

Strong Foundation through Play-based Learning

Pentti Hakkarainen*,

Ph.D, professor at the Faculty of Educational Sciences, University of Oulu, Kajaani University Consortium

Milda Bredikyte**,

Doctor of Educology, Faculty of Educational Sciences, University of Oulu, assistant of Kajaani University Consortium

Program guidelines of developmental early education sketch an educational framework for transforming principles of **Education for All** to teacher education practice. Guideline goals and recommendations are based on fresh research findings on early learning and neuroscience, Vygotskian methodological principles of cultural development and international comparisons of early education services. The core of the program consist of integrated study units, which emphasize teacher competences in promoting children's play-based learning, reflective skills in enhancing own and children's creativity, and guiding inclusive classroom activities. Play-based learning is emphasized because of its inclusive function in heterogeneous early education classroom and effects on executive functions of special needs children.

Keywords: developmental education, inclusion, play-based learning, early education, master's degree, teacher competences, assessment, creativity

Introduction

Opportunity for ECCE is essential condition to meet EFA goals and strong evidence indicates that high quality early education brings long-term developmental effects. High quality is connected to specific character of learning, imagination and creativity in early age. It has been demonstrated that brain develop-

ment (executive function and self-regulation as main indicators) decisively depend on children's play quality. Play development (advanced forms of social role-play) has been superior route to higher-level executive functions and self-regulation compared to all direct training programs. Executive function has been approximately four times more powerful predic-

* pentti.hakkarainen@oulu.fi

** milda.bredikyte@oulu.fi

tor of academic achievements at school (even high school) than IQ. The new program takes this evidence seriously and systematically develops play-guiding skills of students.

In 2008 the meeting of Moscow International Educational Forum collected international educational experts and administrators from ministries of education and non-governmental organizations from 35 countries, representatives of UNESCO, UNICEF and other international organizations and scientists from Russian Federation. The forum was dedicated to an important humanitarian issue of the modern world: early childhood education. Early childhood (birth to age 7) is a vital stage in development of a human personality. A huge potential of this age may be unveiled only by organizing appropriate early childhood education. The future of nations, regions and countries largely depends on how the goals of the global program **Education for All** are achieved. The participants of the forum proposed several topics to ensure full-fledged and all-round development of today's children, childcare and education. The proposals included the following themes among others:

- Develop inclusive education as a mechanism ensuring equal rights for education and development to all categories of children
- Focus efforts on the search for new adequate forms of presentation, positioning and raising status of early childhood teachers
- Pay more attention to family education; develop new forms of cooperation with teachers, which are attractive for parents
- Create conditions for development of different forms of early childhood education (environmental, aesthetic, emotional, personal and cognitive)
- Create conditions favourable for improving professional competences of all participants of the educational process

Growing evidence in favour of the long-term gains of early years' education has led to the statement by World Bank in 2005 that this age period is the most profitable investment object

in any educational system. Follow up studies demonstrate that high quality early education programs have statistically significant economic consequences among participants in experimental groups compared to control groups. The quality of services for young children has been emphasized in the recent OECD reports as well as in the UN-Convention on the Rights of the Child.

The master's program guideline is planned to follow above-mentioned proposals. The quality of provision has in the earlier studies been evaluated on program level, but it is widely known that the quality of workforce is crucial for the quality of provision. Highly educated workforce, which is able to create optimal activities and environments for child development is an essential condition for the quality of provision. There is a need for developmentally oriented and inclusive early childhood education and care (ECEC), which is lacking in many approaches to professional development.

This guideline document is a unifying tool for elaborating curricula and teaching programs at partner universities. The adopted model allows taking into account local understanding of cultural development and at the same time attaining goals of the global Education for All programs. Guidelines informs about the goals a developmental program aims at, what contents are included to the curriculum, how different domains of learning can be integrated at each stage of study. We recommend that even students participate in planning.

The aim of Master's Degree Program is to integrate developmental science and professional development at an advanced level and promote the development of learning potential and creativity of young children.

Aims of the program

Child development as the main criterion of high quality provision for young children (0–7) cannot totally be predefined in documents and curricula. Children are participants and producers of their own development and developmental processes have non-linear character. Child development is a product of co-construction rather than assimilation of knowledge and skills. The paradox of education is that edu-

cators have to teach independence and self-directness of children.

Co-construction of developmental trajectory of young children is always culturally constrained, but some universal human characteristics and mechanisms always are present. Qualitative changes in adult-child and child-child interaction, narrative learning as dominant type, transitions from dyadic adult-child affective interaction to imaginative peer interaction and adult guided learning are essential characteristics of developmental trajectory of the life of young children.

Narrative learning (NL) is an educational method that was developed and experimentally tested at the Research Center for Developmental Teaching and Learning at Oulu University in Finland. It is based on the theoretical ideas that story/narrative is a basic principle of human mind and a psychological tool formalizing and unifying human thought and knowledge into thematic units.

NL has its roots in developed forms of play and creative drama. Creation of narrative environment starts from a good and fascinating story. Adults invite children to explore story events. Learning tasks and problems are embedded in the plot of the story. NL supports psychological transition from play to school learning.

A special emphasis of the program is on the continuity between developmental transitions and educational support at transitions. The program focuses especially on educational approaches needed at the transition to imaginative role-play, development of advanced forms of play, transitory activity between play and learning and transition to school learning (learning activity).

The curriculum of the Master's Degree Program has the following objectives:

1. Promotion of culturally appropriate developmental transitions of all children. Developmental continuity of young children is emphasized in the curriculum by demonstrating the close connection between latent and crisis periods. A special task is to understand the dynamics of motivation at crisis pe-

riods and the importance of joint activity in individual development.

2. Professional mastery of developmentally appropriate dialogic educational methods (child centred approach). Young children appropriate skills of verbal communication gradually and they need different types of adult support at different steps of development. The mastery of a more holistic contact and interaction is necessary between adults and children (e.g. adults' mastery of taking interesting and challenging play roles).

3. Integration of Master's Degree students' learning of scientific, professional and practical thinking in all study units. The curriculum aims at high-level integrative learning in all phases. Scientific-theoretical and professional learning are trained in educational practice as much as in other forms of studies.

4. Pedagogical creativity is an essential objective in a curriculum aiming at independence and self-directness of children. Without it educators are not able to solve the paradox of education (how to form another person's independence) and miss the opportunities of promoting self-development of children.

5. Diversity and equal opportunities is the basic objective of inclusive early education.

Play-based narrative learning

Our understanding of learning in preschool age (0–7 years) is radically changing. Learning has been developed and evaluated using the same methods and approaches as are used at school. But fresh research results demonstrate that early learning should emphasize affective relations, imagination, experimentation and personal creativity. School-like cognitive emphasis lacks developmental impact during early years compared to play-based narrative learning. Early learning has a specific function of constructing the self and initiatives (curiosity) of the child, which form the basis of formal learning at school age.

Often play and school-like learning is confronted claiming that genuine learning cannot take place in play, only as a result of teaching. Even better test results in play-based learning compared to classroom teaching cannot convince all teachers (“They got much better marks in test than last year, but I gave them extra home work because they only played”). But the essence of narrative learning is not in the mastery of new knowledge and better marks in tests. Narrative learning is closely connected to reorganization of psychological processes and executive (brain) functions. We can talk about development of the learners rather than development as mastering more knowledge and skills in preschool childhood.

What evidence we have about the effects of play-based narrative learning in preschool age (0 – 7 years)? Brain research has proved a strong relation between narrative (symbolic) activities and development of executive functions. We can say that this partly confirms Vygotsky’s analysis on the developmental mechanism of play. “Play offers to the child a new form of volition, teaches him desire related to the fictive self (role in play and its rules). Abnegating means abiding by the rule normally, but here [in play] refusing to react to immediate impulses gives the greatest pleasure (how much there are conflicts between two pleasures and fights about play)” [21, p. 337].

Executive functions are comprised of three core abilities: a) self-control, b) use of working memory, and c) cognitive flexibility. Description of the first core ability rephrases Vygotsky’s text. Self-control usually means the ability to resist an inclination to do one thing and do instead what is more appreciated. Working memory helps for making sense anything that unfolds over time. Creativity might not be possible without working memory. Cognitive flexibility is critical to creative problem solving and seeing any phenomenon from different perspectives [1; 4; 5; 6; 18; 19; 24]

Changes in executive functions are observed in such developmental disorders as autism spectrum [8; 18]. The potential of play as a tool of enhancing executive functions is implied in some research reports [2; 24]. Executive functions seem to reveal the develop-

ment of children’s readiness how to learn. This has high prognostic value in later stages of life. Play-based experiences are also supposed to have an essential role in the development of approaches to learning [15; 16].

According to the existing evidence play-based narrative learning has strong influence on the development of executive functions and brain processes behind them. Experience from play and other narrative activities (storytelling, drawing, music, dance etc.) have long standing influence on learning potential even for children with special needs. It is justified to talk about inclusive zone of proximal development of the whole classroom in connection with play-based narrative learning.

Teacher competences for promoting narrative learning and child development

Play-based narrative learning requires also specific approach to teaching from educators and redefinition of teacher competences of early childhood education. When play-based learning forms the centre of developmental early education new emphasis of interaction with children is needed. Educational measures should support children’s play development and creativity. Transformation of new knowledge and direct training of basic skills are not appropriate approaches in supporting play development. The new approach should encourage children actively participating in joint narrative activities, display initiative and creativity. The most effective educational methods often are indirect like inviting children to imaginative play worlds. Children’s creativity is not possible without environments, which stimulate creative activity. Teacher’s creativity is the best living example for children.

An essential prerequisite for promoting children’s narrative learning and development is the adult’s competence to understand their point of view and experience. Genuine emotions as well as attempts to understand and experiment with human relationships are an important aspect of children’s mature pretend play [7].

Unified European University System emphasizes new integrative approaches to the development of key competences in higher

education. Separate stages of theoretical learning and application to practice are replaced by integrative learning. This is partly forced by the co-creative nature of developmental processes in young children in early childhood education. Students have to create the environment of children's development, support developmental processes and elaborate their analytic skills in carrying out research. As co-creators they have to learn to take responsibility for their professional and personal development as well as for the curriculum development. Blended learning arrangements are used to organize the studies.

Key features of this approach are:

- Reversed proceeding in learning theoretical concepts (from practical problems to theoretical concepts)
- All study phases integrate educational practice, research studies and theoretical study (there is no separate practice or theoretical readings)
- Reflection and joint thinking based on video observations of practical work is an essential part of learning
- The students have responsibility to organize developmental environments and record qualitative changes in children's activity
- The thesis will be integrated with the proceeding of the studies in subject areas depending on local possibilities.

The focus of studies in the international program is on the main theoretical concepts reflecting developmental trajectory of young children: narrative learning and development in imaginative play, transitory activity as developmental environment, learning potential and learning activity.

Assessment of development

The approach of the international program focuses on the development of children's learning potential and creativity. This change of emphasis brings along the need for changing the approach to assessment as well. Emphasis on learning knowledge and skills in curriculum makes possible to define criteria and standards of mastery in advance. Learning results

can be compared with predefined criteria. This approach is not sensitive to children's creativity and psychological development. Learning results most often reveal the child's ability to repeat the taught knowledge in test situation. Transfer of learning to daily life has always been problematic in this approach.

Play-based narrative learning leaves space for children's and adults' joint and personal creativity. Different interpretations and sense making always are possible. Correct answers and solutions cannot be predefined because alternative interpretations are made on the spot in joint activities. Joint reflection on best solutions and interpretations can be organized after proposing alternatives. Tensions between alternatives can lead to dramatic collisions, which Vygotsky [22] described as development in terms of drama.

Assessment of development uses nonlinear logic. At any point of educational interaction unexpected turns and creative innovations are possible. This means that assessment should also be dispersed throughout the whole educational process and educators should master appropriate dynamic assessment skills in order to support children's creativity and reflect their own educational measures. This type of assessment is carried out on several levels. Children's individual participation in joint activity, creative initiatives, whole group narrative activity, educators' own creativity and interaction with children, all should be focused on in assessment. At individual level the mastery of skills of mastering executive functions can be measured.

Conclusions

World Bank organized in 2005 a scientific conference presenting evidence about the effects of early childhood education programs on later life trajectory of children. The summarizing conclusion was that early education is the most profitable investment in education [3; 14]. Most studies focus on program level effects on individual life trajectory. North Carolina Abecedarian project¹ is perhaps the best-documented educational program describing the treatment of children. The key to success was daily

¹For more information see: Early Learning, Later Success: The Abecedarian Study <http://www.fpg.unc.edu/~abc/ells-04.pdf>

one-hour's educational interaction (games, puzzles, object manipulation etc.) between an adult and each child. Most international comparisons of early childhood education and care focus on differences of provision of services in different countries, not educational interaction or relationships.

Developmental early childhood education is based on Vygotsky's theoretical ideas about social situation of development and importance of social relationships in education as the most important prerequisites for individual development. According to these ideas holistic development of children can take place in creative cultural environments. Children's creativity happens most often in play environments and adult creativity supports acquisition of cultural forms of behavior. Active educational measures require creation of social collisions, which may start children's developmental processes. A need for changing one's own thinking and behavior may arise from collisions.

Developmental education requires new competences from teachers. Perhaps the most challenging task is to construct inclusive whole group activities (play), which support the development of all children. Our experience demonstrates that play world environments can be the most profitable environments even for the young children who are not yet able to actively play in multi-age groups. In our empirical

work the most powerful inclusive tool has been the creation of joint imaginative situation. It was impossible to identify children (5–6 years olds) with special needs in play world environment, but these children changed to serious trouble-makers in the traditional teacher-led classroom work [9, 10; 11; 12; 13].

The evidence from neuroscience has been accepted internationally as the basis of sound policy toward early childhood and the contradiction between the growing amount of out-of-home care and importance of loving, stable, secure and stimulating relationships has been recognized [20] Developing new teacher competences and organizing creative educational environment for children can solve this contradiction. On the basis of our empirical research we fully agree with the conclusion of the report: "Finally, research has also drawn attention to the child's emerging sense of 'agency' – the feeling of being able to influence events and situations. If this is encouraged by adult responses, then motivation, confidence and competence will tend to flourish. If it is not reinforced, or if it is actively discouraged by negative reaction or punishment, then these essential aspects of psychological development are likely to be compromised. For all of these reasons, the relationship between infants and parents or primary caregivers is critical to the child's emotional, psychological and cognitive development" [20, p. 7].

References

1. *Carlson, S.M., Moses, L.J. & Claxton, L.J.* Individual differences in executive functioning and theory of mind: An investigation of inhibitory control and planning ability // *Journal of Experimental Child Psychology*. 2004. № 87.
2. *Carlson, S.M., Beck, D.M.* Symbols as tools in the development of executive function. In: A. Winsler, C. Fernyhough, & I. Montero (Eds.). *Private Speech, Executive Functioning, and the Development of Verbal Self-regulation*. New York, 2009.
3. *Carneiro P., Heckman, J.* Human Capital Policy. Cambridge, MA: National Bureau of Economic Research Working Paper Series. 2003.
4. *Davidson, M.C., Amso, D., Anderson, L.C., Diamond, A.* Development of cognitive control and executive functions from 4–13 years: evidence from manipulations of memory, inhibition, and task switching // *Neuropsychologia*. 2006. 44.
5. *Diamond, A.* The Early Development of Executive Functions. In: E. Bialystok, F. Craik. *Lifespan Cognition*. New York, 2006.
6. *Diamond, A., Barnett, S., Thomas, J., & Munro, S.* Preschool program improves cognitive control // *Science*. 2007. № 318.
7. *Elkonin, D. B.* *Psikhologiya igry*. M., 1978.
8. *Hill, E.* Evaluating the theory of executive dysfunction in autism // *Developmental Review*. 2004. № 24.
9. *Hakkarainen, P.* Learning and development in play. In: J. Einarsdottir, J. Wagner (Eds.). *Nordic childhoods and early education*. 183–222. Connecticut: Information Age Publishing. 2006.
10. *Hakkarainen, P.* The challenges and possibilities of a narrative learning approach in the Finnish early childhood education system // *International Journal of Educational Research*. 2008a. № 47.
11. *Hakkarainen, P.* Curriculum models of early childhood education. // *Early Childhood Practice*. 2008b. Vol. 10, p. 1.
12. *Hakkarainen, P.* Development of motivation in play and narratives. In S. Blenkinshop (ed.). *The Imagination in Education: Extending the Boundaries of Theory and Practice*. Newcastle upon Tyne: Cambridge Scholars Publishing, 2009.
13. *Hakkarainen, P., Bredikyte, M.* The zone of proximal development in play and learning // *Journal of cultural-historical psychology*. 2008. 4.
14. *Heckman, J.J.* Skill Formation and the Economics of Investing in Disadvantaged Children // *Science*. 2006. Vol. 312. № 5782.
15. *Hirsh-Pasek, K., Golinkoff, R.M., Berk, L.E., & Singer, D.G.* A mandate for playful learning in the preschool: Presenting the evidence. New York, 2009.
16. *Hyson, M.* Enthusiastic and engaged learners: Approaches to learning in the early childhood classroom. New York, 2008.
17. *Hughes, C., Graham, A., Grayson, A.* Executive functions in childhood: development and disorder. In: Oates J. & Grayson. A. *Cognitive and Language Development in Children*. Oxford UK. Blackwell Publishing. 2004.
18. *Isquith, P.K., Gioia, G.A., & Epsy, K.A.* Executive function in preschool children: Examination through everyday behavior // *Developmental Neuropsychology*. 2004. 26:1.
19. *Martin, J., Fairlows, L.* Executive function: Theoretical concerns. In R. Sokol, U. Muller, J. Carpendale, A. Young & G. Iarocci (Eds). *Self and social regulation. Social interaction and the development social understanding and executive functions*. New York, 2010.
20. UNICEF The child care transition, Innocenti Report Card 8, Florence: UNICEF Innocenti Research Centre, 2008.
21. *Vygotsky, L.S.* Lektzii po psikhologii detei doshkol'nogo vozrasta. [Lectures on the psychology of preschool age children] In: D.B. El'konin. *Psikhologiya igry*. M., 1978.
22. *Vygotsky, L.S.* *Collected works*. Vol. 4. New York, 1997.
23. *Zelazo, P.D. & Cunningham W.* Executive function: Mechanisms underlying emotion regulation. In J. Gross (Ed.), *Handbook of emotion regulation*, New York, 2007.
24. *Zelazo, P.D., Muller, U., Frye, D., Marcovitch, S., Argitis, G., Boseovski, J., Chiang, J.K., Hongwanishkul, D., Schuster, B.V., Sutherland A., & Carlson, S.M.* The development of executive function in early childhood. *Monographs of the Society for Research in Child Development*. Serial No. 274, 68 (3). Ann Arbor, MI: Society for Research in Child Development, 2003.