Perspectives on School Infrastructure A BRITISH EXAMPLE

Objectives of the research

To bring evidence for "good infrastructure" for quality learning

To give suggestions for future investment in longterm learning infrastructure

An interdependent cycle



Content of Learning learning infrastructure



Research questions

- What learning spaces are available in the school?
- What are the children's views?
- What are the teachers' views?
- Which suggestions can be made for lifelong quality learning?

The school

- A typical primary community school in North East England
- 151 pupils in roll, some with special needs and learning difficulties
- Range of spaces: Specialist language Class, Early Years Unit, Computer Room, Library, Community Garden, PE area etc.

Data collection

- Observation of school
- Preparatory focus group interview with teachers
- Photographing the school

- Diamond ranking activity with children
- Diamond ranking activity with teachers
- Semi-structured interview with the head

Early Years Unit: playground



Year 2 classroom

Carpet space



Table space



What do children feel about their spaces?

How do teachers evaluate effectiveness of the spaces in terms of learning?



Diamond ranking activity in Year 4



Research outcomes

Teachers:

- Computers and books as main sources of learning
- Computer room, carpet space and school garden as main spaces for learning

Speaking of carpet space:

Teachers

"When they (children) are on carpet, they are less distracted by peers, and all of them are close to you".

Children

"It's boring, because you have to sit quietly and wait for ages to be told what you are going to do".

Research outcomes

Children:

- School garden and large playground as top ranked spaces for learning and cooperation
- Carpet space and classroom displays as least favorite spaces

Discussion of results

- Different school spaces directly influence pupils' behavior and liking of school
- Investment spaces, such as interactive whiteboards, computer rooms, furniture etc. need to be bought or renewed after consideration of needs of curricula

- There is a rising need for the expansion of garden and outdoor spaces in schools and in curricula
- Different spaces supporting individual, pair, group and collaborative learning ought to be created
- There is a need for spaces that support learning of gifted children, as well as those with special needs and learning difficulties

References

- BERA (2011) Ethical Guidelines for Educational Research. [Online] Retrieved from: <u>http://bera.ac.uk/wp-content/uploads/2014/02/BERA-Ethical-Guidelines-2011.pdf?nodirect=1</u>
- Blair, D. (2009) The Child in the Garden: An Evaluative Review of the Benefits of School Gardening. Journal of Environmental Education, 40(2), 15-38.
- Cardellino, P. and Leiringer, R. (2014) Facilitating change in primary education: the role of existing school facilities in ICT initiative. Facilities, 32(13-14), 845-855.
- Clark, A. (2012) Using diamond ranking as visual cues to engage young people in the research process. Qualitative Research Journal, 12(2), 222-237.
- Clark, J., Laing, K., Tiplady, L. and Woolner, P. (2013) Making connections: Theory and practice of using visual methods to aid participation in research. Research Centre for Learning and Teaching, Newcastle University.
- Cuban, L. (2001) Oversold and underused: computers in the classroom. Cambridge, Mass.: Harvard University Press.
- Darbyshire, P., MacDougall, C. and Schiller, W. (2005) Multiple methods in qualitative research with children: More insight or just more? Qualitative Research, 5(4), 417-436.
- Díaz, A., Nussbaum, M. and Varela, I. (2015) Orchestrating the XO Computer with Digital and Conventional Resources to Teach Mathematics. Journal of Computer Assisted Learning, 31(3), 202-219.
- Dillon, J., Rickinson, M., Sanders, D., Teamey, K. and Benefield, P. (2003) Improving the Understanding of Food, Farming and Land Management amongst School-age Children: A Literature Review. [Online] Retrieved from: <u>http://www.geoperi.gr/documents/food%20farming.pdf</u>
- Hanushek, E.A. (1997) Assessing the effects of school resources on student performance: An update. Educational Evaluation and Policy Analysis, 19(2), 141-164.
- Harper, D. (2002) Talking about pictures: A case for photo elicitation. Visual Studies, 17(1), 13-26.
- Heemskerk, I., Kuiper, E. and Meijer, J. (2014) Interactive whiteboard and virtual learning environment combined: effects on mathematics education. Journal of Computer Assisted Learning, 30(5), 465-478.
- McCarter, S. and Woolner, P. (2011) Optimal Environments for Learning: The Interface of Psychology, Architectural Design and Educational Practice. Educational& Child Psychology, 28(1), 20-32
- Murillo, F.J. and Román, M. (2011) School infrastructure and resources do matter: Analysis of the incidence of school resources on the performance of Latin American students. School Effectiveness and School Improvement, 22(1), 29-50.
- Murphy, C., Varley, J. and Veale, Ó. (2012) I'd rather they did Experiments with us.... Than just Talking: Irish Children's Views of Primary School Science. Research in Science Education, 42(3), 415-438.
- Ofsted (2012) [no name] [Online] Retrieved from: <u>http://reports.ofsted.gov.uk/</u>
- Sandars, J., Patel, R., Goh, P., Kokatailo, P. and Lafferty, N. (2015) The importance of educational theories for facilitating learning when using technology in medical education. Medical Teacher, 37(11), 1039.
- Steele, F., Vignoles, A. and Jenkins, A. (2007) The effect of school resources on pupil attainment: a multilevel simultaneous equation modelling approach. Journal of The Royal Statistical Society Series A-Statistics in Society, 170, 801-824.
- Wall, K., Higgins, S. and Smith, H. (2005) The visual helps me understand the complicated things': pupil views of teaching and learning with interactive whiteboards. British Journal of Educational Technology, 36(5), 851-867.

Thank you!