When we teach children to write, they also learn to think.

Bruner, 1973
Applebee, 1984
When we teach students to write critically, they also learn think critically.

Berthoff, 1981
Ellis, 1994
Gleichsner, 1994
Newspeak

A fictional language where the number of words and synonyms is drastically reduced, and the intensity and emotion behind the words is suppressed, allowing *The Party* to limit the population’s perception of the world.

Supported by research in linguistics and psychology, e.g., Bruffee (1986)
Session Overview (What to do)

- Before Beginning
- Essay Structure
- Writing Style
- Term-Time v. Exam Essays
- Practice and Checking
- Exam Essay Example

Handout Overview (How to do it)

- Essay Terms Explained
- Essay Structure Diagram
- Examples
- Advice on Forming Arguments
- Writing Style Tips
Goals of an essay:

1. Demonstrate critical thinking and writing
   (≠ regurgitation; > description/summary)
2. Make it easy for the reader to navigate through the points towards the conclusion
3. Answer the question!

Common criticisms:

- Not enough critical writing
- Too descriptive
- Poor structure
- Doesn’t answer the question
- Includes unnecessary info
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3. To **answer the question**!

Common criticisms:

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- Too descriptive
- Poor structure
- **Doesn’t answer the question**
- Includes unnecessary info
Question:

**Examine** the usability and security of passwords.

- Establish key facts relevant to password usability and security
- Justify why these facts are important, in context
- Give a verdict about password usability and security based on evidence you provide
Question:
Examine the usability and security of passwords.

Argument:
It is the proliferation of passwords across multiple devices and services, rather than the nature of passwords themselves, that makes them unusable, which threatens the security they offer.
Before Beginning

Section 3 of handout

• Make sure you **UNDERSTAND** the question

• Formulate your **ARGUMENT** to decide on essay structure

• Create a **PLAN** and **OUTLINE** your essay

• "To what extent"
  "Compare"
  "Explain"
  "Analyse"
  "Critically evaluate"
Structure

Section 3 of handout

• Research, organise notes, and plan an outline *before* you start

• Structure your essay points around your *main argument*

• What *questions* might the reader have about your argument?
Structure: Introduction

Aim = Introduce your central argument

Approaches:

- **Tell** the reader what your argument will be
- Turn your argument into a **hypothesis**
- Indicate the **direction** of argument
- Frame your argument as a **question**
- State the **objective** of the essay
- State the **focus/what** the essay will cover
Structure: Introduction

Section 3.1. of handout

Some starting points:

• Re-write/explain how you interpret the question/show your understanding of the task set
• Challenge or (re-)define the issue/topic
• Engage with definitions of terms
• Establish the historical/social/economic/political context
• Summarise/describe the starting/common position, relevant theory, or other perspectives
• Indicate how you will answer the question in your structure
• Give a summary of the main issues/themes
• Tell the reader why the question is important/interesting/relevant (so what?)
• State argument: topic + purpose
Caution!

An introduction should:

- Avoid information that is too general ("Security is important")
- Avoid too much general information (quantity)
- Get to the point quickly
- Provide a mini outline
Structure: Body

Section 3.2. of handout

Each main idea/point in the body of the essay is a separate section (paragraph), for example:

- **Paragraph 1:** Security demands are not ideal for usability, but manageable in themselves
- **Paragraph 2:** Security demands + proliferation of services means users can’t remember them
- **Paragraph 3:** Users develop “hacks”, which reduce the level of security passwords offer
Structure: Body

Section 3.2. of handout

- An essay is not a record of everything you know
- An essay is not a list (like this is)
- An essay requires selectivity
- Descriptions and facts don’t speak for themselves
- Organisation is key!
The whole is greater than the sum of its parts

Kurt Koffka, Gestalt Psychologist
Sum of Parts

The Whole

**Gestalt** [ɡəˈtalt] "shape, form"
A strong essay is one that develops an argument

**Between paragraphs:**

- Consider how the **order** of paragraphs helps you progress your argument
- State the **progress** of your argument
- Pay attention to **transitions** between paragraphs

**Example:** "[...] Passwords are only as secure as the mechanisms users rely on to **generate and store** them.

When it comes to **generating and storing** passwords, users are told to pick a password that is new and unguessable, and then not to write it down [...]"
A strong essay is one that develops an argument

**Within paragraphs:**

- Use clear **signposting** with a topic sentence (key idea/point)
- Don’t just state your point, *demonstrate* it with **examples/evidence**
- Explain how this contributes to your argument in a **comment** at the end
Structure: Conclusion

Section 3.3. of handout

• Answer the question by restating the **argument** in a single statement.

• Support this statement by **synthesising** and **evaluating** the content of your essay.

• Bring to a **close**: what’s the significance of the argument, in context?
Caution!

A conclusion is not:

- A hit-and-run
- Just a summary
- A place to introduce new evidence or information
- A copy of the introduction
- A place to voice sentimental or emotional appeals

“In summary, ...”

“And another thing!”

“We must...!”

“That’s all folks!”

“I think...”
What an essay conclusion is:

- A place for analysis (rather than description)
- Based on reasoning/evidence presented in the main body of the essay
- Where you present your final answer to the essay question
- Where you round it up, for example:
  - Create a sense of closure; link last point back to first point
  - Put into larger context
  - Consider the implications
  - Identify gaps/future directions
  - Redefine a key term/assumption in essay question
## Writing Style: Academic Voice

<table>
<thead>
<tr>
<th>Tip</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Be confident (but not arrogant!)</td>
<td>“This essay <strong>aims to</strong> show that <em>a</em> has an impact on <em>b</em>” → “This essay shows that <em>a</em> has an impact on <em>b</em>” → Or even just: “<em>a</em> has an impact on <em>b</em>”</td>
</tr>
<tr>
<td>Be critical (but not judgemental or dismissive)</td>
<td>Ask ‘how’, ‘why’, ‘what if’, and ‘so what’ (objectively)</td>
</tr>
<tr>
<td>Avoid colloquial (informal) language</td>
<td>Contractions, phrases/expressions, aphorisms, clichés, everyday abbreviations, regional language, certain words (<strong>section 5.1. of handout</strong>), etc.</td>
</tr>
<tr>
<td>Spell out the acronym the first time it is used</td>
<td>“The practical is to program a Subscriber Identity Module (SIM) card on the user’s phone”</td>
</tr>
</tbody>
</table>
Writing in 1st Person
Section 5.3. of handout

Avoid writing in first person in essays

But!
• Depends on the reader
• Common in papers and articles
• Common in computer science
• Know your audience
• Does it make your sentence easier to read?
## Writing Style: Grammar

<table>
<thead>
<tr>
<th>Tip</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Avoid contractions</td>
<td>don’t → do not (see Reference R2.5. of handout)</td>
</tr>
<tr>
<td>Use commas, colons, and semicolons</td>
<td>Section 5.5. in handout</td>
</tr>
<tr>
<td>Use commas, colons, and semicolons</td>
<td>“The authors provided a protocol and offer an alternative ...”</td>
</tr>
<tr>
<td>Use tense consistently</td>
<td>“The authors provide a protocol and offer an alternative ...”</td>
</tr>
<tr>
<td>Use tense consistently</td>
<td>(see Reference R4. of handout)</td>
</tr>
<tr>
<td>Prune your adverbs, especially intensifiers</td>
<td>“very”, “quite”, “actually”, “really”, “only”, “relatively”, “probably”, etc. (see Reference R2.4. of handout)</td>
</tr>
</tbody>
</table>
The road to hell is paved with adverbs

Stephen King
## Writing Style: Word Choice

<table>
<thead>
<tr>
<th>Tip</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use specific words</td>
<td>“Reliability is <strong>something</strong> in experimental science that ...” → “Reliability is a <strong>concept</strong> in experimental science that... (see Reference R2.2. of handout)</td>
</tr>
<tr>
<td>Avoid filler words</td>
<td>“Even”, “basically”, “just”, “anyway”, “obviously”, etc. (see Reference R2.3. of handout)</td>
</tr>
</tbody>
</table>
| Know the difference between commonly confused words | Their: belonging to (“It was **their** computer”)  
There: a place or situation (“The computer is over **there**”)  
They’re: they are (“**They’re** at the computer lab”) (see Reference R2.6. of handout) |
| Avoid incorrect use of common words/phrases | “Literally”, “could/would/should of”, “use to”, “like”, “alright”, “alot” etc. (see Reference R2.7. of handout) |
When I saw how much it cost, my head literally exploded!

You seem to have healed surprisingly well.
**Writing Style: Simplify**
Be precise, concise, and clear!

<table>
<thead>
<tr>
<th>Tip</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Shorten words</td>
<td>Utilise → Use</td>
</tr>
<tr>
<td>Avoid redundancy</td>
<td>“In order to demonstrate ...” (see Reference R2.3. of handout)</td>
</tr>
<tr>
<td>Shorten and split sentences</td>
<td>Replace “and” with full stop or semicolon (Section 5.4.1. of handout)</td>
</tr>
<tr>
<td>(Re-)consider the syntax (subject/doer, verb, object/receiver)</td>
<td>“Who/what is doing the action to whom?” (Section 5.4.2. of handout)</td>
</tr>
<tr>
<td>Use the active voice (mostly)</td>
<td>Section 5.4.3. of handout</td>
</tr>
</tbody>
</table>
The active voice is easier to read and to remember than the passive voice

Coleman, 1964; 1965; 1968
Spyridakis & Isakson, 1998
Writing Style: Citations and Referencing

- Cite information sources, even when paraphrasing
- Avoid plagiarism
- Keep your ideas separate from information and thoughts in cited literature
- Reference your sources (in ACM or IEEE style)
- Avoid too many direct quotes
If you can’t explain it simply, you don’t understand it well enough

Albert Einstein
Practice and Checking

Essays provide practice:

- For exams
- For your handwriting

Re-read (and expect to make revisions):

- Remove unnecessary words/sentences
- Ensure logical flow
- Make sure sentences are coherent
- Identify errors

“Writing is rewriting. Someone said easy writing makes for hard reading.”

Cormac McCarthy
Regardless of ability, a student’s handwriting legibility and speed is a major factor in determining their achievement.

Alston and Taylor, 1987  
Jones and Christenson, 1999  
Graham, Harris, and Fink, 2000  
Connelly et al. 2005  
Spear-Swerling, 2006
Look at every word; don’t pass over them

- Word Superiority Effect (Cattell, 1886; Reicher, 1969; McCIlland & Johnson, 1977)
- We only accurately take in ≈6-8 letters per fixation (pauses the eyes) (Rayner, et al., 1980)
- Eyes jump back and forward to fixate on parts of sentences, not each word (Abrams & Zuber, 1972; Rayner, 1975)

→ Proof-reading to catch errors requires practice

Diagram of the fixation points of a typical English-speaking reader:

As you’re reading this your eye is following a natural pattern so fluidly that you don’t even notice this is happening.
# Term-Time (Supervision) vs. Exam Essays

## Similarities
- Proofread
- Answer the question!
- Structure and plan your response
- Handwriting
- Signposting
- Evidence and explain

## Differences
- Time!
- Introduction depth
- Conclusion length
- Required summarising/outlining
Exam Essay Example

What sort of safety case should the government demand from vendors and service providers if autonomous vehicles are to be allowed on Britain's roads? [20 marks]

1. Understand the question: What is a safety case?
2. Brainstorm ideas: Can you turn your safety case into safety assurance demands?
3. What's your argument?
4. Decide and organise: Which demands will you include in your essay answer?
5. Write your answer as a coherent story: ≈3 pages (shorter than a standard essay)
Exam Essays: Final Tips

**Do**

- Make a plan
- Write in full, coherent sentences
- Manage time effectively
- Provide references (as much as possible)

**Avoid**

- “Padding” your answer
- The “kitchen sink” approach
- Diving straight in
- Lists
Thanks!

Email: jp662@cam.ac.uk