



### Conditions for effective learning processes

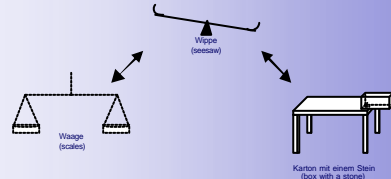
- **Dissatisfaction** about the perceptions already existing
- **Intelligibility** of the new perceptions
- **Plausibility** of the new perceptions
- **Fruitfulness** of the new perceptions (also in other situations).

(Vgl. Duit 1996, S. 150)



(Schnotz 1996, S. 28)

### Types of analogy (Spreckelsen 1994)



(phenomenal analogy; because of the external appearance)

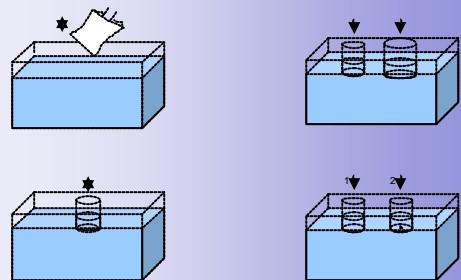
(genotype analogy; because of the effect/mechanism)

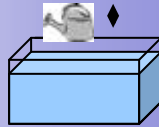
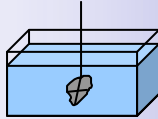
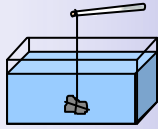
### Types of analogy



(genotype analogy; because of the effect/mechanism)

(phenomenal analogy; because of the external appearance)





## Basics of circle phenomena

- *Principal of minimal intervention*
- *Related to everyday life*
- *Exception to the rule (not necessary)*

The aim of a circle phenomena is not to understand the full concept but that the understanding of the system will come by looking for similarities and differences

(Vgl. Spreckelsen 1995, S. 26-29)