Difficult motor skill acquisition in 5 years old children can be modulated by educators

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Space organization in child-dedicated parks

Space is divided in 4 main areas

- **MANUALITY**
- **SYMBOLIC PLAY**
- **MOBILITY**
- **BALANCE**
Space organization in child-dedicated parks

Manuality

Balance
Space organization in child-dedicated parks

Symbolic games

Mobility
Space organization in child-dedicated parks

Mobility area
Space organization in child-dedicated parks

Concepts

Aggregation of elements dedicated to the same competence facilitates spontaneous training of different skills of that functional group.

Presence of elements of different level facilitates selection of “preferred play”

Proximity of elements of higher difficulty stimulates challenging behavior.
THE RESEARCH

BALANCE ELASTIC BEAM
Length 300 cm, width 20 cm, high 40 cm

IT IS A VERY DIFFICULT TOOL

QUESTIONS
HOW DO CHILDREN USE A VERY DIFFICULT TOOL?
MAY A VERY DIFFICULT TOOL PROMOTE MOTOR DEVELOPMENT?
Affordances are key elements in motor development, both in everyday movements and exercise. Gibson (1966, 1979) used the term affordance to describe the function the environment provides to the individual. It is related to size and shape of the objects and individual, within a certain setting.
• Affordances are **possibilities for action**, the environment offers (J. J. Gibson 1979)

• **Possibilities for action** depend on the fit between **body capabilities** and the physical properties of the environment.

• **New motor** skills provide new affordances

• **The Strength** is an important factor in determining our affordances (Gagen, Haywood and Spaner 2005).
• We perceive whether we are able to do something,
• If something is within arm’s reach and whether it will fit into our grasp.

• We perceive the **functional relations between self and the world** (E. J. Gibson, 1980).
When our action capabilities change we change our perception for action

Changing our perception for action we have again

new possibilities for action
• Perception of affordance implies perceiving possibilities for potential future actions

• That guides planning of future actions

• Planning improve with learning and experience.
METHODS

• 59, 5 years old children from 2 kindergarten in Treviso (Italy)
• 1 time a week, separately
• 10 weeks
• 30 min structured activity: children, (divided in groups of 4-5) were invited to follow an itinerary of tools of different level of difficulty
• 30 min free play: every child could decide what to do and where to play
A – Experimental group

n. 30 children: children could rely on the teacher to get on the beam; when on it, the teacher told them that they could jump down if they lost balance or were scared of walking on the beam. After jumping, they were encouraged to go up again at the same point of the beam, along the whole beam. They repeated the balance circuit for 10 minute, 3-4 turns.
**B – CONTROL GROUP**

29 children: Children of group B received no help and were left alone to find out the best strategy to learn to walk on the beam. They also repeated the balance circuit for 10 minute, 3-4 turns.
**Data collection**
Data were collected at the beginning and the end of the 3 months period at the playground

**Measurements**
Number of falls
Total time to walk on the beam

**Instruments**
Videocamera, stop watch
Children behaviour in the two conditions was observed off-line.
Children able to climb and walk the beam

**GROUP A EXPERIMENTAL**
PRE - POST
Able to climb

**GROUP B CONTROL**
PRE - POST
Able to climb

**POST TEST GROUP A**
- 80% able to climb
- 3% require scaffold
- 2% not climb

**POST TEST GROUP B**
- 20% able to climb
- 80% not able to climb
WALKING ON BALANCE BEAM

GROUP A
EXPERIMENTAL
Falls from elastic beam

50 1,2 FALLS
33 NO FALLS
17 >2 FALLS

GROUP B CONTROL
Falls from elastic beam

83 DON'T CLIMB
17 CLIMB BUT NOT >2 STEPS
RESULTS

GROUP A

Acquired ability to walk on the spring bar was not correlated with height, weight and abdominal circumference of the children

During free play time, 85% of children played on spring bars after the first five lessons

GROUP B

Antropometric data are not different from group A

None of the children played with the spring bar during free play time
CONCLUSION

• Children modified body scale independently from anthropo-metric measurements
• Children of control group (group B) didn’t modify their body scale and affordances
• The teacher mediation helped children to work in zone of proximal development and to modify perception of the tool
• Teacher mediation provides children to improve perception of competence and subsequently new motor skills, providing motor development
Thank you
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