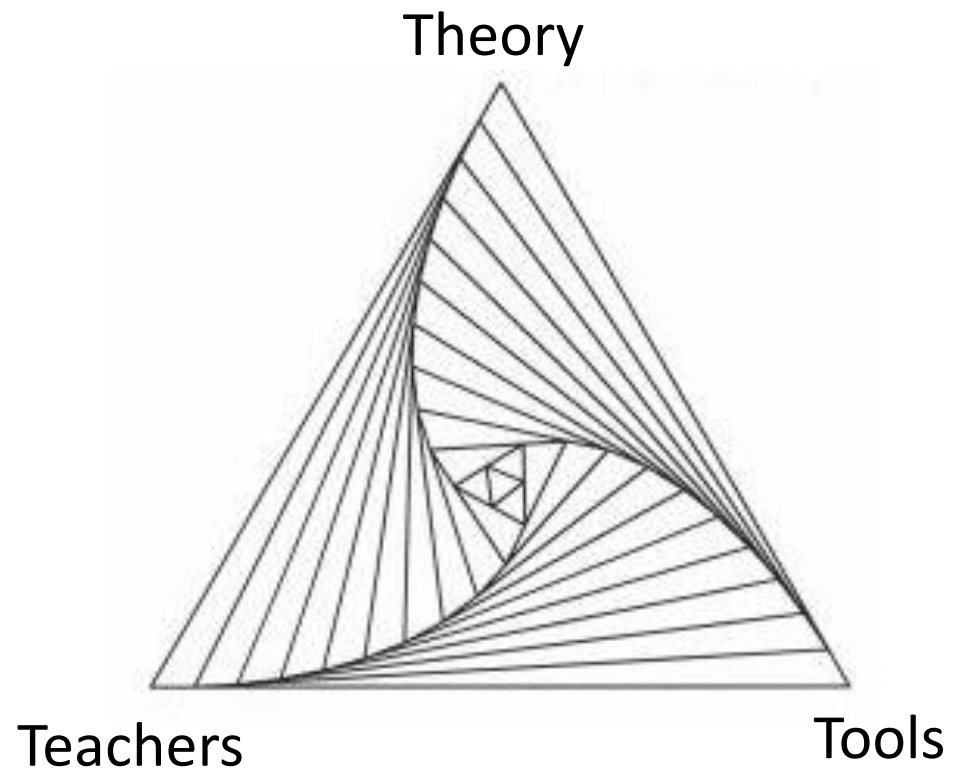
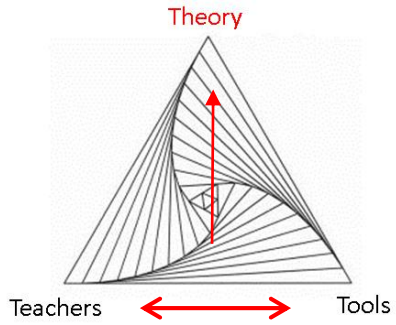


# Significant themes in the study of learning ...and their echoes in learning technology

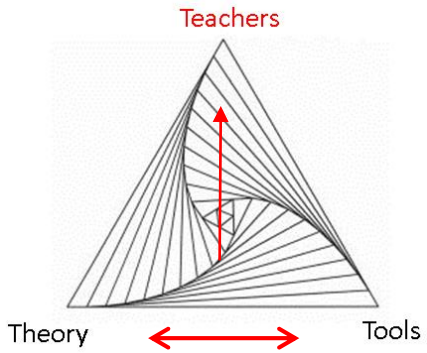
[charles.crook@nottingham.ac.uk](mailto:charles.crook@nottingham.ac.uk)

Learning Sciences Research Institute  
*University of Nottingham*

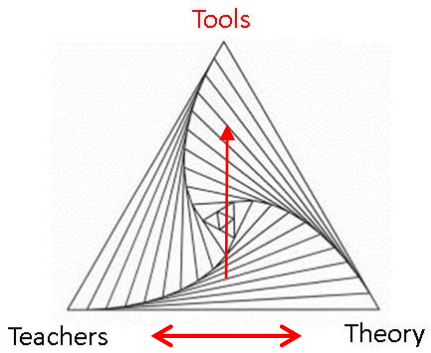




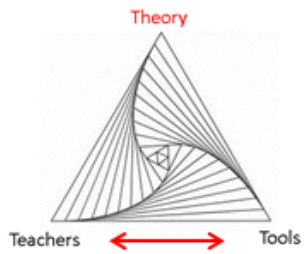
**Learning Sciences**



**The CPD academy**



**Design studio**



## 3 Issues

1. Don't Balkanise theory
2. Has technology shaped new practices?
3. "Goodbye teacher"?

JOURNAL OF APPLIED BEHAVIOR ANALYSIS

1968, 1, 79-89

NUMBER 1 (SPRING, 1968)

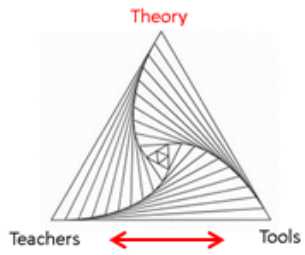
*"GOOD-BYE, TEACHER . . ."*<sup>1</sup>

FRED S. KELLER

ARIZONA STATE UNIVERSITY<sup>2</sup>

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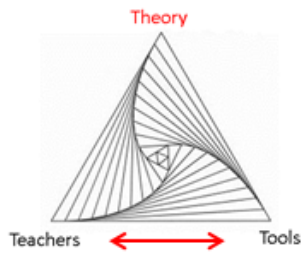
When I was a boy, and school "let out" for living reinforcement theorist who ever learned



- **Theory:**
- **Tools:**
- **Teachers:**

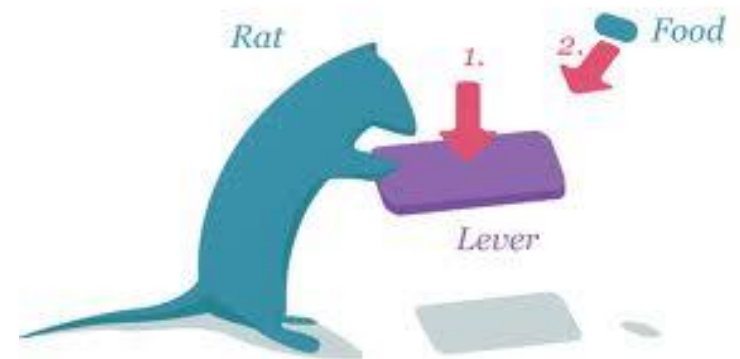
## 5 Grand Frameworks

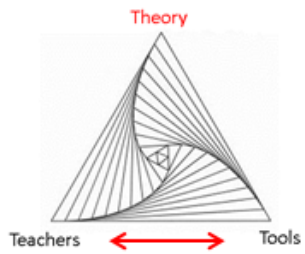
1. Behaviourism
2. Constructivism
3. Cognitive science
4. Socio-cultural theory
5. Connectionism



# Behaviourism

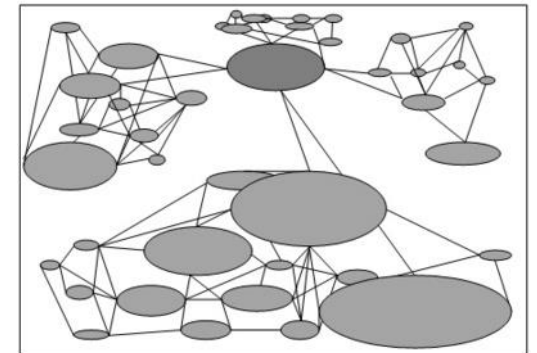
- **Theory:** Association (S:R and R>S). *Consequences*
- **Tools:** The teaching machine: managing *contingency*
- **Teachers:** The 'natural selection' of behaviour

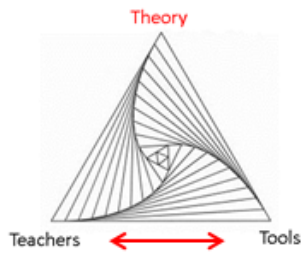




# Constructivism

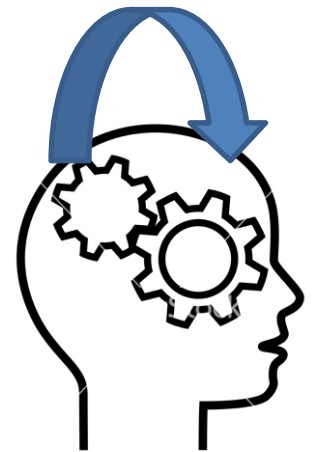
- **Theory:** Knowing="constructing". Knowledge as schema
- **Tools:** Devices that can be 'taught' (Mindstorms)
- **Teachers:** The orchestration of construction



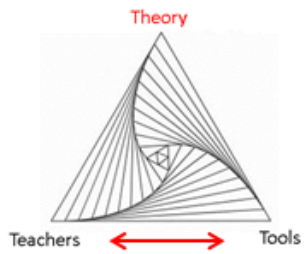


## Cognitive science

- **Theory:** Representations, schema, AI, meta-processing
- **Tools:** 'Making thinking visible', ePortfolio
- **Teachers:** Prompting and promoting the metacognitive

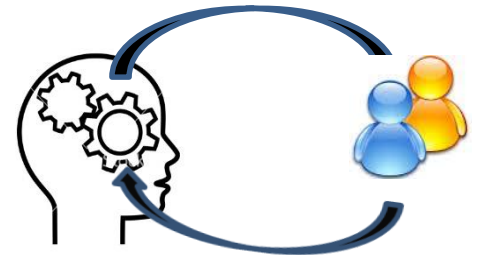


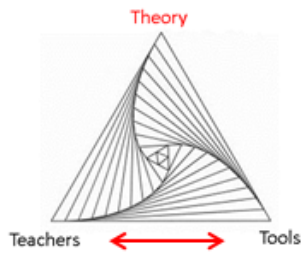




## Socio-cultural theory

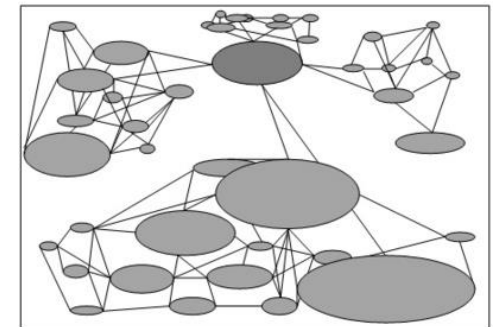
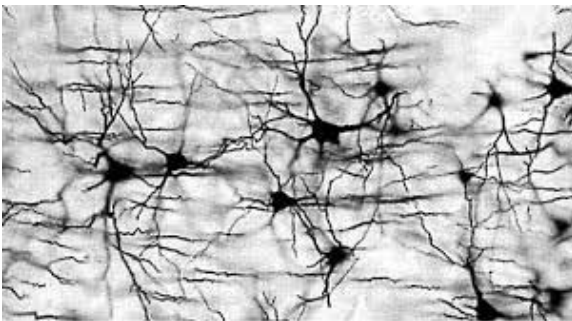
- **Theory:** The social imperative
- **Tools:** *Resourcing* collaborative learning (CSCL)
- **Teachers:** Intersubjectivity and 'scaffolding'

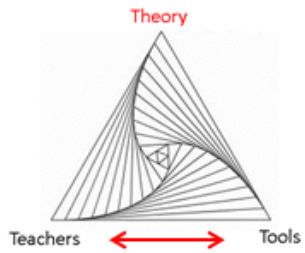




# Connectionism

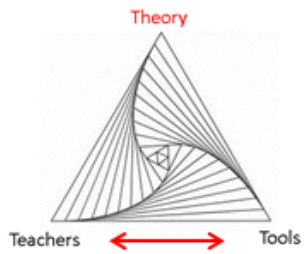
- **Theory:** “Good at Frisbee, bad at logic”
- **Tools:** New AI: analytics and intelligent tutoring
- **Teachers:** ?





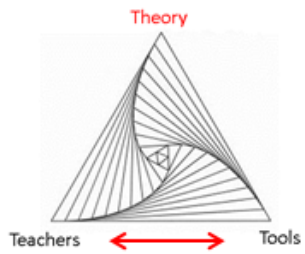
## 1. Don't Balkanise theory

1. Behaviourism
2. Constructivism
3. Cognitive science
4. Socio-cultural theory
5. Connectionism



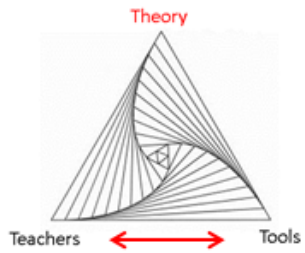
## 1. Don't Balkanise theory

1. *Contingency (of feedback) matters!*
2. Constructivism
3. Cognitive science
4. Socio-cultural theory
5. Connectionism



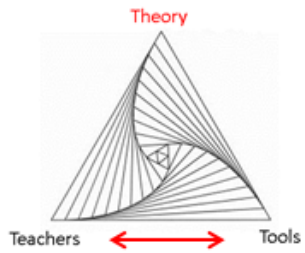
## 1. Don't Balkanise theory

1. *Contingency* (of feedback) matters!
2. **Less is more!**
3. Cognitive science
4. Socio-cultural theory
5. Connectionism



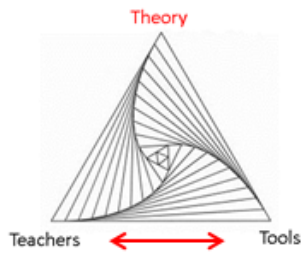
## 1. Don't Balkanise theory

1. *Contingency* (of feedback) matters
2. Less is more!
3. **Build representational richness!**
4. Socio-cultural theory
5. Connectionism



## 1. Don't Balkanise theory

1. *Contingency* (of feedback) matters
2. Less is more!
3. Build representational richness!
4. **Outsource your thinking!**
5. Connectionism



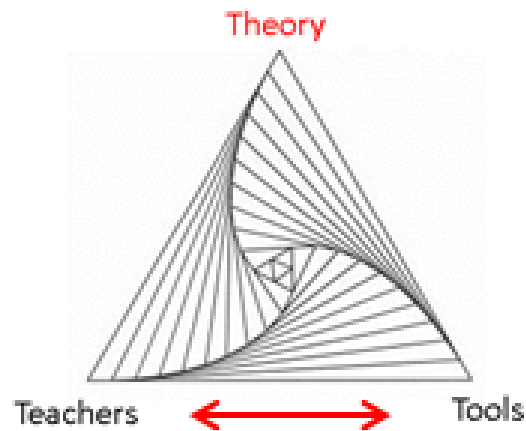
## 1. Don't Balkanise theory

1. *Contingency* (of feedback) matters
2. Less is more!
3. Build representational richness!
4. Outsource your thinking!
5. Serial operations for a parallel machine (brain)!



[charles.crook@nottingham.ac.uk](mailto:charles.crook@nottingham.ac.uk)

Learning Sciences Research Institute  
*University of Nottingham*



**Learning Sciences**