Evidence Informed Computing Questions

Educational Research

Cognitive load theory (http://code-it.co.uk/a-review-of-cognitive-load-theory-lessons-of-teaching-computing/)

How are we taking cognitive overload into account when introducing tricky new computing science concepts?

Are we using variability of examples in computing science to aid long term remembrance?

Semantic Wave

What progression in language and from concrete to abstract are we using to develop pupils computing understanding?

Linking to existing Schema

How are we connecting new computing science knowledge to ideas that pupils already understand?

How are we linking new ideas to existing schemas of understanding to increase knowledge retention?

Taxonomies (Blooms revised & Solo Taxonomy)

Does the task given and the level of understanding necessary to reflect on it take educational taxonomies into account?

Computing Research

Constructionism

What relevant digital artefacts are pupils constructing that showcase their understanding?

Connectivist

How are we developing pupils to self-learn?

What essential knowledge do pupils need to empower themselves to self-learn?

Are there developmental restriction or ethical restrictions on encouraging Connectivist learning?

Is there a core knowledge that needs to be in place before pupils know what they don't know or at least know enough to ask useful questions?

Use-modify-create (Code comprehension) https://users.soe.ucsc.edu/~linda/pubs/ACMInroads.pdf

Are we using a code comprehension strategy such as use-modify-create to reduce cognitive load in programming? Examples http://code-it.co.uk/gold/

Design (Four levels of abstraction) http://code-it.co.uk/algprogdiff/

What types of design are pupils using in programming?

Do (KS2+) pupils understand and use the four levels of abstraction in program design?

Design and create programs that accomplish goals. How are we fulfilling the design aspect of this?

Progression (Everyday CS Team http://everydaycomputing.org/public/visualization/)

Do we have a concepts and knowledge progression map for each aspect of computing?

http://code-it.co.uk/gold/