

Making learning computer science fun (and effective)

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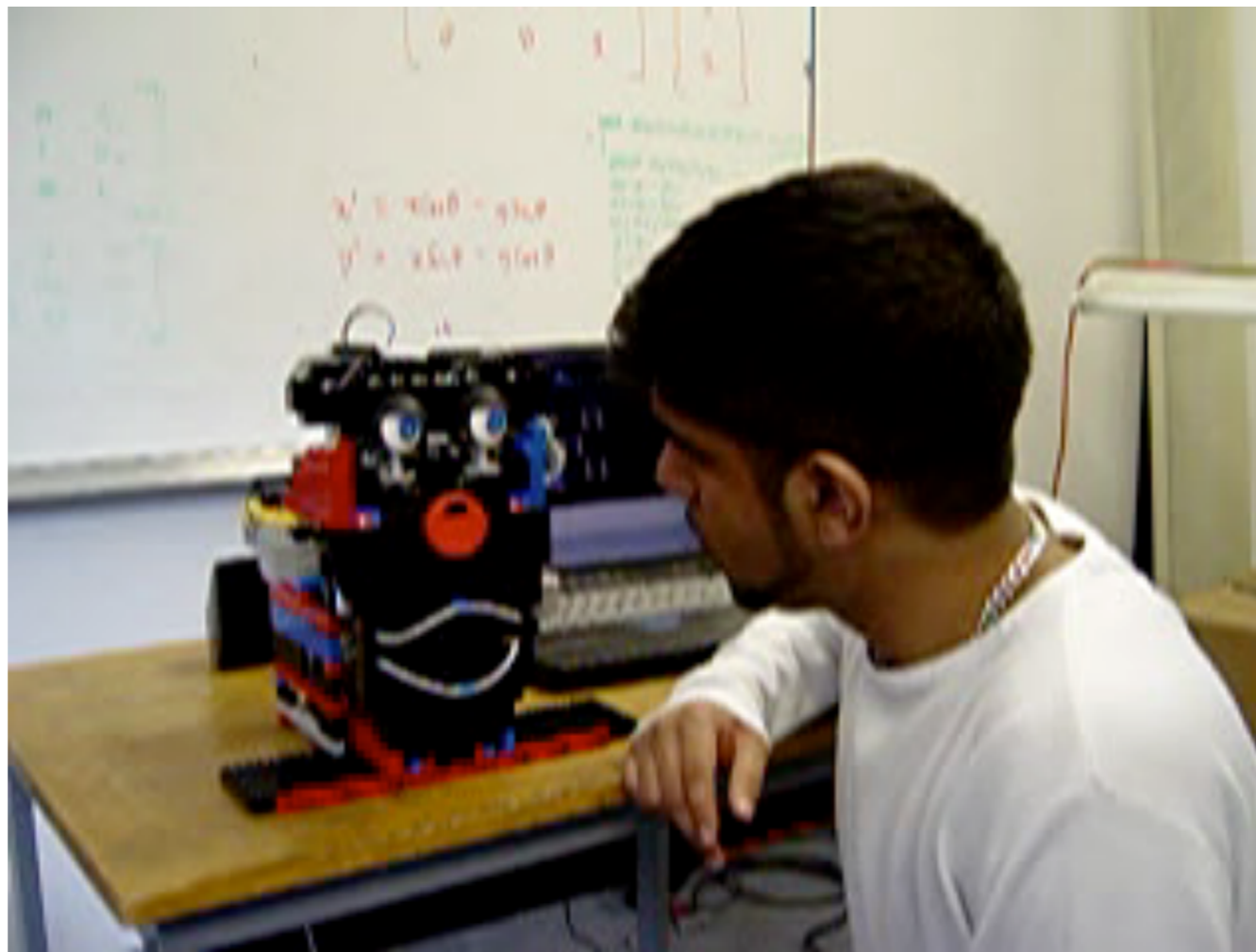
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Lots of kinds of Unplugged Computing

- A powerful and fun way to teach computing concepts away from computers using everyday objects and ideas
 - analogies, similes, metaphors
 - role play of computation and story telling
 - games, puzzles, magic and mystery
- Make abstract, intangible ideas tangible, physical and everyday + FUN + ACCESSIBLE

**...but how do you make
it fun AND effective?**

Understanding emotions through algorithmic thinking



Programming an eyebrow

If NICE SOUND

then DOWN

If NASTY SOUND

then DOWN

If SUDDEN SOUND

then UP

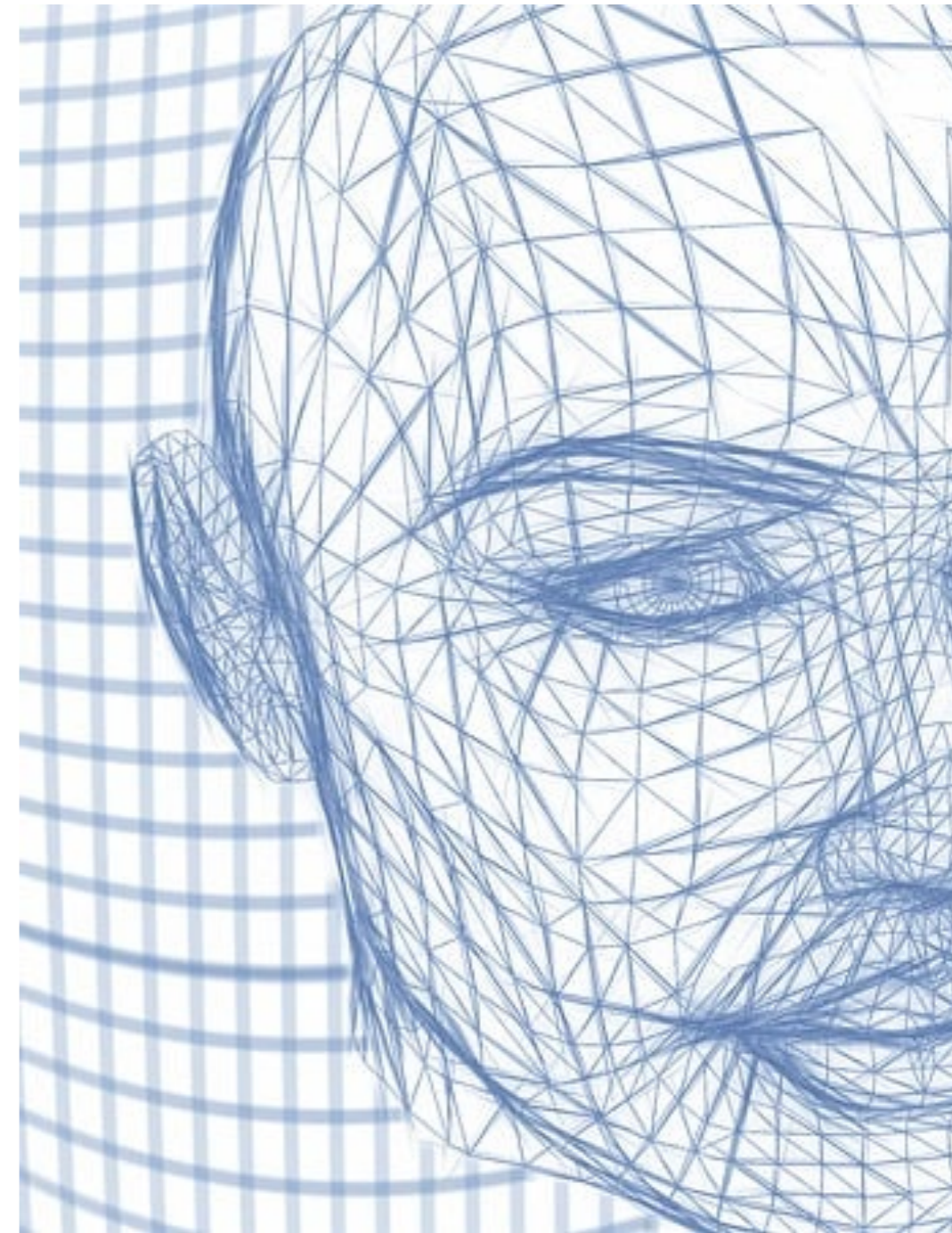


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Computational Thinking Lessons

- **Algorithmic thinking**
 - We turned understanding emotions into a computational problem
- **Decomposition**
 - Object-based
- **Evaluation**
 - Correctness, user experience
 - Abstraction
 - Details of “happy sound”

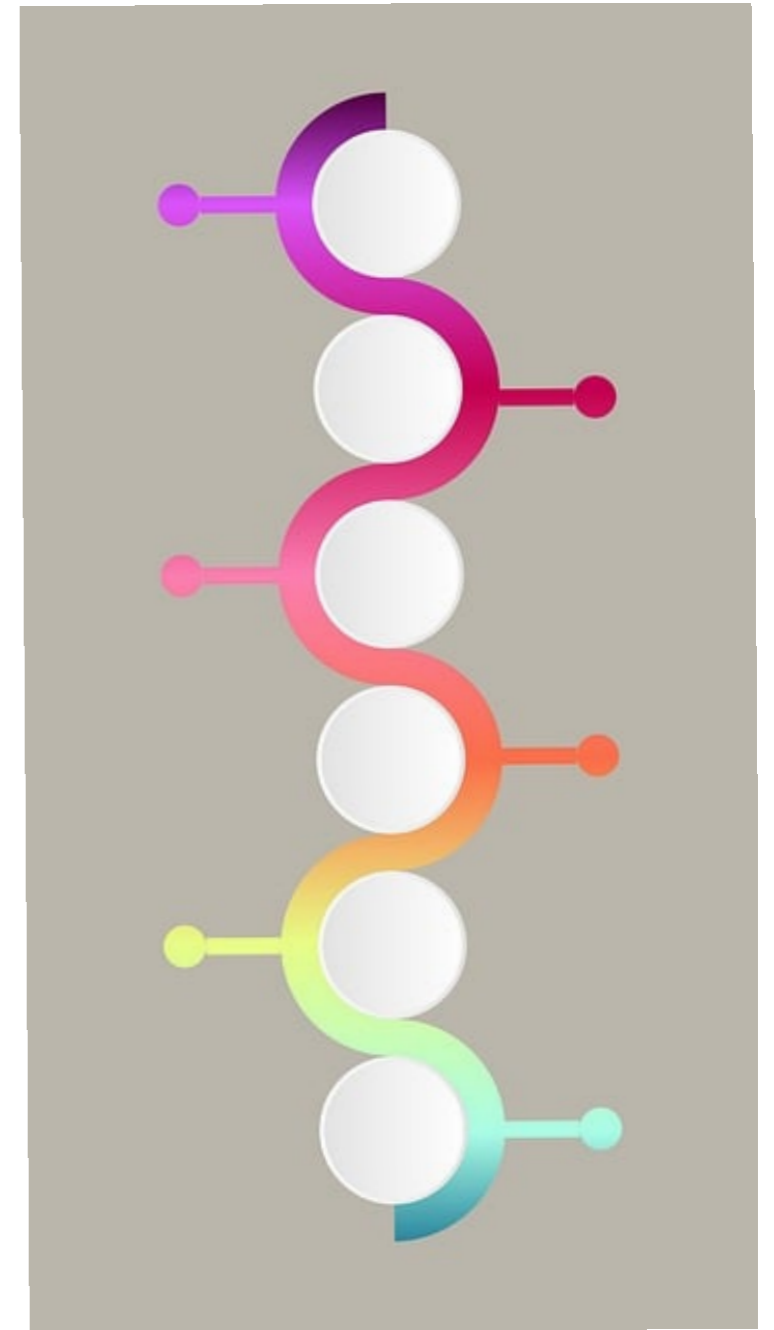


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Unplugged as design and prototyping

- It is also a fun way to start programming that emphasises design.
- First **design** and **evaluate** it as an **unplugged physical prototype**.
- Then code it in Scratch.

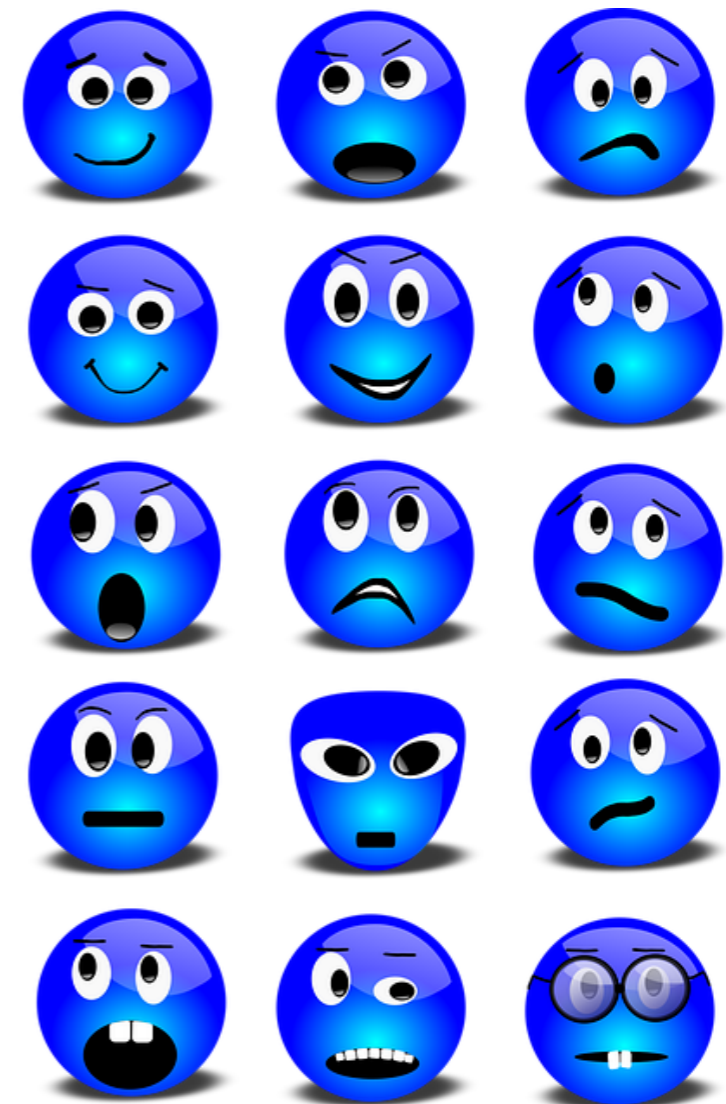
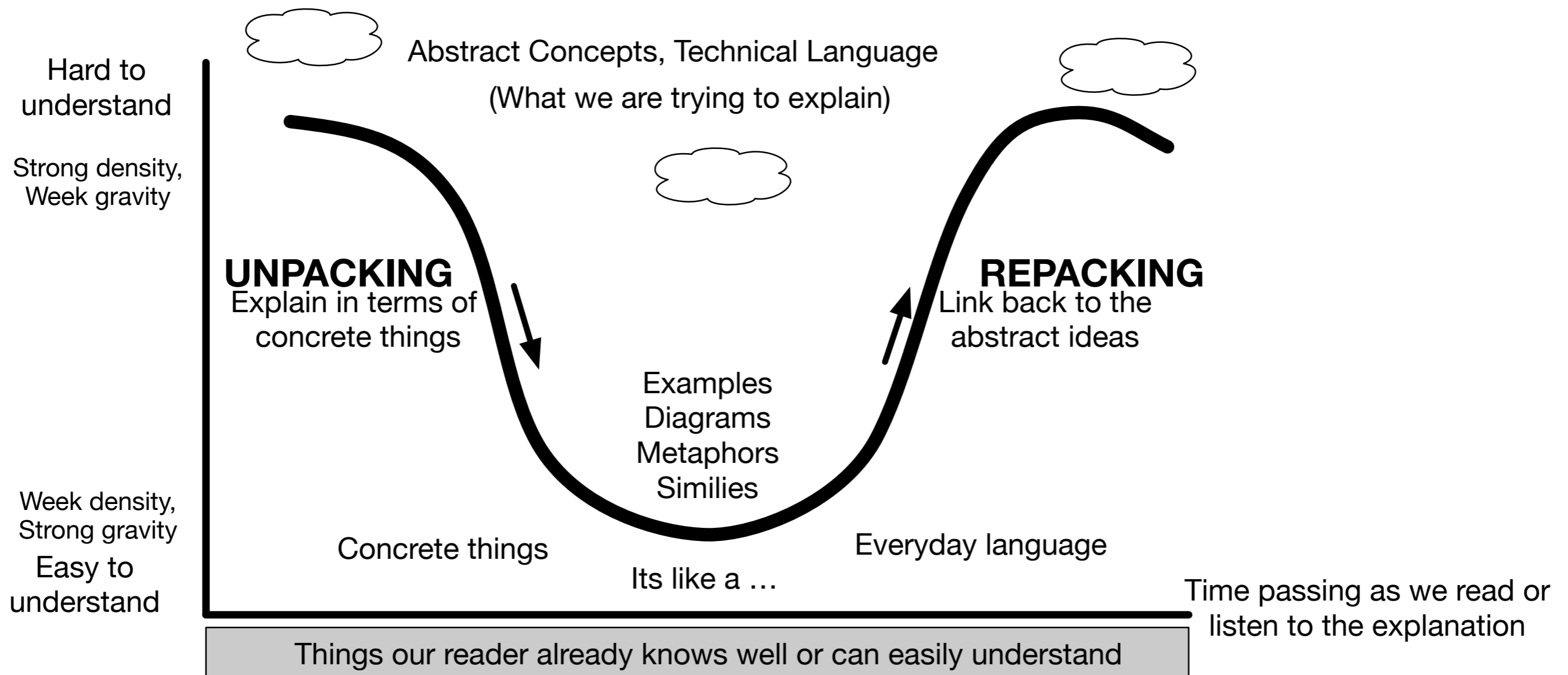


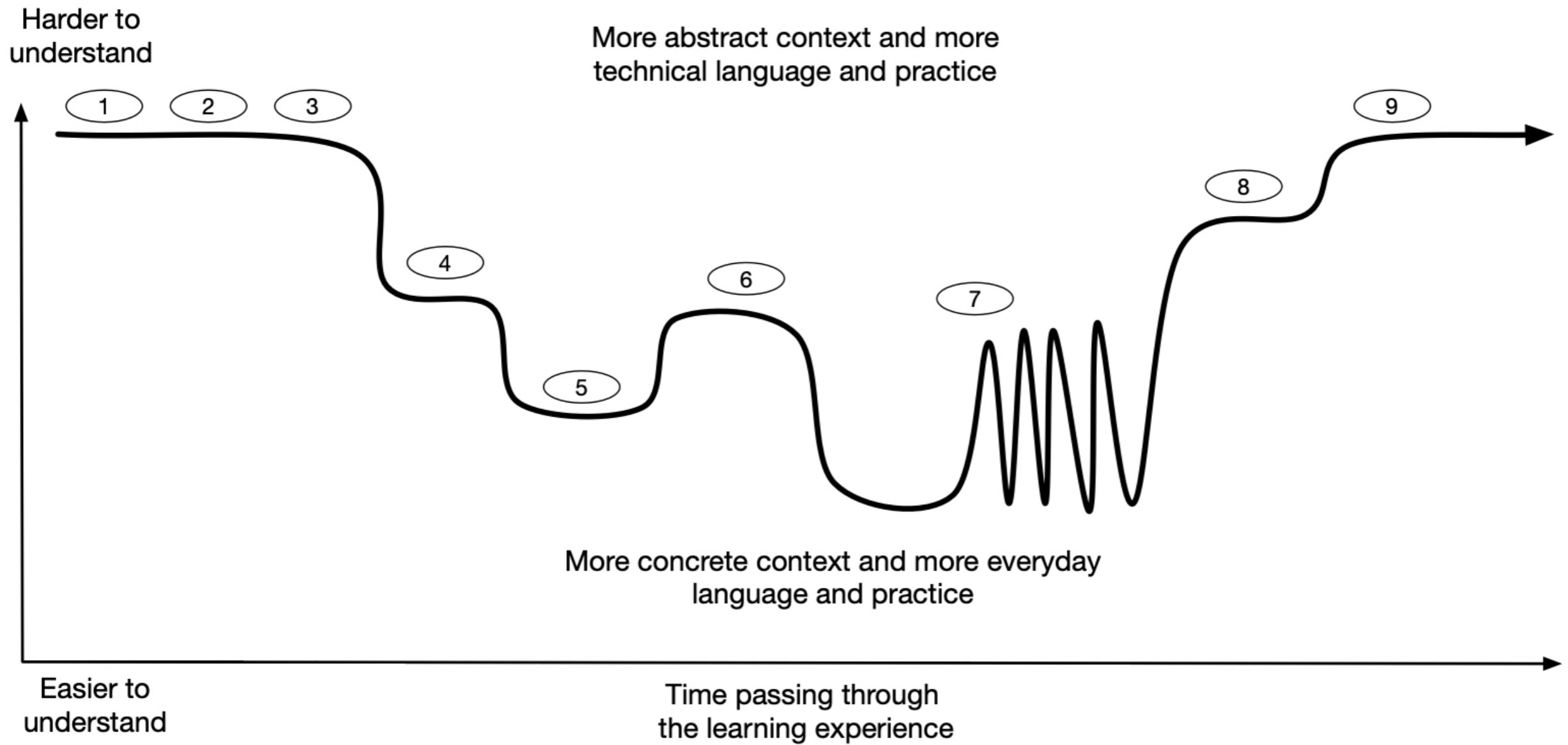
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A good learning experience follows a wave pattern



Based on Maton 2013

Real profiles are messier: it is packing-unpacking that matters



SPARQ: profile + questions

- Q1: Does the profile plotted **follow a rough wave shape** (either 'u'– or 'n'–shaped)?
- Q2: **How far up and down** does the profile move?
- Q3: **Who is doing** the packing and/or unpacking (the teacher or the learner or both)?
- Q4: Will it connect with **knowledge that students already possess?**
- Q5: Does unpacking and repacking **concern the aims of the lesson?**
- Q6: Does the profile include **waves within waves?**

Summary

- Unplugged computing is a fun and memorable way to teach concepts and introduce design.
- Semantic Waves via SPARQ (Semantic profiling and reflective questions) helps make it more effective.
- I found clear ways to improve my activities / lesson plans.



**If you have used
semantic waves then
please fill out our
10 minute impact survey**
bit.ly/SWAVEsurvey

Thank you

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Survey:
bit.ly/SWAVEsurvey

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