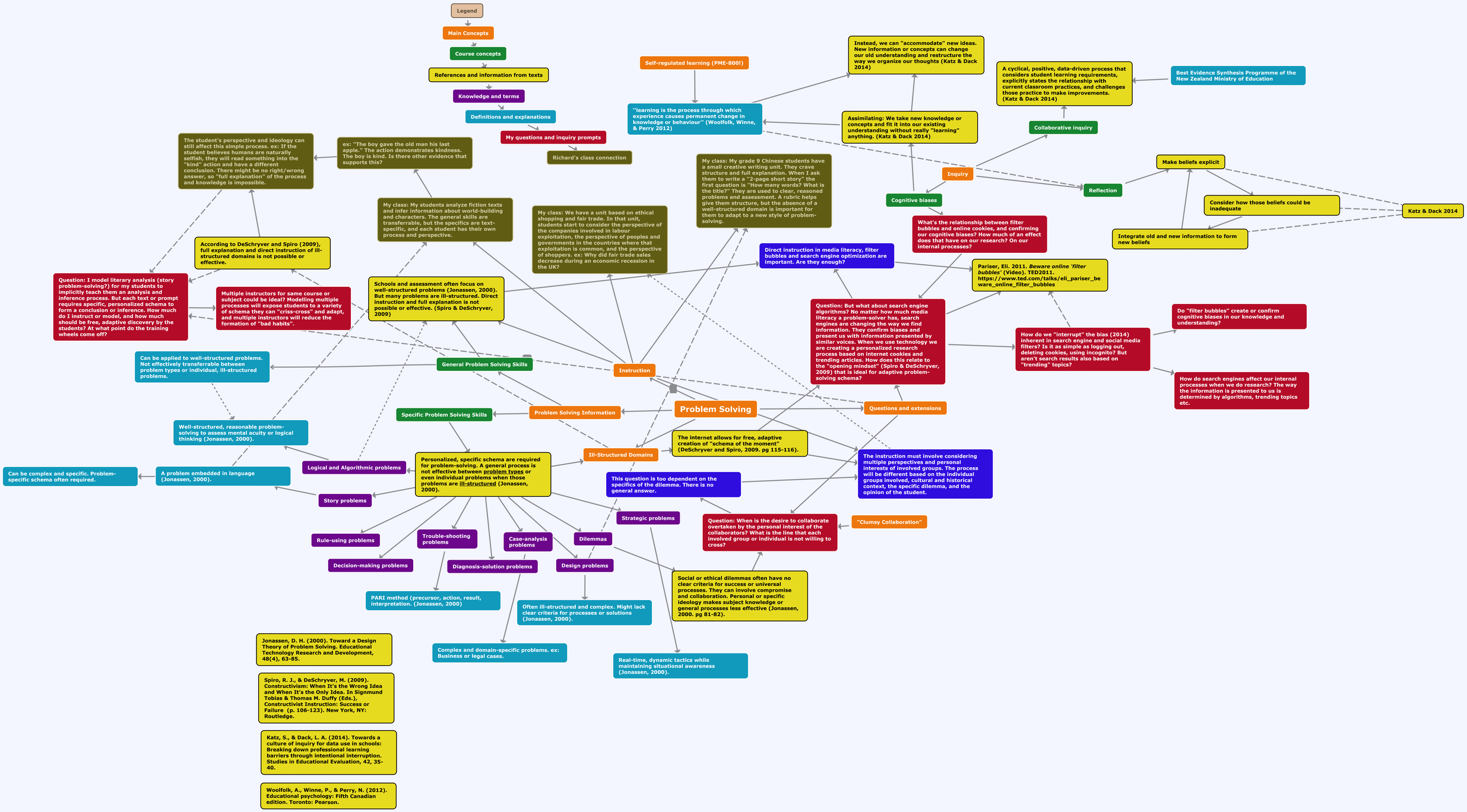
Legend
Main Concepts
Course concepts
References and information from texts
Knowledge and terms
Definitions and explanations
My questions and inquiry prompts
Richard's class connection
Self-regulated learning (PME-800!)
"learning is the process through which experience causes permanent change in knowledge or behaviour" (Woolfolk, Winne, & Perry 2012)
Instead, we can "accommodate" new ideas. New information or concepts can change our old understanding and restructure the way we organize our thoughts (Katz & Dack 2014)
Assimilating: We take new knowledge or concepts and fit it into our existing understanding without really "learning" anything. (Katz & Dack 2014)
A cyclical, positive, data-driven process that considers student learning requirements, explicitly states the relationship with current classroom practices, and challenges those practice to make improvements. (Katz & Dack 2014)
Best Evidence Synthesis Programme of the New Zealand Ministry of Education
Collaborative inquiry
Inquiry
Reflection
Make beliefs explicit
Consider how those beliefs could be inadequate
Integrate old and new information to form new beliefs
Katz & Dack 2014
Cognitive biases
What's the relationship between filter bubbles and online cookies, and confirming our cognitive biases? How much of an effect does that have on our research? On our internal processes?
Pariser, Eli. 2011. *Beware online 'filter bubbles'* (Video). TED2011. https://www.ted.com/talks/eli_pariser_beware_online_filter_bubbles
Question: But what about search engine algorithms? No matter how much media literacy a problem-solver has, search engines are changing the way we find information. They confirm biases and present us with information presented by similar voices. When we use technology we are creating a personalized research process based on internet cookies and trending articles. How does this relate to the "opening mindset" (Spiro & DeSchryver, 2009) that is ideal for adaptive problem-solving schema?
How do we "interrupt" the bias (2014) inherent in search engine and social media filters? Is it as simple as logging out, deleting cookies, using incognito? But aren't search results also based on "trending" topics?
Do "filter bubbles" create or confirm cognitive biases in our knowledge and understanding?
How do search engines affect our internal processes when we do research? The way the information is presented to us is determined by algorithms, trending topics etc.
Direct instruction in media literacy, filter bubbles and search engine optimization are important. Are they enough?
My class: My grade 9 Chinese students have a small creative writing unit. They crave structure and full explanation. When I ask them to write a "2-page short story" the first question is "How many words? What is the title?" They are used to clear, reasoned problems and assessment. A rubric helps give them structure, but the absence of a well-structured domain is important for them to adapt to a new style of problem-solving.
My class: We have a unit based on ethical shopping and fair trade. In that unit, students start to consider the perspective of the companies involved in labour exploitation, the perspective of peoples and governments in the countries where that exploitation is common, and the perspective of shoppers. ex: Why did fair trade sales decrease during an economic recession in the UK?
ex: "The boy gave the old man his last apple." The action demonstrates kindness. The boy is kind. Is there other evidence that supports this?
The student's perspective and ideology can still affect this simple process. ex: If the student believes humans are naturally selfish, they will read something into the "kind" action and have a different conclusion. There might be no right/wrong answer, so "full explanation" of the process and knowledge is impossible.
My class: My students analyze fiction texts and infer information about world-building and characters. The general skills are transferrable, but the specifics are text-specific, and each student has their own process and perspective.
According to DeSchryver and Spiro (2009), full explanation and direct instruction of ill-structured domains is not possible or effective.
Question: I model literary analysis (story problem-solving?) for my students to implicitly teach them an analysis and inference process. But each text or prompt requires specific, personalized schema to form a conclusion or inference. How much do I instruct or model, and how much should be free, adaptive discovery by the students? At what point do the training wheels come off?
Multiple instructors for same course or subject could be ideal? Modelling multiple processes will expose students to a variety of schema they can "criss-cross" and adapt, and multiple instructors will reduce the formation of "bad habits".
Schools and assessment often focus on well-structured problems (Jonassen, 2000). But many problems are ill-structured. Direct instruction and full explanation is not possible or effective. (Spiro & DeSchryver, 2009)
Can be applied to well-structured problems. Not effectively transferrable between problem types or individual, ill-structured problems.
General Problem Solving Skills
Instruction
Problem Solving
Specific Problem Solving Skills
Problem Solving Information
Questions and extensions
Well-structured, reasonable problem-solving to assess mental acuity or logical thinking (Jonassen, 2000).
The internet allows for free, adaptive creation of "schema of the moment" (DeSchryver and Spiro, 2009. pg 115-116).
Ill-Structured Domains
The instruction must involve considering multiple perspectives and personal interests of involved groups. The process will be different based on the individual groups involved, cultural and historical context, the specific dilemma, and the opinion of the student.
Can be complex and specific. Problem-specific schema often required.
A problem embedded in language (Jonassen, 2000).
Logical and Algorithmic problems
Personalized, specific schema are required for problem-solving. A general process is not effective between problem types or even individual problems when those problems are ill-structured (Jonassen, 2000).
This question is too dependent on the specifics of the dilemma. There is no general answer.
Story problems
Strategic problems
"Clumsy Collaboration"
Question: When is the desire to collaborate overtaken by the personal interest of the collaborators? What is the line that each involved group or individual is not willing to cross?
Rule-using problems
Trouble-shooting problems
Case-analysis problems
Dilemmas
Decision-making problems
Diagnosis-solution problems
Design problems
Social or ethical dilemmas often have no clear criteria for success or universal processes. They can involve compromise and collaboration. Personal or specific ideology makes subject knowledge or general processes less effective (Jonassen, 2000. pg 81-82).
PARI method (precursor, action, result, interpretation. (Jonassen, 2000)
Often ill-structured and complex. Might lack clear criteria for processes or solutions (Jonassen, 2000).
Complex and domain-specific problems. ex: Business or legal cases.
Real-time, dynamic tactics while maintaining situational awareness (Jonassen, 2000).
Jonassen, D. H. (2000). Toward a Design Theory of Problem Solving. Educational Technology Research and Development, 48(4), 63-85.
Spiro, R. J., & DeSchryver, M. (2009). Constructivism: When It's the Wrong Idea and When It's the Only Idea. In Signmund Tobias & Thomas M. Duffy (Eds.), Constructivist Instruction: Success or Failure (p. 106-123). New York, NY: Routledge.
Katz, S., & Dack, L. A. (2014). Towards a culture of inquiry for data use in schools: Breaking down professional learning barriers through intentional interruption. Studies in Educational Evaluation, 42, 35-40.
Woolfolk, A., Winne, P., & Perry, N. (2012). Educational psychology: Fifth Canadian edition. Toronto: Pearson.