with it. On the other hand, 22.9 percentage students do not agree with it. 6.3 percentage students disagree with it strongly. This means that they do not cut short the maters during the presentations.
21. Majority of the students (29.4 percentage) agree strongly that they infer the relationship between situations. Next, 26.5 percentage students agree with it. So, it is clear that the students have the potentiality to know the existence for relationship. At the same time and 13.8 students (disagree strongly) and 14.3 percentage students (disagree) do not agree this statement. They are not in a position to make such deduction. 16.1 percent students do not have any opinion in this regard.

22. Majority students (29.4 percentage) agree strongly the fact that they prefer to the job that offers variety. 18.8 percentage students agree with it. So, the students seek different jobs that gives different experience. At the same time, the other two segments of the students (17.6 percentage – strongly agree: 21.5 percentage – agree) do not prefer such type of job.

23. Majority students (26.5 percentage) say strongly that they are likely to take decisions quickly in some situations. 25.6 percentage students agree with it. This type of inclination may lead to wrong decisions and they may get sufferings in future. But, the students do not care about it. The other two opposite groups (9.3 percentage – strongly disagree: 15.4 percentage disagree) do not accept this kind of attitude. This shows that they are very diligence in their decisions.

24. Enjoyment of exploring nature is supported by 29.4 percentage students (strongly agreed group) and 26.5 percentage students agree merely. This type of proclivity shows the desire for enjoyment of the students. On the other hand, 13.8 percentage (strongly disagree) and 14.3 percentage (disagree) do not accept this. 16.1 percent students are not taking sides.
25. Majority students usually make plans for their travel. (31.9 percentage strongly agree: 25.6 percentage agree). It shows their pre planned nature in many respects. On the other hand, the two opposite groups (8.8 percentage- strongly disagree: 13.8 percentage – disagree) do not have this attitude. This shows that the students of the two segments usually go travel without proper plans. 19.9 percentage students are at middle-of-the-road in this regard.

26. In respect of the learning from the external environment, minority students learn many things and it shows the perceived capacity of the students. In this regard, 16.7 percentage students fall under the category of strongly agree: 15.4 percentage students come at the category of agree. Majority of the students are of the opposite ground and they (22.2 percentage disagree: 28.7 percentage – strongly disagree). 17 percentage of the students are neutral. So, the majority of the students are of common and they cannot get anything at their effort in the external environment.

27. In the case of usage of forums and chatting with the group members in respect of subjects, majority of the students (18.6 percentage – agree and 24.9 percentage – strongly agree) use the forums for their academic development and they usually chats with the group members. This practice is one way of getting exposures. Nearly exact percentage of the students stand on the other end (13.6 percentage – strongly disagree: 27.6 percentage disagree) and they do not use the forums for development of knowledge.

28. Enjoying the debates is not accepted by majority of the students (26.5 percentage – disagree: 29.4 percentage- strongly disagree). The students do not have the capacity of debating so that they do not support this
statement. At the same time, the other two groups of students (13.8 percentage strongly disagree: 14.3 percentage disagree) agree with it. As they want to get different exposures from this debating and this makes the students be more interactive.

29. In respect of the given exercises at the end of the each topic, nearly half of the students stand in two sides. In the case of agreed groups (16.5 percentage – agreed strongly : 21.9 percentage – agreed), they prefer such exercises because the exercises are for benefits of development of knowledge level. On the other side, 14.3 percentage students (disagree) and 24.9 percentage students (strongly disagree) do not accept this. They are not willing to work out the exercises. 22.4 percentage students are at the middle of two segments.

30. Most of the students (26.5 percent –disagree: 29.4 percentage – strongly disagree) do not accept this practice. From their own experience, they usually go through some fundamental topics. It is useful to them to understand the required topics of the syllabi. The minority groups (13.8 percentage strongly agree: 14.3 percentage- agree) do the practice of going to the particular topics as they are familiar with the fundamental topics.

31. Majority students (31.3 percentage- strongly agree: 20.1 percentage agree) have a predetermined idea that they prefer final examination only rather than the regular unit tests. At the same time, the other two segments of opposite groups (14 percentage – agree: 23.1 percentage – strongly disagree) accept the unit tests and they are willing to revise their portions at intervals. 121.5 percentage students stand non aligned.
32. Majority students (13.1 – disagree: 33.3 percentage – strongly disagree) want suspense in the novel so that they never demand to get the story outline at the time of novel reading. But, the other two groups (13.8 percentage strongly agree: 18.8 percentage – strongly agree) like to get the outline at first instance to go to the novel.

33. In respect of the focus on the current work rather than the worries about the end results, majority of the students (24.4 percentage - strongly disagree: 14.3 percentage – disagree) do not accept the concept and they worry about the end results of the process. The other two segments (20.4 percentage students – strongly agree : 17.2 percentage - agree) focus on the current work rather than the end results. This attitude is applicable to the learning also.

34. Majority of the students (33 percentage – strongly disagree: 14.3 percentage disagree) do not like to get exact topics of interest from the drop-down and they use the next button. The reason for this is the ignorance on the facility. But, the other two groups (16.5 percentage – strongly disagree: 18.1 percentage – agree) use the facility properly and it shows that they are well versed in the usage pattern of the AeL.

5.1.2 RESULTS OF Chi-square TEST

1. There is significant association between gender and marks in Test-1.
2. There is significant association between gender and marks in Test-2.
3. There is significant association between occupation of parent/guardian and marks in Test-1.
4. There is no association between occupation of parent/guardian and marks in Test-2.
5. There is significant association between income of parent/guardian and marks in Test-1.
6. There is significant association between income of parent/guardian and marks in Test-2.
7. There is significant association between medium of study and marks in Test-1.
8. There is significant association between medium of study and marks in Test-2.
9. There is significant association between place of nativity and marks in Test-1.
10. There is significant association between place of nativity and marks in Test-2.
11. There is significant association between type of student and marks in Test-1.
12. There is no association between type of student and marks in Test-2.
13. There is significant association between family educational background and marks in Test-1.
14. There is significant association between family educational background and marks in Test-2.
15. There is significant association between additional hours spent on e-Learning and marks in Test-1.
16. There is significant association between additional hours spent on e-Learning and marks in Test-2.

5.1.3 RESULTS FROM t-TEST

5.1.3.1 Personality Dimensions and Gender of the Students

1. The mean score of adaptability attitude of male students is more than female students.
2. The mean score of introvert/extrovert of male students is more than female students.
3. The mean score of Sensing/Intuiting of male students is more than female students.
4. The mean score of Methodical / Variety Seeker of male students is more than female students.
5. The mean score of Reflective/Active of male students is more than female students.
6. The mean score of Sequential/Global of male students is more than female students.

5.1.3.2 Personality Dimensions and Medium of Study of the Students in the HSC

1. The mean score of adaptability attitude of English medium students is more than Tamil medium students.
2. The mean score of introvert/extrovert of English medium students is more than Tamil medium students.
3. The mean score of Sensing/Intuiting of English medium students is more than Tamil medium students.
4. The mean score of Methodical / Variety Seeker of English medium students is more than Tamil medium students.
5. The mean score of Reflective/Active of English medium students is more than Tamil medium students.
6. The mean score of Sequential/Global of Tamil medium students and English medium students are same. The difference in the mean score of Tamil medium students and English medium students is only due to chance factor.
5.1.3.3 Personality Dimensions and Nativity of the Students

1. The mean score of adaptability attitude of the rural students is more than the urban student.
2. The mean score of introvert/extrovert of the rural students is more than the urban student.
3. The mean score of Sensing/Intuiting of the students of the rural students is more than the urban student.
4. The mean score of Methodical / Variety Seeker of the rural students is more than the urban student.
5. The mean score of Reflective/Active of the students of the rural students is not more than the urban student. The difference in the mean score of rural students and urban students is only due to chance factor.
6. The mean score of Sequential/Global of the rural students is not more than the urban student. The difference in the mean score of rural students and urban students is only due to chance factor.

5.1.3.4 Personality Dimensions and Type of the Student

1. The mean score of adaptability attitude of the day scholar is more than the hosteller.
2. The mean score of introvert/extrovertness of the day scholar is more than the hosteller.
3. The mean score of Sensing/Intuiting of the day scholar is not more than the hosteller. The difference in the mean score of day scholar students and hostellers is only due to chance factor.
4. The mean score of Methodical / Variety Seeker of day scholar is not more than the hosteller. The difference in the mean score of day scholar students and hostellers is only due to chance factor.
5. The mean score of Reflective/Active of the day scholar is more than the hosteller.
6. The mean score of Sequential/Global of the day scholar is more than the hosteller.

5.1.3.5 Personality Dimensions and Nature of Family Educational Background of the Student

1. The mean score of adaptability attitude of the first generation students is more than the other students.
2. The mean score of introvert/extroversion of the first generation students is more than the other students.
3. The mean score of Sensing/Intuiting of the first generation students is more than the other students.
4. The mean score of Methodical / Variety Seeker of the first generation students is more than the other students.
5. The mean score of Reflective/Activeness of the first generation students is more than the other students.
6. The mean score of Sequential/Global of the first generation students is not more than the other students. The difference in the mean score of first generation students and others is only due to chance factor.

5.1.3.6 Personality Dimensions and Having Enough Text Books

1. The mean score of adaptability attitude of the students and having enough text books is more than the students not having the text books.
2. The mean score of introvert/extrovert students having enough text books is more than the students not having the text books.
3. The mean score of Sensing/Intuiting of the students having enough text books is more than the students not having the text books.
4. The mean score of Methodical / Variety Seeker students having enough text books is more than the students not having the text books.
5. The mean score of Reflective/Active students having enough text books is more than the students not having the text books.
6. The mean score of Sequential/Global students having enough text books is more than the students not having the text books.

5.1.3.7 Personality Dimensions and the belief on substitution to home tuition

1. The mean score of adaptability attitude of the believing students is more than the not believing students.
2. The mean score of introvert/extrovert of the believing students is more than the not believing students.
3. The mean score of Sensing/Intuiting of the believing students is more than the not believing students.
4. The mean score of Methodical / Variety Seeker of the believing students is more than the not believing students.
5. The mean score of Reflective/Active of the believing students is more than the not believing students.
6. The mean score of Sequential/Global of the believing students is more than the not believing students.

5.1.4 PAIRED t-TEST

AeL has resulted in considerable increase in the knowledge level of students before and after AeL.
5.1.5 ANOVA TEST

5.1.5.1 SCORES OF PERSONALITY DIMENSIONS VS. OCCUPATION OF PARENT/GUARDIAN

1. The mean score of adaptability attitude of students differs with respect to occupation of their parents/guardians.
2. The mean score of Introvert/Extrovert of students of students differs with respect to occupation of their parents/guardians.
3. The mean score of Sensing/Intuiting of students differs with respect to occupation of their parents/guardians.
4. The mean score of Methodical / Variety Seeker of students differs with respect to occupation of their parents/guardians.
5. The mean score of Reflective/Active of students differs with respect to occupation of their parents/guardians.
6. The mean score of Sequential/Global of students differs with respect to occupation of their parents/guardians.

5.1.5.2 SCORES OF PERSONALITY DIMENSIONS VS. ANNUAL INCOME

The mean score of personality dimensions of students differs with respect to income of their parents/guardians.

5.1.5.3 SCORES OF PERSONALITY DIMENSIONS VS. ADDITIONAL HOURS SPENT IN E-LEARNING PER WEEK

The mean score of personality dimensions of students differ with respect to additional hours spent on e-Learning per week.

5.1.6 DISCRIMINANT ANALYSIS
Higher the level of agreement on adaptability attitude and sequential/global are likely to have medium level of knowledge and higher level of agreement in consultative/non-consultative are likely to result in high level of knowledge. Also the students with high level of knowledge have a negative centroid.

5.1.7 MULTIVARIATE ANALYSIS OF VARIANCE

1. The factor gender explains about 28% of the total variation in the dependent variables, medium accounts for about 32% variation, place accounts for about 26% variation in the dependent variables. However, nature of the students contributes only around 4% of variation to the total.

2. The univariate tests show that the factor gender which is significant for Test-1 (F=134.88, p=.000) is not significant for Test-2 (F=1.192, p=.276). This shows that AeL eliminates the gender difference in the knowledge level of students. This is also verified by the Chi-square test earlier. The factor medium is significant in both Test-1 and Test-2. But however, medium accounted for 32% variation in Test-1 has come down to only 3% contribution to total variation of knowledge level in Test-2. The factor place played a significant role in Test-1 (F=124.651, p=.000), but not significant in Test-2 (F=.612, p=.434). This means that AeL eliminates the effect of place on knowledge level. The factor nature, which is marginally significant (F=3.464, p=.063) in Test-1, is significant in Test-2 (F=7.235, p=.007). i.e. male/female students with english medium have scored more than male/female students with tamil medium. Also there is a significant interaction effect of gender*nature in Test-2 (F=9.315, p=.002), while it is not significant in Test-1 (F=.014, p=.906). The interaction effect of gender*place is significantly affeting the knowledge level in both Test-1 and Test-2. The interaction effects of place*nature and medium*nature are
significant in Test-1 but became insignificant in Test-2. Also the 3-way interaction between gender*place*nature is significant in Test-1 is insignificant in Test-2. Thus AeL helps in eliminating some effects on the knowledge level.

5.2 SUGGESTIONS

On the basis of analysis and findings of the present research, a new model platform for the AeL is suggested as the end product of the research. The same model used to conduct the Test – 2 is recommended for future AeL process. This model may further be enriched in respect of regional language and simple terminology for highly technology oriented concepts. Further, it is also advisable that the students may be given adequate opportunities to express their feedback at the end of the AeL. It should be a two way communication between the students and the author of the lesson. This facility makes the AeL as a lively one and offers further improvements in the contents, presentation of the lessons and implementation. At the end of every lesson under the AeL, compulsory exercise should be given to the students as this provision will make the AeL very effective.

In developed countries, the students tend to read the lessons one day before it is taught in the classroom by the teacher. At the time of teaching in the classroom as the students are already familiar with the subject, they spend time interacting with the teacher. This type of practice may be encouraged in the Indian class rooms by means of AeL. If the students are acquainted with the subject matter through AeL prior to their classroom teaching, it will help them interact with the teachers.

Personality traits of the students and demography of the students should be given due importance in the design of AeL. The AeL designing authorities should decide what type of AeL platform is suitable to different personality
dimensions and demographic background of the students. At the beginning itself, the AeL should determine what type of student is in front of the computer and what his requirements are? For this, the AeL platform should provide a dialog box consisting of a set of standard questions relating to the nature and requirement of the students. The students may want detailed contents or abridged contents depending on their familiarity with a particular topic. So, it is necessary to prepare the lessons with many altered versions viz., with translation in regional language (entirely or translated words/expressions only), pictorial representations, step by step worked out solutions to problems for some subjects (e.g. Mathematics, Statistics etc.,) and with good physical layout of every page of the lesson. The lessons should have adequate references and foot notes for further readings.

The AeL may be linked with video conferencing / chatting with the authors of the lessons and the subject matter experts. If above suggestions are implemented, the AeL will give fruitful results and the educational scenario will flourish.

5.3 CONCLUSION

In this thesis we primarily considered the impact of Medium of Instruction, Personality traits of students and their knowledge level in determining the performance of a student while going through technical content. It was determined that based on the above mentioned traits there was vast difference between the performance of the students. By adopting the AeL, to address the language barrier, knowledge level and taking into account the personality trait of the students accordingly offering customised content to them, these wide gaps in performance have been significantly narrowed down.

The benefits of AeL were validated by showing the difference in performance while learning through traditional e-Learning and AeL. The gaps
between the students performance were narrowed down when AeL was utilised instead of the e-Learning tool. In addition to the language barrier, it was also evident that understanding the personality traits of each individual and customizing the content offered to them greatly enhanced the performance of the student. In addition to enhancing the performance, the AeL greatly helps in making learning a pleasant and positive experience for the students.

The AeL is a novel attempt to empower students to learn at any time in a twenty four hour day. One of the primary advantage of e-Learning is that quality content could be made available to the students irrespective of their institution or location. The benefit of AeL is that the quality content is customised to the individual needs rather than being limited to the individual faculty. Providing extensive content through a variety of means enhances the benefits offered by the AeL.

5.4 SCOPE FOR FURTHER RESEARCH

The experiments conducted were limited to Regional Medium Engineering students from Southern part of India. The scope can be further expanded to include AeL content for students from non-English speaking countries to perform on par with students from English speaking countries, when the technical contents are offered to them in English. While modeling an AeL to be utilised across the globe, in addition to the personality traits of individuals, cultural differences also can be taken into account. The AeL can be further expanded to make it an effective collaborative learning tool. This will not only give access to the student the best content from across the globe, but also be able to exchange views with fellow students across the globe. The latest technological advancements along with rich digital content (audio-visual) will give a significant boost to further research in this space.