

Interface, interaction and interactivity:
understanding ImpaCT of technology in
classroom from a Cultural Historical
Activity Theory perspective.

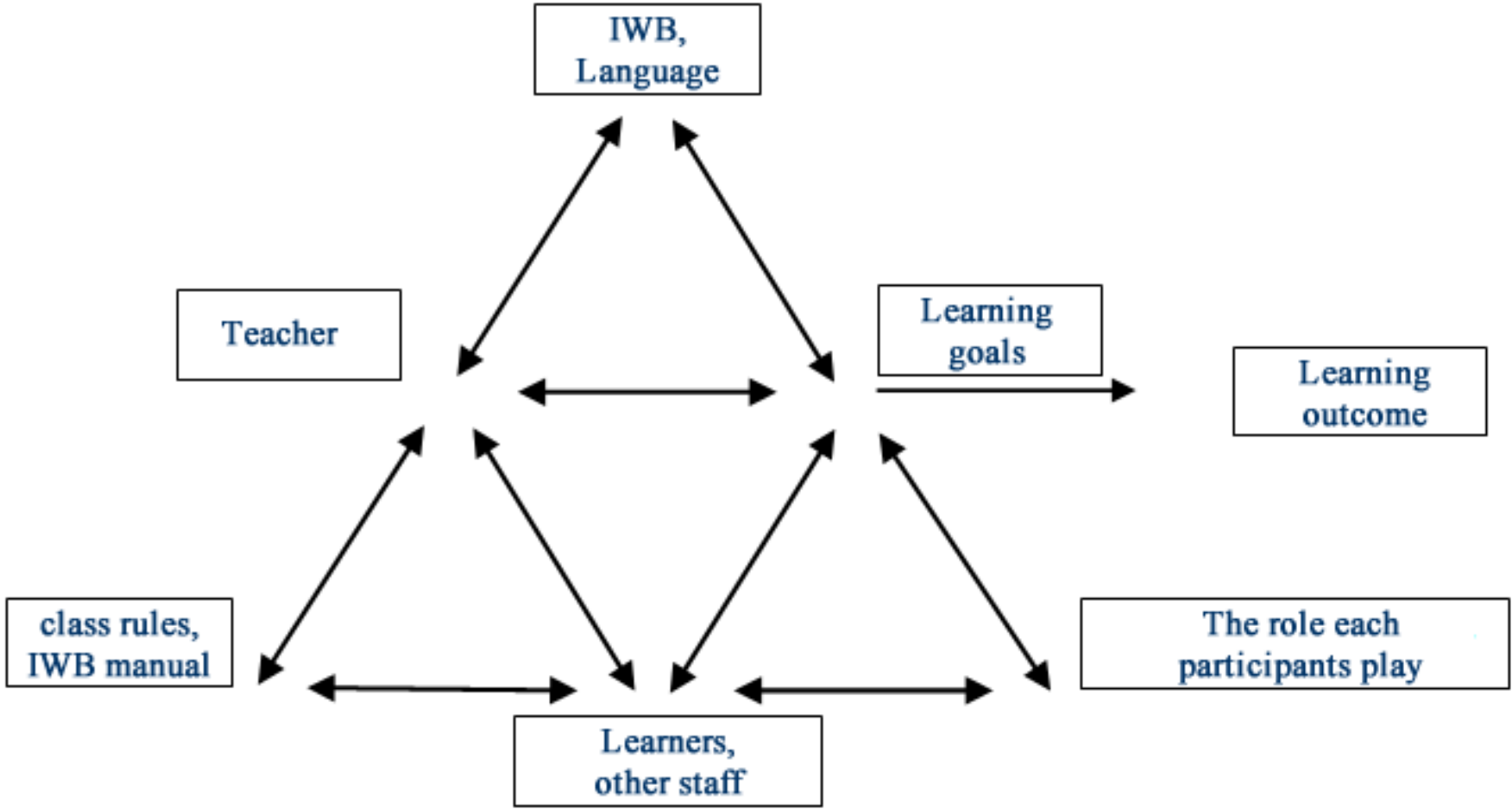
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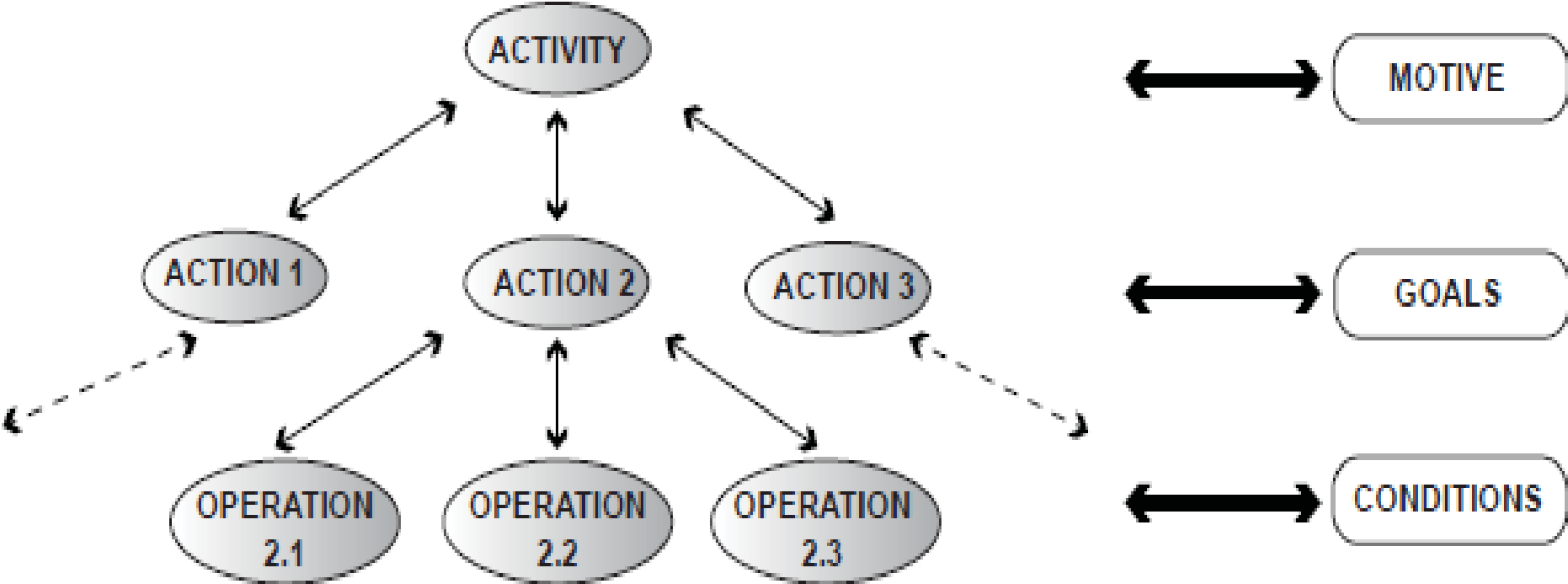
Background and context

- Information and communication input/output (ICIO)
- Orchestration of technical interactivity and pedagogical interactivity (Beauchamp & Kennewell, 2013)

Theoretical framework: Activity System



Theoretical framework: Structure of Activity



Theoretical framework: Stages of Interactivity

- Stage one - Whiteboard/Blackboard replacement: main focus is the technical features of IWBs
- Stage Two - Support didactic: teachers begin to use the software that comes with the IWB.
- Stage Three – Interactive: the teacher begins to move beyond replicating their old teaching style to use the unique potential ICT.
- Stage Four - Enhanced Interactive: teachers reach a high level of technical skill, high quality digital learning content was in use.
- Stage Five - Synergistic user: use ICT without interruption and focus on achieving learning goals as if the technology is ‘invisible’

Theoretical framework: Understanding ImpaCT

| Stages of Interactivity Sweeney (2008) | Hierarchical Structure of Activity Leont'ev (1978) | Structure of ICIO |
|--|---|--------------------------|
| Stage1: Whiteboard/Blackboard replacement | Operations | Interface |
| Stage2: Support didactic & Stage3: Interactive | Action | Interaction |
| Stage4: Enhanced Interactive & Stage5: Synergistic user | Activity | Interactivity |

Figure 3: The structure of ICIO

Methodology

- Qualitative Case Study
- CHAT based Six-Step framework
 - Step one – understanding the activity and the setting: intention of the subject and the object of the learning episode
 - Step two – analyse actors
 - Step three – analyse the mediators
 - Step four – analyse the structure of the activity system
 - Step five – the context: find out what the cultural and historical influences are on the participants and the classroom setting
 - Step six – analyse the outcome and the activity system dynamics

Methodology



Data Set:

Video, Observation, Interviews / Focus group chat & Planning documents

Step One: Understanding the activity system and setting

Step Two: Analyse actors of the activity system

Step Three: Analyse the mediators of the activity system

Step Four: Analyse the structure of the activity system

Step Five: The context of the activity system

Step Six: Analyse the outcome and the activity systems dynamics

What shape of interactivity exists in each of these learning episodes?

- a.** How are the affordances and constraints of the IWB orchestrated in each of these classrooms?
- b.** How does the shape of interactivity influence effective learning episodes [ELEs] in each of these classrooms?
- c.** How does the classroom culture, setting and prior knowledge of the participants influence and limit the shape of interactivity?
- d.** What does this comparative study on the shape of interactivity imply for curriculum development, professional learning and policy?

Findings

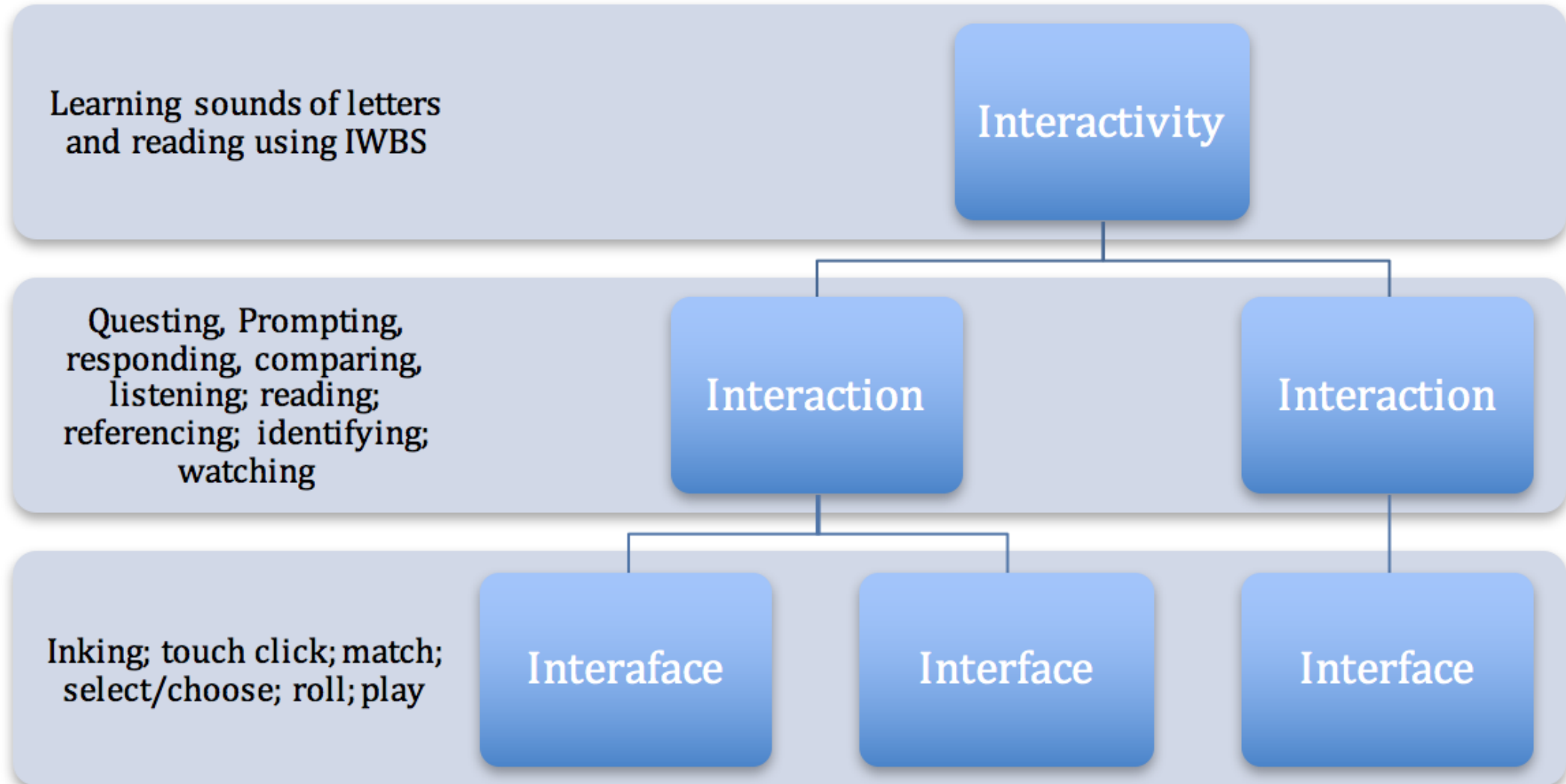


Figure 5: example of structure of ICIO

Findings

- Interactivity as Highest level of ICIO
- more learning and hence a greater impact on learners. At this level, the learners were involved in “meta-cognitive practices”, and they were “constructing meaning and understanding in order to expand their view” of the learning materials and goals (Sweeney, 2013, p. 222).