

Qualifying pedagogical practice in early science education

through a synthesis of research recommendations and children's perspectives

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Mapping current practice in Denmark:
1630 institutions
765 self-identified as having strong experience with science activities

Literature study:
Screening of 2981 papers identified 50 papers representing research of emergent science in an informal preschool settings
Content categorized to identify major themes

Children's perspective:
27 focus group interviews from the 765 experienced institutions
How do children 0-6 y.o. experience their involvement in science activities?

Children's perspective: A group of children collected aquatic animals at the pond, and were instructed to examine the animals through magnifiers. The interviewer asks about the activity:

"When I need to be examined, I go to the doctor!"

"You go to the doctor?"

"Mmmm" (affirmative)

"So, what do you think N meant, when he asked you to examine the animals?"

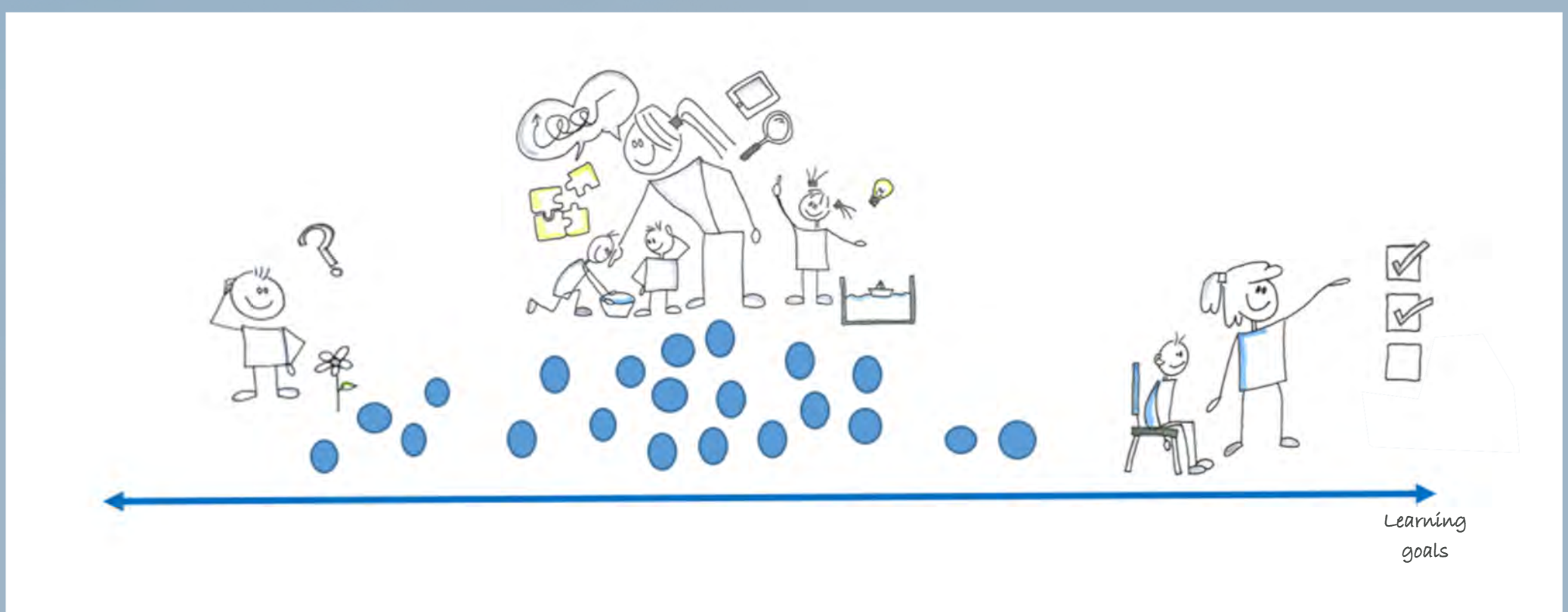
"To examine where the animal was... I usually examine to see if they broke something, or if they are feeling poorly or something..."



What did the literature review tell us?

Importance of dialogue to direct attention to phenomena and to introduce an emergent science vocabulary

Importance of an open and flexible environment to allow children opportunities for meaningful participation



Priority in the studies towards the approach of early childhood professionals in children's science activities from passive co-observer to instructing activities

What did the children's perspective tells us:

Children find science activities fun and meaningful

Science concepts are often not internalized

Meaning-making is often highly context-specific and concrete

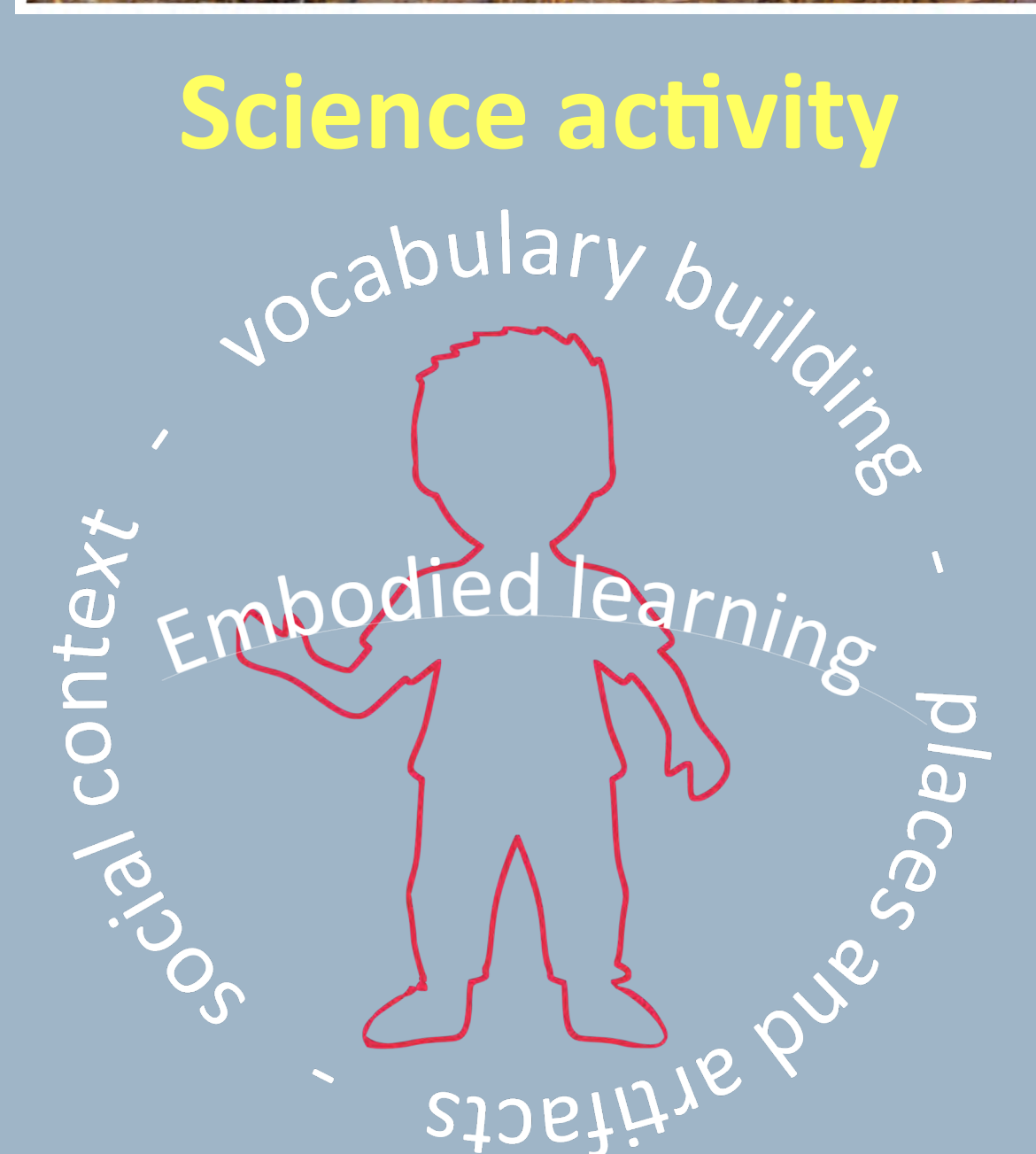
Places and artifacts often carry more significance to the child than the science phenomena themselves

Embodied experiences rather than semantic learning

Science concepts easily get drowned out by other complex learning processes in which they are (necessarily) embedded: Language, social contexts, motor skills, etc

Overall, the children's perspective confirms our recommendation of a holistic approach to science activities. Attention of early childhood professionals should be directed towards the explorations, discoveries and meaning-making of the individual child

Embodied experiences of phenomena, as well as experiences of being included, recognized and able to participate meaningfully, are potential positive contributions to the child's science capital



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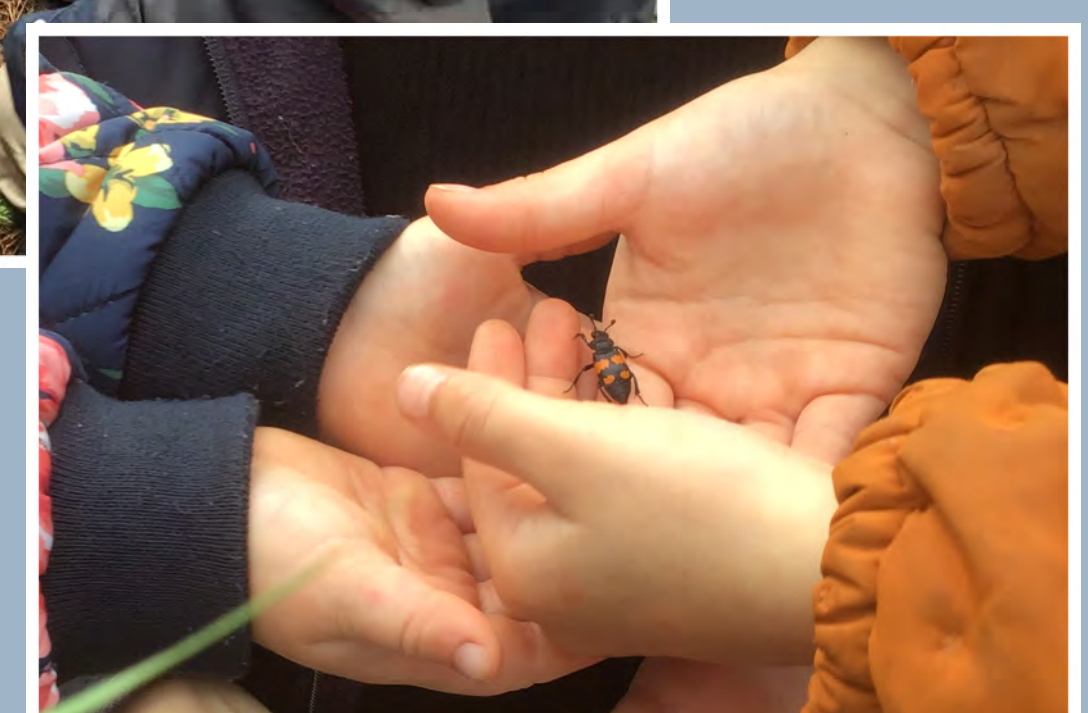
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