PEDAGOGICAL PRINCIPLES IN THE SEEDS PROJECT

CONTENT

INTRODUCTION

The project "Social Entrepreneurship Empowering Development in preSchools" (SEEDS) is a two year project, running from September 2018 to October 2020, and funded by the European fund Erasmus+ Strategic Partnerships for School Education.

The main goal of the project was to develop pedagogical methods for preschool education, to support early learning of relevant skills like entrepreneurial mind-sets, digital media and to insure social inclusion of all children in this learning. SEEDS aims to equip children from an early age, with the seeds for the development of an entrepreneurial compass in interplay with digital media. This compass starts from the individual as a citizen and builds on their particular skills and competences to enhance the four points of the compass; critical reflection, collaboration, co-creation and agency.

SEEDS has developed a preschool pedagogy, described through a collection of resource materials that contain the SEEDS pedagogy, educational guidelines and principles, methods (the present document), best practice and a concrete toolkit with digital media resources. The resource materials were developed based on activities across local experimenting communities in the 4 partner countries; Germany, Italy, Cyprus and Denmark.

In this document, we introduce a line of pedagogical principles that form a foundation for the SEEDS project and that have been influential in the methods and activities of the SEEDS project.

A PEDAGOGY OF THE PAST AND FUTURE

The SEEDS pedagogy, which is a pedagogy of the future is also connected to the pedagogy if the past. One example is of a direct connection between the first kindergartens in Europe in the 18th century and children's experiments with technology today has for instance been made by Mitchel Resnick, who is inspired by Fröbel's ideas from the 19th century about kindergartens where children experiment and play with toys, materials and other objects (Resnick, 2017, p.13). Resnick even emphasizes that education for all age groups should be based on how children play in kindergarten. He calls this the Lifelong Kindergarten. The very learning process everybody should go through is based on a creative learning spiral. He describes a process, where children both imagine, create, play and reflect upon what they have done and then the process continues. The use of the term spiral indicates that it is an ongoing process that can be repeated. This process supports children´s creative thinking, that is described like this: "They learn to develop their own ideas, try them out, experiment with alternatives, get input from others, and generate new ideas based on their experiences" (Resnick, 2017, p.13). The center of the creative learning spiral is the experiment and is an integrated part of the pedagogy.

It is quite plausible to point to some European traditions to understand the approach to the use of digital technology and social entrepreneurship by understanding children as autonomous learners. If you look at educational pioneers like Maria Montessori, Rudolf Steiner and the whole Reggio Emilia approach, you can see an "…experiential, constructivist approaches to learning in which young children are encouraged to experiment, take risks and lead their own learning…" (Marsh et all 2017, p.31). Montesorri can be argued to welcome present technologies in society, as she states that "…children should be fitted to take part in a civilization which is entirely based on machines." (Montesorri, 1948:8). The Reggio Emilia does also include makerspaces and digital technologies, as can be seen in a recent collaboration between The LEGO-Foundation and the Fondazione Reggio Children – Centro Loris Malaguzzi (https://scintillae.org/en/scintillae-project). One might think, that the Steiner-pedagogy excludes digital media or technologies, but resent developments in Denmark points at that this might be changing and that teaching digital technologies can be part of the curriculum at a Steiner School (Christensen 2019). In all three cases the digital technologies are used according to the pedagogical tradition in question.

THE MAKERSPACE AS A MINDSET

Another actual development of the pedagogies is the makerspace as a pedagogical method and principles. A makerspace can be described as a workplace, where the participants make something using a combination of digital and analogue tools and technologies (Sandvik & Thestrup 2018). It can also be described as a third space, somewhere between school and home, having its own rules and reasons (Potter & McDougall 2017). The traditional hierarchies between teacher and pupil can be changed into a relation of exchange and common investigation.

In the MakEY-project´s review on makerspaces and their settings, one can also read that a makerspace is nothing fixed or pre-determined regarding processes, choices of technologies and designated spaces. It depends on the context, what kind of makerspace, the actual makerspace turns out to be (Marsh et al 2017:61). A makerspace can be placed in a more informal setting or a more formal and it can be more temporary or more permanent. The learning process might be very different depending on if it takes place in a school, a pre-school or a kindergarten, influencing the choice and actual use of technologies. An informal learning space might be just as instructional and delivering given answers as a formal learning space. It depends on the teachers, the pre-school teachers or the pedagogues and the pedagogical tradition, they base their pedagogical methods on.

A makerspace can be made open to circumstances and interests depending on who wants to do what in that particular space. A makerspace can be said to be adjustable and fluent and represents both an actual configuration but even more a mindset carried out by the participants in the makerspace. It is never quite finished in the choice of technologies and the use of them. A makerspace is more of a mindset than a fixed entity. It is a way to use the creative learning spiral

and make the participants act and reflect upon what they are doing and where they are going. As the makerspace can be placed in many settings, a kindergarten or a pre-school can also be a place with a relatively free pedagogical space to experiment.

THE SOCIAL ENTREPRENEURIAL MINDSET

One more source of inspiration is social entrepreneurship that has to do with changing society. It can be described as a way to use business entrepreneurship for social or environmental purposes. Even when entrepreneurship is not specified to be precisely social entrepreneurship it need not be directed at merely business. In EU entrepreneurship can be understood with a dual focus:

Firstly, the development of entrepreneurial attitudes, skills and knowledge should enable the individual to turn ideas into action. Secondly, entrepreneurship is not only related to economic activities and business creation, but more widely to all areas of life and society … Innovative and creative action can be taken within a new venture, or within existing organisations, i.e. as 'intrapreneurial activity' (Eurydice 2016:21).

In education, social entrepreneurship is about connecting to the local community and the larger society. In this context, social entrepreneurship can be focusing on a certain number of competences needed as a kind of foundation for further work. Below is a description connected to digitalization:

The school should stimulate pupils' creativity, curiosity and self-confidence, as well as their desire to translate ideas into action and solve problems. Pupils should have the opportunity to take initiatives and assume responsibility, and to develop their ability to work both independently and together with others. The school should contribute to pupils developing an understanding of how digitalization is affecting the individual and the development of society. All pupils should be given the opportunity to develop their ability to use digital technology. They should also be given the opportunity to develop a critical, responsible attitude towards digital technology, so that they can see opportunities and understand risks, and also be able to evaluate information.

The educational program should thus provide pupils with conditions to develop digital competence and an attitude that promotes entrepreneurship (Swedish National Agency for Education 2018:8).

Even though the description is directed towards digitalization, the skills described are of a sort, where they could used upon a number of areas, themes and challenges addressed in society. Education might also need to change itself and letting innovation be part of the curriculum, where an innovative pedagogy is "…a teaching practice or approach that is often new to a given context …" and "…. to promote experimentation…" (European Union 2018:11).

Education all the way from pre-school to university can be seen as a possibility to work with value-creation, which is where students of all ages can work with making values for others beyond the dichotomy of economy and sociology (Lackéus 2016). Value would then cover 5 areas: social value creation, which is traditionally the area of social entrepreneurship, Influence value creation where one´s power and influence is increased, harmony value creation, that are focusing on collective values such as the common good, enjoyment value creation, where creating value just for the fun of it is at the center and finally economic value creation, which focusses on delivering what others want (Lackéus 2016:19). With this broad definition it is possible to give children's creativity and play a space in social entrepreneurship as it is no longer only about making business plans, producing objects that can be sold or presenting ideas in the classroom. A study indicates that "…entrepreneurship education is most common at upper secondary level…" (Eurydice 2016:12). But as one example from a number of pre-schools demonstrates, it can be done with smaller children (https://enterprisingschools.scot/early-years/). Experiments can be made a central part of the education right from preschool to support digital literacy and creativity (Marsh, Kumpulainen & Blum-Ross 2020).

PLAYFUL LEARNING

The LEGO-foundation has published several reports that are of importance to the discussion about play and creativity (Thomsen & Gauntlett 2013, Zosh et all 2017, Gawn 2019, Parker & Thomsen 2019). Thomsen & Gauntlett argues that at the center of any culture you have a process of meaning making involving the participants as they develop the culture. They talk about a creative mindset, that is supported, when "…there are stimulating environments and resources (having), when there is a lot of inspirational activity and the engaging support of peers and mentors (doing), when there is an ethos which supports the passions of makers (being), and where there is a solid body of expertise and knowledge, and support for learning (knowing)…" (Thomsen & Gauntlett 2013:6).

This understanding of creativity has to do with when cultures meet each other globally but it is also important when thinking about competences needed in the future workforce and therefore in education as well (Gawn 2019). WEF considers creativity to be one of the three most important skills in 2020 (https://www.weforum.org/agenda/2016/01/the-10-skills-you-need-to-thrive-in-the-fourth-industrial-revolution/). Play is also considered important in the education system by both the World Economic Forum (Goodwin 2020) and OECD (Rabella 2019).

Play is important when establishing a creative mindset. It is one component in Resnick's creative learning spiral but it might even be argued, that it is part of the whole spiral, as it also can be seen as part of playing, when children imagine what to do, and create and share it with others. Even reflecting upon what they just did, can be seen as part of playing, as they prepare or agree upon what to do next. Play is also part of being creative in educational settings (Zosh et all 2018), where

one can talk about establishing processes of playful learning all the way from children's own free play over guided play, where adults initiate and frame the playing over to playful instruction, where adults initiate, frame and decide most of what is going on. Playful learning has to be guided by 5 principles: Iterative, actively engaging, socially interactive, meaningful and joyful (Zosh et all 2017, Parker & Thomsen 2019).

Playful learning is also part of an ongoing national project where the LEGO Foundation work together with all the University Colleges in Denmark on developing how learning can happen through play (https://playful-learning.dk/). It is an ongoing project and will probably activate the discussions mentioned in this text. As part of this it will also be necessary to look at what pedagogical principles and methods that might support and understand play and playful learning. This text has already through its figures sketched out some possibilities, but one can also find some inspiration in one of the LEGO-reports (Parker & Thomsen 2019). Here they go through a number of approaches to learning and frames them as part of playful learning. One is for instance Cooperative and collaborative learning, where the processes are designed to support peer interactions. Another is experiential learning, where experiences inside and outside the classroom promote meaningful learning. A third is guided discovery learning, where the teacher supports and scaffolds the discovery of knowledge. A fourth is actually Montesorri education, where self-directed and hands-on learning with teacher guidance is at the center (Parker & Thomsen 2019:9). The link to Montessori´s use and understanding of machines is obvious, as the approach to the use of technology would be through self-directed and hands-on learning.

The last ones mentioned in the report are inquiry-based learning, which has to do with open-ended questions and problem-based learning, which deals with a central problem for the children to investigate. Finally, project-based learning is mentioned as a pedagogy where the project is the way to deliver the curricula. All of the pedagogies named briefly here are based on the children as active learners, who themselves have a considerably part in constructing the knowledge needed and not just being instructed in what to do and how to do it.

Notice that children´s free play, where they themselves decide what to do and how to do it, is an important part of playful learning and of processes, where children are active learners. To do this the educators must give space to what the ideas and suggestions of the children might be. A consequence is also that there will be different kind of situations, where different kind of play will be part of the activities and experiments. There will be free play, where children to a large extent decide what and how and situations, there will be guided play, where the pedagogues and pre-school teachers will decide much more and what you could call common play, where both parties together decide what to play and how. Common play and guided play is not exactly the same, because in guided play the pedagogue or the pre-school teacher in the end decides or frames what to play. The children then decide what to do inside this framework. In common play everybody involved have a say on what to play and how to.

WANT TO READ MORE?

On the SEEDS website (www.seeds-project.eu) you can find more resource materials from the SEEDS project. For example, you can find information about the project methodology and read about best practice examples that elaborate how the SEEDS methods have been used in praxis. You can also learn more about the developed SEEDS pedagogy or find recommendations for how to implement the SEEDS pedagogy.

SOURCES

Christensen, L. (2019). Dark Web, digital affald og Miku Hatsune, Localised the 20.01.2020 at https://steinerbladet.dk/stbl/author/lais-christensen/

European Union (2018). Supporting School Innovation Across Europe: European Union, Publications Office of the European Union, localized 20.01.2020 at https://op.europa.eu/en/publication-detail/-/publication/2e440297-4ce9-11e8-be1d-01aa75ed71a1/language-en

Eurydice (2016). Entrepreneurship Education at School in Europe: Eurydice Report: Education, Audiovisual and Culture Executive Agency, 2016. Localized 2020.01.2020 at http://www.ecosystemapp.net/wp-content/uploads/2016/06/195EN.pdf

Gawn, R. (2019). Creating Creators: The LEGO Foundation. Localized 20.01.2020 on https://www.legofoundation.com/en/why-play/skills-for-holistic-development/creativity-matters/creating-creators/

Goodwin, H. (2020). How technology and play can power high-quality learning in schools. Blogpost. Localized 24.01.2020 at https://www.weforum.org/agenda/2020/01/technology-education-edtech-play-learning/

Lackeus, M. (2016). Value Creation as Educational Practice: Chalmers University of Technology

Thomsen, S. & Gauntlett, D. (2013). Cultures of Creativity: The LEGO Foundation. Localized 20.01.2020 on https://www.legofoundation.com/media/1073/cultures-of-creativity-lego-fonden-2013.pdf

Marsh, J., Kumpulainen, K. and Alicia Blum-Ross, A. (edit) (2020). Enhancing digital Literacy and creativity: Routledge

Marsh, J., Kumpulainen, K., Nisha, B., Velicu, A., Blum-Ross, A., Hyatt, D., Jónsdóttir, S.R., Levy, R., Little, S., Marusteru, G., Ólafsdóttir, M.E., Sandvik, K., Scott, F., Thestrup, K.,Arnseth, H.C., Dýrfjörð, K., Jornet, A., Kjartansdóttir, S.H., Pahl, K., Pétursdóttir, S. and Thorsteinsson, G. (2017) *Makerspaces in the Early Years: A Literature Review*. University of Sheffield: MakEY Project. ISBN: 9780902831506, Localized 20.01.2020 on file:///Users/au14198/Downloads/MakeyLitReview.pdf

Montesorri, M. (1948). To Educate the Human Potential. Oxford: Clio.

Parker, R. & Thomsen B. S. (2019) (red). Learning through play at school: The LEGO Foundation, localized 20.10 2020 at https://www.legofoundation.com/media/1687/learning-through-play-school.pdf

Potter, J. & McDougall, J. (2017). Digital Media, Culture and Education: palgrave macmillan

Rabella, M. F. (2019). Why learning should be more playful. Blogpost. Localized 20.02.2020 at

https://oecdedutoday.com/playful-learning-school-student-education/

Resnick. M. (2017). Lifelong Kindergarten: The MIT Press

Sandvik, K. & Thestrup, K. (2018). Skolen som makerspace. I Møller, H. H., Andersen, I. H., Kristensen, K. B. & Rasmussen, C. S. (red.). Leg i Skolen: Unge Pædagoger

Swedish National Agency for Education (2018). Curriculum for the compulsory school, preschool class and school-age educare 2011, Revised 2018., Swedish National Agency for Education, localized 20.01.2020 at https://www.skolverket.se/download/18.31c292d516e7445866a218f/1576654682907/pdf3984.pdf

Zosh, J.M., Hopkins, E. J., Jensen, H., Liu, C., Neale, D., Hirsh-Pasek, K., Solis, S. L., & Whitebread, D. (red.). (2017). Learning through play: The LEGO Foundation. Localized 20.01 2020 at https://www.legofoundation.com/media/1063/learning-through-play_web.pdf

Zosh, J.M., Hopkins, E. J., Jensen, H., Liu, C., Neale, D., Hirsh-Pasek, K., Solis, S. L., & Whitebread, D. (red.).(2018). Accessing the inaccessible: Redefing Play as a Spectrum. Frontiers in Psychology, August 2018/vol. 9/article 1124

World Economic Forum (2020). Schools of the Future: World Economic Forum.localized 27.01.2020 at http://www3.weforum.org/docs/WEF_Schools_of_the_Future_Report_2019.pdf

CONTACT

PROJECT WEBSITE

www.seeds-project.eu

PROJECT MANAGER

Daycare Department, Vejle Municipality

Skolegade 1, 7100 Vejle, Denmark

Website: www.vejle.dk

PROJECT PARTNERS