

Introduction to the Special Issue

Children and Youngsters and Technology

Serenella Besio^{a,*} and Anna-Liisa Salminen^b

^a*SIVA, Fondazione Don Carlo Gnocchi ONLUS, via Capecelatro 66, I-20148 Milano, Italy*

E-mail: serenella.besio@siva.it

^b*STAKES, National Research and Development Centre for Welfare and Health, PL 220, 00531 Helsinki, Finland*
Tel.: +358 40 5600935; E-mail: Anna-Liisa.Salminen@stakes.fi

1. The contribution of human sciences to the use of Assistive Technology

Technology plays a significant role in all aspects of children's and youngsters' life in Europe today, and this role will only increase in the future. A wealthy debate on the use of ICTs to support learning and participation has been initiated some years ago and is still alive, giving human sciences (mainly pedagogy and psychology) a new occasion to rethink and redesign their methods and practices so that they can fully answer to the modern challenges of life. This aspect is an underlying theme of the present issue of the journal.

Many researchers in the field stress that in the renewal of the processes of teaching and learning, technology is not a solution in itself. On the contrary, the main accent should be put on the pedagogical imperative (both in respect of the methodological and the relational), so that the educators and the field professionals can consider technology only one of the possible tools (indeed, a very powerful one) to do the work they are prepared for.

2. The approach of human sciences to the use of technology

A suitable pedagogical point of view can give the educators the possibility of renewing their own teach-

ing approach by using technology. The widespread experiences of co-operative and collaborative learning testify to this new trend: children are given the opportunity to participate as partners in the design of their own products, while teachers and educators can make use of a combination of evaluation, brainstorming and traditional educational methods.

These considerations can also be applied to the field of special education and learning for children and youngsters with disabilities. While technology in this case can play different and original roles (mainly, the role of Assistive Technology), nevertheless, when it is used as a means to learn, communicate, and participate in everyday life, the importance of the choice of the pedagogical and psychological approaches should not be disregarded. Experiences and studies presented in this issue are – we hope – a clear example of this point.

The ecological perspective in educational psychology [3] has strongly stressed in recent years that all children (with or without impairment) learn and grow by being totally immersed in their life contexts and by playing and communicating with adults and their pairs. The Vygotskijan notion of the Zone of Proximal Development [19] brought new vitality to the educational field in terms of methods, practices and above all awareness about the role played by the adult when living and/or working with the young.

These considerations give us new reasons to support the international movement towards the inclusion of children and youngsters with disabilities in the school-of-all and in the life-of-all. Only these contexts can

*Corresponding author.

give them the chance to face a lot of different models and opportunities, as well as the right motivation to try, test, and experiment with their “different” abilities.

As stressed in this issue of the journal, in some cases these children will need appropriate and sometimes very complex technologies, such as robotics and computers, to be able to participate; and in this, their experiences will also need to be supported by the right pedagogical approaches.

3. Contextualizing technology

Evidence from field research makes it clear that it is not only a case of choosing the right technology. Many studies underline that, for example, the object-related play skills of pre-school children with developmental concerns are enhanced through adequate intervention strategies. Furthermore, the level and complexity of children’s symbolic play depends on both play material and the play context. Research results show that the cultural context has a positive influence on children’s quest for meaningful action. A child’s imagination is not captured by an object itself, but by the story which gives the object and the actions their meaning. When adults play roles and dramatise a chain of events, they open a door to a play world which the children can enter.

In the case of children with severe impairment, a correct choice of toys, as well as a suitable planning of the play and life situations are the real key to success; in this respect, many studies also stress the importance of the role played by their parents in transferring knowledge about their child to the professionals, about what his/her attitudes and preferences are, which solutions they have already successfully and unsuccessfully experienced in the course of learning and participating. On the other hand, the parents’ own needs and expectations have great significance when planning pedagogical interventions. Only by involving them can the professionals make a really significant impact.

Furthermore, play is strictly related to language and communication development. In fact, certain aspects of play are connected to the emerging linguistic skills, and especially symbolic play is significantly correlated with both expressive and receptive language.

By being able to play and communicate with the partners in their environment, the young can acquire new abilities, understand the world, interact with others, express and control emotions, develop symbolic capabilities, attempt novel or challenging tasks, solve problems,

and practice skills. Abilities in problem-solving, creativity, language and social competence seem to grow together.

4. The professional challenge

Suitable changes in the life contexts where children and the young with disabilities develop should take place, and professionals in the field should accomplish a new pedagogical awareness.

The challenge professionals must now face is very complex but also extraordinary: they should master competence in the fields of technology, education and rehabilitation; be able to act as “coachers” for the to-be-developed abilities of the young; build and maintain supportive and co-operative relationships with the group of young students; they should also plan, realize and verify mainstream pedagogical projects in which persons with disabilities can grow with their pairs in spite of their impairments. To put it briefly, they should look at the young with disabilities as a resource for the teaching process.

This professional challenge also concerns researchers. More research, especially research based on participatory and co-operative methods, is needed to study the potential of technology for children and youngsters with disabilities, as well as to develop models for planning and for practice. Furthermore, it is necessary to develop instruments and methodologies that are suitable to assess the outcomes of the use of Assistive Technologies, and to investigate the impact of technology in the case of young people, their life and their active participation in the life of society.

References

- [1] M. Arthur et al., Enhancing Peer Interactions Within the Context of Play, *International Journal of Disability, Development and Education* **46**(3) (1999), 367–381.
- [2] J. Brodin and P. Lindstrand, What about ICT in special education? Special educators evaluate information and communication technology as a learning tool, *European Journal of Special Needs Education* **18**(1) (2003), 71–87.
- [3] U. Bronfenbrenner and P.A. Morris, The ecology of developmental processes, in: *Handbook of Child Psychology*, (Vol. 1, Theory), (5th ed.), W. Damon (Series Ed.) and R.M. Lerner (Vol. Ed.), New York: Wiley, 1998.
- [4] P. Coltman et al., Scaffolding Learning through Meaningful Tasks and Adult Interaction, *Early Years: Journal of International Research & Development* **22**(1) (2002), 39–49.
- [5] A. Cross, Teacher Influence on Pupil Autonomy in Primary School Design and Technology, *Research in Science & Technological Education* **21**(1) (2003), 123–135.

- [6] J. Davie and C. Kemp, A Comparison of the Expressive Language Opportunities Provided by Shared Book Reading and Facilitated Play for Young Children with Mild to Moderate Intellectual Disabilities, *Educational Psychology* **22**(4) (2002), 445–460.
- [7] S. Freire and M. César, Inclusive ideals/inclusive practices: how far is a dream from reality? Five comparative case studies, *European Journal of Special Needs Education* **18**(3) (2003), 341–354.
- [8] T. Harland, Vygotsky's Zone of Proximal Development and Problem-based Learning: linking a theoretical concept with practice through action research, *Teaching in Higher Education* **8**(2) (2003,) 263–272.
- [9] V. Lewis et al., Relationships between symbolic play, functional play, verbal and non-verbal ability in young children, *International Journal of Language & Communication Disorders* **35**(1) (2000), 117–127.
- [10] L. Lind, 'Raising the bar': views on play and training in the Move & Walk pedagogy, *European Journal of Special Needs Education* **17**(2) (2002), 185–195.
- [11] G. Lindqvist, When Small Children Play: how adults dramatise and children create meaning, *Early Years: Journal of International Research & Development* **21**(1) (2001), 7–14.
- [12] S. Mrug and J.L. Wallander, Self-Concept of Young People with Physical Disabilities: does integration play a role?, *International Journal of Disability, Development and Education* **49**(3) (2002), 267–280.
- [13] J. Sandhu, New Information Technology in the Education of Disabled Children and Adults, *Disability & Society* **1**(2) (1986), 207–210.
- [14] C. Stephen and L. Plowman, Information and Communication Technologies in Pre-school Settings: a review of the literature, *International Journal of Early Years Education* **11**(3) (2003), 223–234.
- [15] G. Taxén et al., KidStory: a technology design partnership with children, *Behaviour & Information Technology* **20**(2) (2001), 119–125.
- [16] S. Thyssen, Child culture, play and child development, *Early Child Development and Care* **173**(6) (2003), 589–612.
- [17] L.M. Umek and P.L. Musek, Symbolic Play: opportunities for cognitive and language development in preschool settings, *Early Years: Journal of International Research & Development* **21**(1) (2001), 55–64.
- [18] M. Vlachou and P. Farrell, Object Mastery Motivation in Pre-school Children with and without Disabilities, *Educational Psychology* **20**(2) (2000), 167–176.
- [19] L.S. Vygotsky, Thinking and speech, in: *The collected works of L.S. Vygotsky*, (Vol. 1, Problems of general psychology), R.W. Rieber and A.S. Carton, eds, (Trans. N. Minick), New York: Plenum, 1934/1987.