How do we tell which inclusive teaching strategies will benefit the whole class?

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How do you know a strategy works?

1. Many different and often conflicting published views
2. Qualitative research useful, but doesn't answer the question
3. Need to measure impact of a strategy on achievement (grades)

This session

1. The two main approaches to inclusive teaching.
2. *Meta-analysis*, a way of measuring the success of educational strategies.
3. How meta-analysis can **enhance inclusion** and **improve grades** and **course satisfaction across the whole class.**

What is inclusive teaching?

Trying to accommodate visible and invisible differences within the class.

Many groups to include

Some of the differences we need to accommodate:

- religious practices
- cultural and linguistic diversity
- ESL
- indigenous culture
- other cultural differences
- health conditions
- medical conditions
- disabilities
- age, gender, sexuality
- young people who left school early
- older learners returning to study
- single parents returning to study
- part time students
- refugees
- survivors of trauma

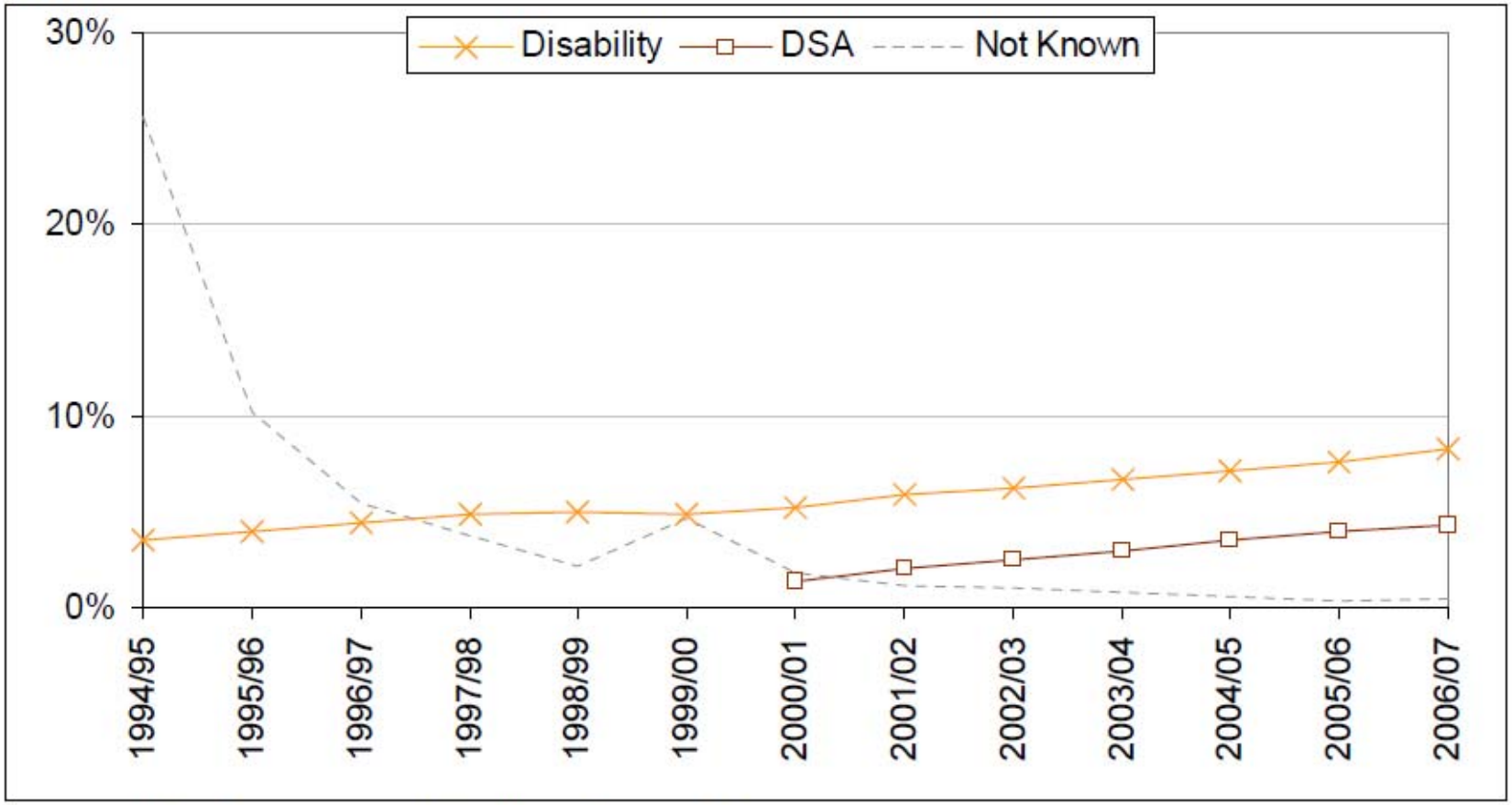
(Training Design 2007)

Two approaches to inclusive teaching

- Special-needs-based adjustments (the prevalent method)
- Universal design.

First approach: special needs-based adjustments

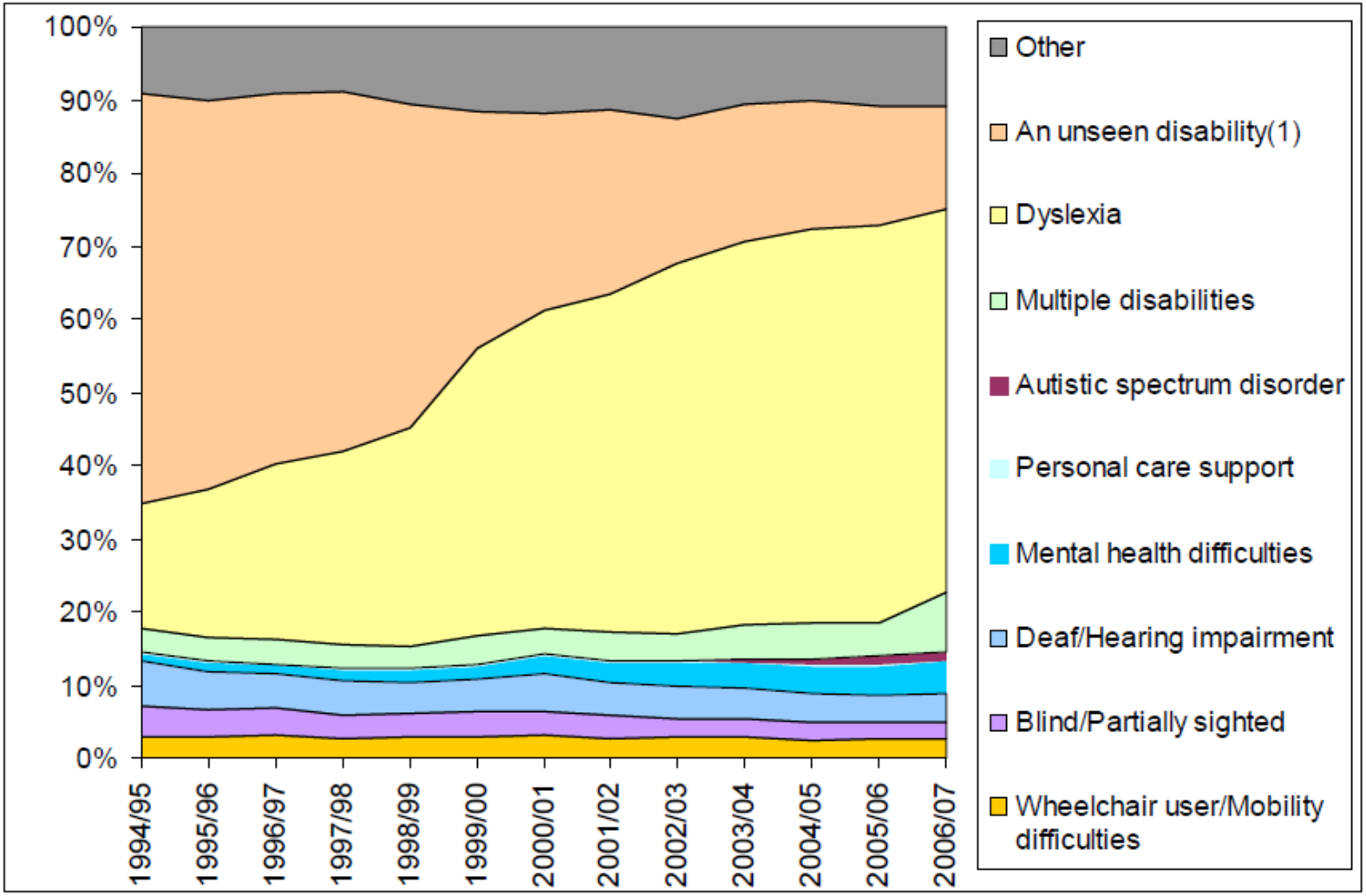
Figure 4.1: Proportion of UK-domiciled, full-time undergraduate students by disability status



Source: HESA Students and Qualifiers Data Tables

Source: Department for Innovation, Universities and Skills 2009

Figure 5.3: Type of disability declared by first year UK domiciled full-time undergraduates



Source: Department for Innovation, Universities and Skills 2009

Second approach: universal design

But how do we know it would help the rest of the class?

1. Some inclusive teaching strategies benefit whole class; others don't.
2. Meta-analyses useful for showing which is which.

Educational intervention	Effect size
Argument mapping for critical thinking (HEd)	0.78 (Alvarez 2007; n=7)
Embedded meta-cognitive study skills (HEd)	0.77 (Hattie, Biggs & Purdie 1996; n=108)
Reciprocal teaching	0.74 (Hattie 2009; n=38)
Enhanced feedback	0.73 (Hattie 2009; 1287)
Meta-cognitive strategies	0.69 (Hattie 2009; n=63)
Teaching study skills	0.59 (Hattie 2009; n=668)
Cooperative v individualistic learning	0.59 (Hattie 2009; n=774)
Note-taking	0.59 (Hattie 2009; n=46)
Mastery learning	0.58 (Hattie 2009; n=377)
Concept mapping	0.57 (Hattie 2009; n=287)
Peer tutoring	0.55 (Hattie 2009; n=767)
Average effect ('the bar')	**0.40 (Hattie 2009; n=52 637)**
Computer-based instruction (HEd)	0.28 (Schmid et al 2009; n=231)
Individualised instruction	0.23 (Hattie 2009; n=600)

Table 1: **Data from educational meta-analyses; n=number of studies**

Making universal design high-yield

Example:

1. Many students with learning disabilities benefit from being taught concept mapping.
2. Students in general also benefit from this.
3. So teach everyone concept mapping (and argument mapping), and offer the software to everyone.

We need to use both approaches

- Must still make special-needs-based adjustments to ensure full access, e.g. note-takers, extra time on exams.
- Universal design not ‘difference blind’, not ‘one-size-fits all’
- Universal design complements and enhances ‘adjustments’ approach.

High-yield UD appeals to teachers' self-interest

- Special-needs-based adjustments tend to be seen as fair, but also as onerous and time-consuming.
- A high-yield approach to universal design likely to **improve grades and course satisfaction**.
- And that recruits the **self-interest** of teachers.

Summary

1. Need to do more universal design, to enhance the prevalent adjustments-based approach
2. Universal design well-supported by educational research on high-yield strategies.
3. Meta-analysis indicates strategies to prioritise.

References

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Source: andrewnorton.info

What is an ‘effect size’?

A **meta-analysis** looks at the same variable across numerous studies and comes up with an effect size, which is an average effect across all the studies (e.g. effect of note-taking on final grades).

An effect size around 1.0 represents a huge positive effect on student achievement

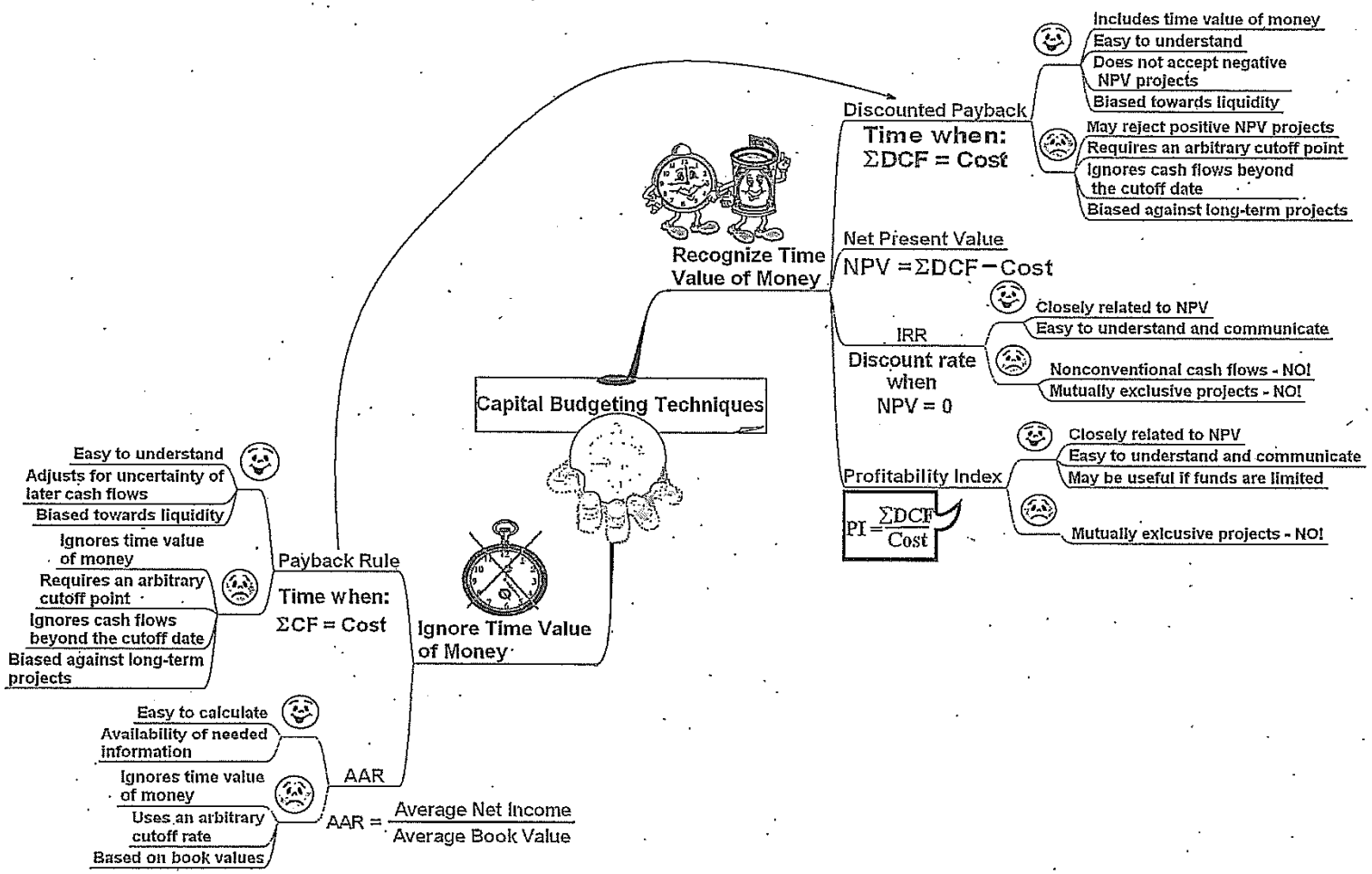
‘When implementing a new program, an effect-size of 1.0 would mean that approximately 95% of outcomes positively enhance achievement, or average students receiving that treatment would exceed 84% of students not receiving that treatment.’ (Hattie 1992)

An effect size of 0.3 or less is slight, in education

‘An effect-size of 0.31 would not […] be perceptible to the naked observational eye, and would be approximately equivalent to the difference between the height of a 5'11" and a 6'0" person.’ (Hattie 1992)

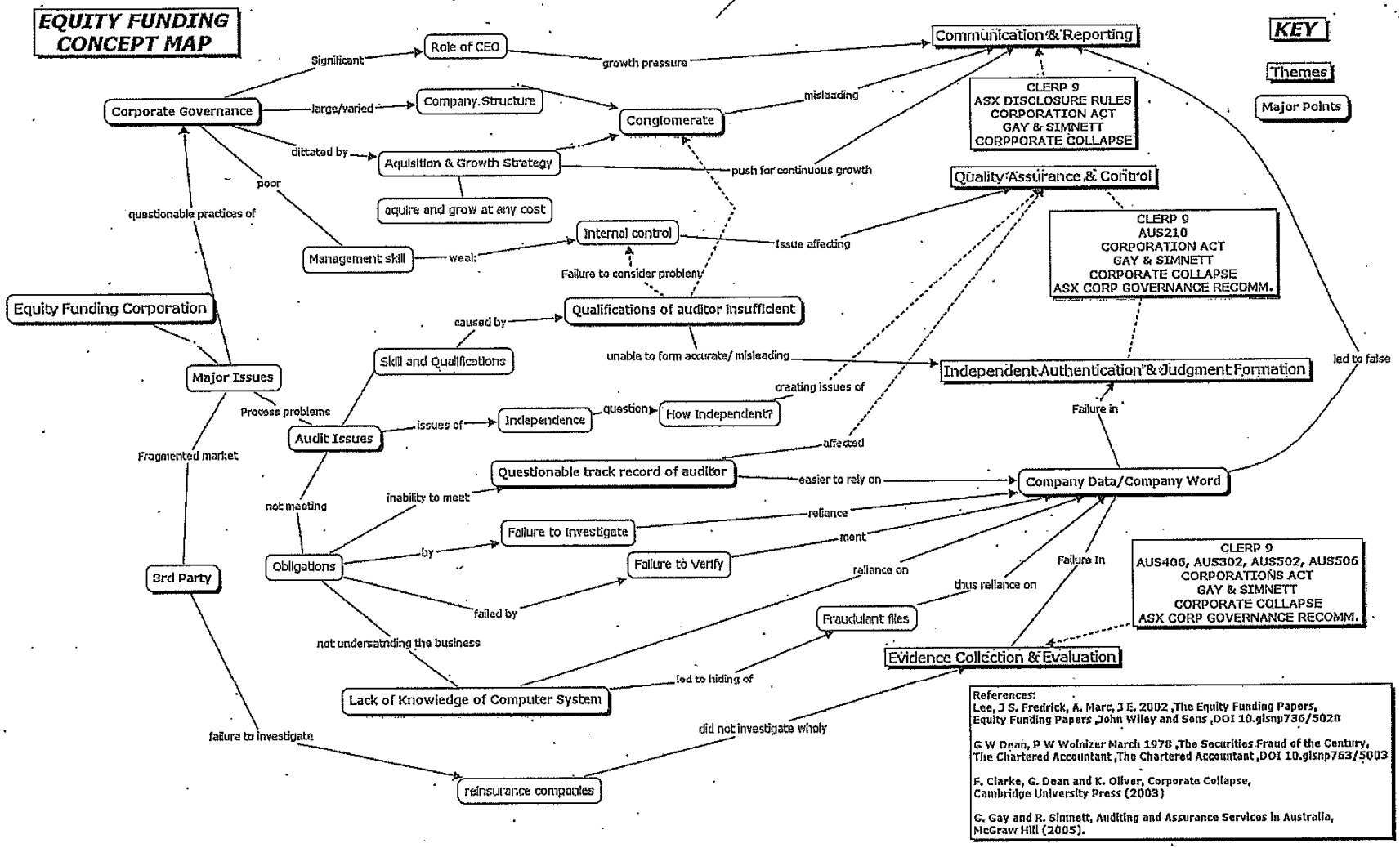
Difference between mindmap + concept map (PTC):

FIGURE 2. Mind Map of the Capital Budgeting Techniques



more causal connections

Annexure B: A student constructed concept map for the Equity Funding case outlined in Annexure A



References:
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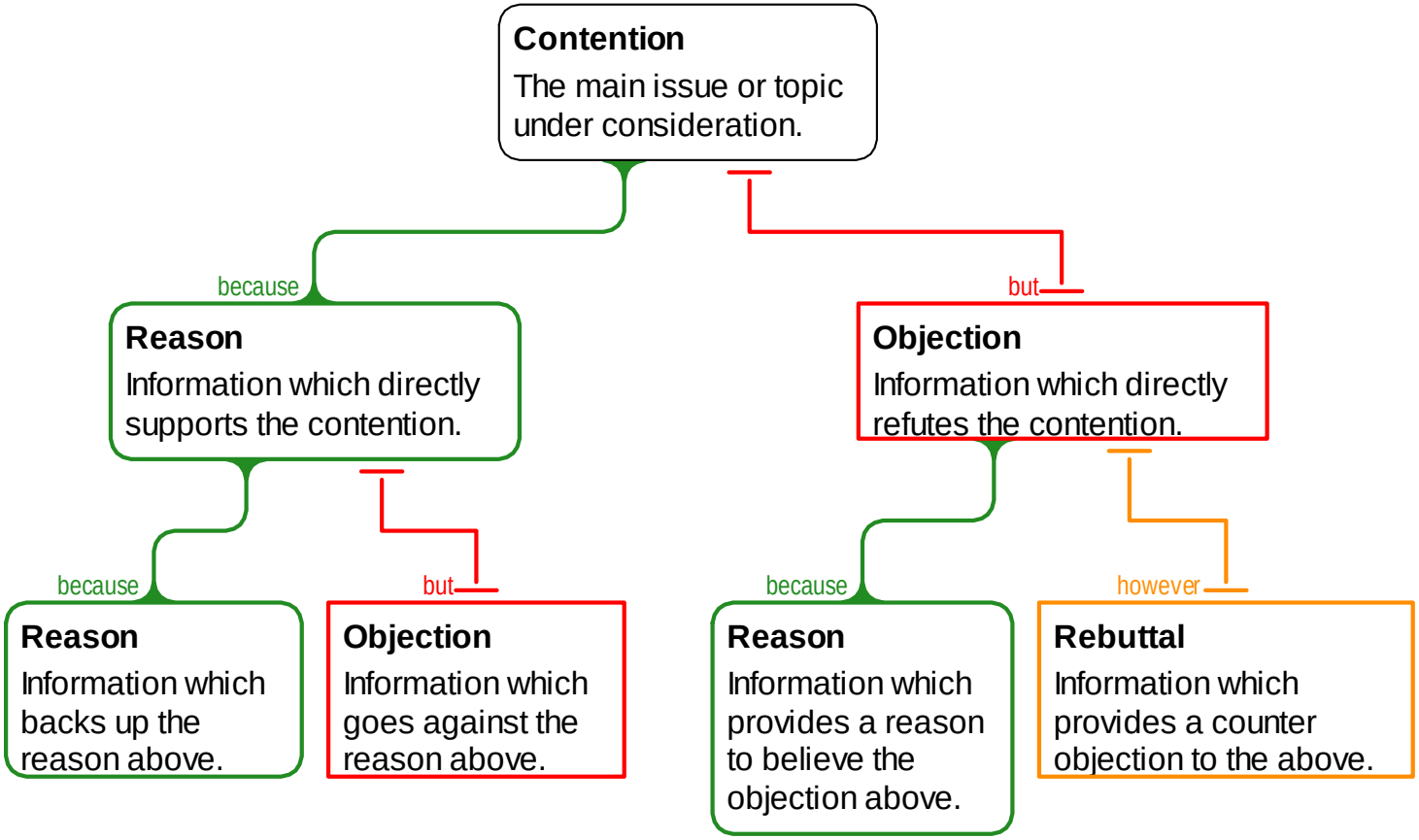
Contention
The main issue or topic under consideration.
because
but
Reason
Information which directly supports the contention.
Objection
Information which directly refutes the contention.
because
but
because
however
Reason
Information which backs up the reason above.
Objection
Information which goes against the reason above.
Reason
Information which provides a reason to believe the objection above.
Rebuttal
Information which provides a counter objection to the above.

Summary

Fairness, policy and/or law require us to make adjustments to our teaching (including assessment) to prevent certain individuals or groups being marginalised.

But many of the adjustments we make to include minorities would also benefit the rest of the class.

Using a multi-sensory approach is important in universal design for learning

Another important principle of UDL is to teach in a way that is *simple and transparent*

UDL strategies tend to be supported by meta-analyses and reviews of research which show that certain teaching strategies produce higher 'yields' in terms of student achievement (e.g. grades) and satisfaction (e.g. course experience survey responses).

References

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Diversity, access, equity, inclusivity

Which groups should we make an effort to include?

e.g. age, disability, students with ESL…

Academic environments

High challenge Low support (sink or swim: high dropout rate, lawsuits)	High challenge High support (enriching: happy students, good graduates)
Low challenge Low support (neglecting: weak graduates)	Low challenge High support (indulging)

Table 1: adapted from Little (1975)

We need to use both approaches

Ethics and/or law mandate that we continue to make adjustments to ensure full access, e.g. note-takers, extra time on exams, teaching students to use concept-mapping software.

But some adjustments, such as teaching students to use concept-mapping software, could be offered to the whole class.