# CAES 9541 Technical English for electrical and electronic engineering

Unit seven

Writing and delivering a conclusion, reflecting on difficulties, signposting and transitions

# Unit seven

## *Writing and delivering a conclusion, reflecting on difficulties and limitations; Practising signposting and transitions*

### *Overview*

A conclusion is not merely a descriptive summary of your work, but your last opportunity to convince and create an impression for your audience. In this unit, you will learn the purposes, structure, the language features of a conclusion, and the differences between it and an abstract, a summary, and an introduction. You will also learn how to reflect on the difficulties and limitations encountered in your project while justifying your decisions and recommending future work. In the oral presentation area, you will practise on the way to give transitions and signposting.

# *Learning Outcomes*

By the end of this unit, you will be able to

- identify the purpose, main components and language features of a conclusion
- articulate the difficulties and limitations of a project
- orally deliver an effective and professional conclusion
- recognise the importance of signposting
- deliver an oral presentation with appropriate transitions

# Writing a Conclusion - Functions

- state if you have accomplished your aims
- provide a brief summary of the major findings and results in your report
- highlight the chief outcomes and the significance of your investigation
- avoid introducing new information
- provide recommendations or needs for future action

# Writing a Conclusion - Structure

- Context
- Comments of findings
- Significance/Contributions
- Limitations
- Recommendations/Implications

1. **Context**
   Begin your conclusion with restating the objectives of your report, i.e., 'Why did you engage in the investigation?' and 'What did you want to find out?' Then move on to summarize the major actions taken to achieve the objectives. For example, 'What did you do?' and 'How did you do it?

2. **Comments on findings**
   Summarize the major results that address the objectives, i.e. 'What did you find out? You should also provide overall comments on the major results. For example, 'How did you interpret the results?' or 'What is your understanding of the results? Qualitative comments will suffice on most occasions.

3. **Significance/Contributions**
   Discuss the contribution of your investigation, i.e., 'How has your investigation solved/not solved the problem you raised' and 'why?' and 'Does your study offer any insight into the topic?

4. **Limitations**
   State the limitations of your study and acknowledge any remaining problems. For example, 'What remaining "gaps" of knowledge of your topic did you not fill in the investigation?' Or 'Can the approach/method/sample size be improved in future?' 'What's the main weakness of this study?'

5. **Recommendations/Implications – DO NOT FORGET THIS!**
   Suggest any recommendations for further research, i.e., 'How could other researchers build on what you have done?' 'What other changes need to be made for future research?'

## TASK 7.1 Identify the main components in a conclusion (10 mins)

Identify the main components in the conclusion of a technical report titled "*CASCADE OF DISTRIBUTED AND COOPERATING FIREWALLS IN A SECURE DATA*". Which components has the writer emphasized more than the others? Why?

### CONCLUSIONS AND FUTURE RESEARCH

Our research addresses the issue of how to place a set of firewalls around a complex network, with varying security needs of the different nodes, in order to minimize cost and delay. This is complementary to the current research in firewalls, which focuses on the design of individual firewalls only. We proposed an Operations Research view into the network security engineering problem arena. Key contributions include a firewall taxonomy, comprehensiveness analysis, decomposed security charter of firewalls, and a suite of firewall placement heuristics. Performance is shown using simulation. Future research includes consideration for multiple entry/attack points and the effect of various network topologies. We are currently conducting research in the direction of fault tolerance (viz. leaks and transient failures) in the firewall. Finally, more sophisticated firewall placement heuristics need to be designed and evaluated. More work is

**Suggested answer**

Context

Significance/ contribution

Comments on methods (justification)

placement heuristics need to be designed and evaluated. More work is needed to find methods for optimizing for individual nodes since, in real life, the needs will not match the level of the topology that leads to the most optimal solution. One question we still have is whether the added cost of hardware and delay is worth the added security. Any added security will require added cost. It is the hope that firewall technology will see very small size, low cost, and fast products that can be added into routers and hosts to provide the firewall security we discussed in this paper. However, we think that encryption technology will improve in the same way, but that each will still play an important role in network security. Also, the detection of intruders attempting to pass through firewalls and those who actually have fooled the system will be made inside the firewall before they do much damage. It is our opinion at this time that H7 is superior.

Additional work is required for the tool that includes the need to build the A, P, and S classes. Also, work is needed on the push-up and push-down graphics. The software will be modified to more accurately handle the OLCA for the configurations that have multiple adjoining common needs.



Recommendations with limitations of current work as justification

Comments on findings

Significance/ contribution

Limitations/future implications

- DO NOT repeat the details of the results and discussion section. Select the most significant one or two findings to comment. Qualitative comments would suffice on many occasions.
- Emphasize the implications of the work and recommendations. The idea is to pave way to new research rather than report of past findings.
- Relate limitations of current work to future work

### 7.1.2 Language of a conclusion

A conclusion reports outcomes of a study, but also points to the future as part of the process of refining engineering knowledge. Thus it points backward highlighting the study and its significance, but also forward to further work. Because of the retrospective and prospective nature of the conclusion, different language patterns and verb choices are required. They have to be selected carefully to give the reader a clear understanding of how any one particular report fits into ongoing developments in the field. Hence, this section focuses on tense choices and how to make claims with the appropriate degree of certainty as illustrated in Table 1.

# Writing a Conclusion – Language: Tense

1. Tense

| Components | General/Dominant Tense* |
|---|---|
| Context | Varies dependent on the situation |
| Findings | Simple Past<br>Present Simple (for comments on findings) |
| Significance/Contributions | Simple Present, and verbs indicating tentativeness (e.g. may, might, appears, seems, is likely, and is possible, etc.) |
| Limitations | Simple Past (may also include words indicating degree of certainty) |
| Recommendations/Implications | Simple Present, and common constructions such as 'should/could/would/must be + ed, or 'X is recommended', etc.) |

*NOTE: The present tense is always used when giving general truths or temporal facts (free from time limitation).

Table 1. Tenses in a conclusion

# Writing a Conclusion – Language: Evaluative and Hedging Expressions

*This is just a reminder as we have learnt these in previous units.*

*Evaluative – Justifying engineering choices*
*Hedging – Reporting and Discussion Results*

2. Evaluative vocabulary

   In addition, highly evaluative vocabulary and expressions such as "This rich variety help arrange good cutting plans to meet the demand lengths and quantities" are expected to accompany all the description of past results and recommendations of future work.

3. Hedging vocabulary

   To enhance the receptiveness of your claims, recommendation, and future predictions, hedging devices are required such as (see Unit 6) may, could, might, appears, seems, is likely, and is possible, etc.

**TASK 7.2 Identify the language characteristics of a conclusion (10 mins)**

Identify the language characteristics of a conclusion of a technical report titled "*CASCADE OF DISTRIBUTED AND COOPERATING FIREWALLS IN A SECURE DATA*". You do not need to comment on every tense, evaluative and hedging vocabulary presented. Just identify one to two examples of the usage of tense described, five evaluative and hedging vocabulary items.

## 5 Conclusions and Future Research

Our research addresses the issue of how to place a set of firewalls around a complex network, with varying security needs of the different nodes, in order to minimize cost and delay. This is complementary to the current research in firewalls, which focuses on the design of individual firewalls only. We proposed an Operations Research view into the network security engineering problem arena. Key contributions include a firewall taxonomy, comprehensiveness analysis, decomposed security charter of firewalls, and a suite of firewall placement heuristics. Performance is shown using simulation. Future research includes consideration for multiple entry/attack points and the effect of various network topologies. We are currently conducting research in the direction of fault tolerance (viz. leaks and transient failures) in the firewall. Finally, more sophisticated firewall placement heuristics need to be designed and evaluated. More work is needed to find methods for optimizing for individual nodes since, in real life, the needs will not match the level of the topology that leads to the most optimal solution. One question we still have is whether the

**Suggested answers**

Context: Conditions affecting the present.
Present Perfect
Simple Present.

Context: past action
Simple Past

Reference to findings:
Simple Present

Contribution: Simple Present

Recommendation:
Simple Present

to the most optimal solution. One question we still have is whether the added cost of hardware and delay is worth the added security. Any added security will require added cost. It is the hope that firewall technology will see very small size, low cost, and fast products that can be added into routers and hosts to provide the firewall security we discussed in this paper. However, we think that encryption technology will improve in the same way, but that each will still play an important role in network security. Also, the detection of intruders attempting to pass through firewalls and those who actually have fooled the system will be made inside the firewall before they do much damage. It is our opinion at this time that H7 is superior.

Additional work is required for the tool that includes the need to build the A, P, and S classes. Also, work is needed on the push-up and push-down graphics. The software will be modified to more accurately handle the OLCA for the configurations that have multiple adjoining common needs.



Limitations: Simple Present

Recommendation: use of modals

Significant findings

Comment on findings: Hedging

Hedging: All the modals in this section, e.g. would, could, etc. mainly for recommendations and prediction of the future.

## 7.3 Articulating difficulties and limitations encountered

Reflecting on problems encountered in the project is frequently overlooked by students according to their supervisors. An important value of conducting a project in school is to have learners improve the problem-solving skills for future work. To achieve that, students should be able to articulate, evaluate, and address the problems. This is perhaps even more important than merely reporting reasonable findings and achieving the expected outcomes in the learning process.

Since this part is not as structured as an introduction and often integrated into sections such as conclusion or future research, reading and identifying this part from a variety of articles will shed light on the ideas to leverage and pitfalls to avoid in your own report.

**Put yourself in the position of a reader**

- Can you understand the difficulty? Can you visualize it?
- Can you assess the **impact and significance** of the difficulty?
- To what extent has the writer overcome the difficulties? How? Any **justification offered if the difficulties are not to be solved**?
- Do these difficulties lead to future work?

# Home Work

**TASK 7.3 Critique writing on limitations and difficulties encountered (10 mins)**

Read the conclusion section of a journal article below. Apply what you have learnt in justifying engineering choices (see Unit 4) and identify the limitations and difficulties encountered. Use the guiding questions in this section to highlight the good points.

*Text 5* [2]

Title: *EFFECT ON RADIO FREQUENCY HUMAN EXPOSURE OF MOBILE PHONE INSIDE AN ENCLOSED METALLIC ELEVATOR*

## CONCLUSION

The effects on the RF human exposure from using a 900 MHz mobile phone inside both fully and partially enclosed metallic elevators have been investigated by numerical simulations.

The peak SAR and the whole body absorption power are evaluated in the free space, in the Types 1, 2, and 3 partial enclosures and in the full enclosure. The peak SAR and the whole body absorption power in the free space are 7.86 W/kg and 0.74 W, respectively, for 1 W input power of the mobile phone model. Among the three partial enclosures from the Types 1, 2, and 3 models, the peak SAR value and the whole body absorption power of the Type 3 is the greatest, and is only increased by 6.1 and 5.4%, respectively, compared with the free space values. From the results, it is seen that the partial enclosures cause minimal effect on the human exposure as large amount of RF energy is lost through the aperture of the configuration.

For the full enclosure, the effect on the RF human exposure is significant due to the resonance effect. The peak SAR and the whole body absorption power are substantially increased by 14.6 and 50%, respectively, compared to the free space values which are the highest level of field

## TASK 7.4 Critique the writing of Conclusion section

Below are three writings of the conclusion section from previous students. Can you identify the features stated in section 7.1.1 Work with a classmate or in a small group, suggest ways to improve the content as well as the language.

As the system is not perfect, there are still lots of suggestion to be done. Nevertheless, when more components are added into the circuit, the system will be more costly and the power loss will be greater. As the aim for this project is to help those bus stations without light lighting without using electricity from generators, solutions for serious problem we have to use. Yet, those ideas for better performance, we should treat as a further discuss and future use.

Using of renewable energy is one of our choices. Choosing of solar panel may not be the perfect power source. It is the product that is the most mature. Since this system work here, we do believe the system will also be work under sunshine and light as night. When solar panel mature get further improvement, power and lux receive will be increase. Hence, the whole lighting system can be applied into larger system, i.e. house light.

One disadvantage of the whole system is expensive. Unless, the buyer is rich very much and he wants to make his own contribution on energy conservation. Otherwise, 100 years for paying back is too long. Although advertisement can help to earn money, advertisement is still earning without the system.

As there are two parts, battery part and LED part. Both parts contains different point of view while considering factors. Battery is concerning about the mAh and number of packs while LED concerns about the number of lights will be used, lumen, lux, start up voltage, etc. By designing the system and making the product, there are many things I learnt. For example, I learn how to choose MOSFET; I learn how to use signal generator; designing test procedure; debug technique on hardware, etc. For all these I have learnt, it will be helped in my career and the understanding of teaching materials.

Objectives achieved?

Future research?

Implications?

Organisation of information
Use of connectives
Informal language

Limitations?

What?

Put somewhere else?

# Student B

## 6. Conclusion

The 300W 12V LLC converter is with passive diode have a maximum efficiency of 93.7%.However, the full load efficiency only have 89.1%. For the convert with Synchronous Rectifier, the maximum efficiency is 96% and the full load efficiency is 94.5%. It is because there is no forward voltage when the MOSFET is turned on. Assume the normal forward voltage of the diode is 0.7V, then at full load:

0.7 X 25A= 17.5W

It can save almost 17.5W at 300W output, which is around 5-6% improvement of the efficiency. Accounting to the experimental result, the efficiency of the passive diode is 89.1%. The efficiency of the current self- synchronous rectifier is 93.4% (TO-220) and 94.6% (PG-TDSON-8). The improvement is 4.3% (TO-220) and 5.5% (PG-TDSON-8), which is very close to the assumption.

Student B

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Significant findings

Objectives achieved?

Overall, this conclusion focuses only on results. There is no mention of limitation, implication and future research

Student C

## Conclusion

In this project, the main objective is to design a prototype of game machine which provides entertaining functions. Its feature is “motor games, all in one” and innovative and unique gaming are provided. Thus, the project has fulfilled the two sub-objectives. The first one is to provide interesting motion control patterns of motors during standby mode. This patterns are similar to the patterns of blinking LEDs. The second one is to provide games function through the implementation of the chessboard, control panel and the Arduino boards.

Experimental results indicate that the objectives are fulfilled. The prototype developed acts as a starting point to develop an industrial gaming machine. This prototype enables the users to play the trial version of the gaming. The design of system can be easily improved since any modification can be implemented through the adjustment of the programming codes. In addition, the game rules can be changed by inputting different programming codes. This prototype, it can be transformed to a gaming machine after improving the system and fixing the bugs.

However, there exists room for improvement, for instance, the appearance and additional advanced features. Since the all the components are mounted on an acrylic board and a breadboard, it is not very attractive. In addition, the efficiency of the driving circuits of motors can be improved and more advanced features such as touchscreen and music players can be implemented in the future.

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Objectives achieved

Brief description of deliverables

Significant findings, Potential of product Implications

Limitation, Future development

# Oral Presentation

# TASK 7.6 Critique the conclusion presented by previous students



- Watch a number of clips of presentation made by former HKU engineering students.
- Identify the structure of a conclusion.
- Excluding pronunciation and grammatical mistakes, do you think these students provide an effective conclusion?
- Why?

- The structure of a conclusion in a presentation is similar to one in writing. Remember what you have learnt in this unit regarding the essential components in Section 7.1.

- Features in the Conclusion
  - Summarize the main findings
  - Make recommendations (if any)
  - Give a complimentary closing
  - Thank the audience
  - Invite questions

# TASK 7.8 Observe how to articulate challenges and solutions



- Watch a demonstration of testing an autonomous airplane by a group of students. Discuss with your partner **whether and how they can identify** the main problems and solve them accordingly. Are you impressed by how they approach the problem?

- Source: http://www.youtube.com/watch?v=VqLlvrMsWc0 (0:47 – 2:13)

# Signposting and transitions

# 7.6 Signposting and using transition in oral presentation

## A list of signposting expressions

- What I plan to cover is…
- To begin with…
- To start with…
- I'd like to start by explaining / telling / describing / listing…
- Now I'll move on to explain / describe/ discuss...
- Having just outlined X, I'd like now to look at/ turn to/ discuss/ explain
- The last part/ example is….
- This brings me to the next part/ ideas/ section/ reason/ idea…which is….
- That brings me to the end of my presentation

# TASK 7.8 Identify signposting expressions in an introduction

- Watch an introduction of an authentic group presentation on non-verbal communication by university students. Identify the signposting expressions. How are these expressions different (in terms of the word types, numbers, etc.)?
- Video: http://www.youtube.com/watch?v=8zOniRgF330 (0-1:00)

**Suggested answers:**

we will be introducing today …, and talking about…
we will be going over ... (using verb)
Now let's move on to … (using verb)
Now it's really important to remember that … (using adjective)
There are two types of non-verbal communication … (using numbers for signaling)

The speaker used different language forms: verbs, adjectives, numbers, etc.

# Signposting and Transitions

- the use of number in the introduction
- the repetition of the key message in the conclusion
- http://www.youtube.com/watch?v=UF8uR6Z6KLc
  - Beginning: 0-1:00
  - Conclusion: 14:25

# Transition between speakers

- TASK 7.9 Identify transition expressions
- Listen to the following clip in demonstrating the transition from one speaker to the next. Do you notice what the first speaker do before transitioning to the next speaker? What does the next speaker do immediately after the transition?

- http://www.youtube.com/watch?v=8zOniRgF330
  - Beginning: 0-1:00;
  - Transition: 8:47-9:05; 16:25-17:00

**Suggested answer:** The first speaker provided a one-sentence mini-conclusion of her section and then introduced the next speaker and her topic. The next speaker thanked the first speaker and then reiterated her topic before moving on.

## Examples for Handover in Group Presentations

*Current Speaker*

Now, I will hand over to X who will talk about…
Now, I will let X tell you/talk about…
Now, X will talk about…
Now that I have finished telling you about A, X will tell you/talk to you about…
X will now present…
That's all I will tell you/talk about A and now X will talk/tell you about…
Please give your attention to X who is going to talk about…
I'd like to hand over to X who will…
Ok, that's all from me and now X will…

*Next Speaker*

Thank you X. I'll be talking about…
Thank you X. As X said, I'll be telling you/talking about…
OK. Thanks X. I'll begin by…
Thank you X. What I plan to cover in this part of the presentation is… Right. Thank you.
This part of the presentation is about/will cover…

## Key points to remember

- The conclusion is your last opportunity to convince your audience. Include:
  - Context/Background (general: simple present; purpose: simple past)
  - Findings (simple past)
  - Significance (simple present)
  - Limitations (simple past)
  - Recommendations/Implications (simple present or future)
- Vary the degree of certainty. Do not be over-assertive or over-hedge
- Emphasize on transitions and signposting regardless of whether you are presenting individually or with your group members. Tell your audience where you have been before, where you are now, and where you are going to go next.

# Reminder

- Progress report DUE 5 Mar (Mon)
- Follow the submission instruction (on Moodle)