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COVID-19 and educational spaces: Creating a powerful and social inclusive learning environment at home

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Abstract

During the COVID-19 crisis, students are taking lessons from home, with a strong emphasis on online learning. This contribution, on the initiative of the Department of Education and Training of Belgium's Flemish Community[2], addresses the issue of students' physical learning environment at home during the corona crisis. It explains why a good, serene physical learning environment is important and we give suggestions for parents and pupils about its spatial lay-out, furnishing and equipment. In certain cases, living conditions make home-based learning difficult. Here, too, we try to bring possible solutions. Finally, we look at the next phase: the reopening of schools and what steps you can take as a school to set up a safe learning environment that also responds to recent learning experiences. This contribution is primarily intended as an inspiration for schools, teachers and supervisors to inform parents and pupils.

Introduction

Worldwide, governments have decided to temporarily close schools in their struggle against the COVID-19 virus. Teachers and pupils are rapidly taking steps forward towards distance learning from home. Massive efforts are being made to develop online learning. Innovative learning approaches that until now have been gradually implemented in classroom practice, are now getting a powerful push, which can have an impact on how we will shape our education in the future.

Anyone looking for tips on the Internet on distance learning will find a lot of information about how to facilitate online learning. This is absolutely necessary. Digital technologies are powerful tools that can support teaching in the current circumstances. Moreover, digital technologies are an essential part of a powerful learning environment. When talking about the design of a physical learning environment at home, people usually keep it brief: find yourself a quiet spot and clean up before you start work'. Common sense seems to speak for itself here, an implicit awareness of the user how things usually are dealt with at home (Kernohan, Gray & Daish, 1992).

[1] On own behalf

[2] The information published in this article do not necessarily represent the official views of the Flemish Department of Education and Training.

Nevertheless, it is useful to give special attention to the learning environment at home. Until now, schoolwork at home mainly consisted of homework and studying. What is happening now goes further: students are asked to work with new learning content independently, which they rehearse in class (pre-teaching). Moreover, children are at home all day long, so also a lot changes in terms of time. The space in which we live is also susceptible to (re)interpretation and change. We can ask ourselves whether homes are an adequate learning environment in the given circumstances, and how we can make one?

The importance of a good physical learning environment, also at home.

Social behaviour, including education, is never placeless (Gieryn, 2000). Physical space is an integral part of the learning environment, just like learning content, school organization, school culture and school policy (see also Blackmore et al., 2013; Gislason, 2009). Even if we intensely use digital technologies when learning, pupils and teachers are always emplaced: at school, at home, in the library, during after school activities, with the grandparents. The physical space is always there and might support or hinder the learning process. It is therefore not suprising that some authors refer to the physical infrastructure as a kind of "third teacher" (see for inspiration http://thethirdteacherplus.com/). Many features play a role, such as the ability to structure social behavior in time and space, the indoor environment, the acoustics, the experience that a place evokes, the furnishings, the occupancy, the equipment (Gieryn, 2002; Pols, 2007). This applies to the learning environment at school, but now more than ever also to the home.

We have to realize that there is no such thing as 'home'. People are housed in very different ways. Lots of dwellings offer enough room for good concentration and are well equipped for online learning. Furthermore, elements of innovative learning environments for 21st century skills can successfully be translated to the home environment, supporting various approaches to learning, e.g. interaction with peers, reflective retreat, working on projects, learning outdoors, etcetera (see also Cleveland et al., 2018). "LEaRN@home: When home becomes school, top tips for creating engaging learning spaces" is an online crowdsourcing initiative of the University of Melbourne-LEaRN (2020) to support parents and schools while creating a learning environment at home during Covid-19 lockdown. A lot of information is about how to use various domestic spaces as differentiated and active learning environments.

In other cases, learning at home can be hard and almost impossible for many reasons. Often this is associated with poverty and housing problems. Van Lancker and Parolin (2020) note that 5% of European children are in living in conditions without a decent place to do homework. 7% have no access to the internet. The UNESCO Incheon Declaration on Sustainable Development Goal 4 (SDG4), explicitly calls for safe, inclusive and effective learning environments for all learners (UNESCO, 2016). Schools and out-of-school-care are often a safe haven where the most vulnerable pupils find support and a stimulating learning environment, including quiet places for study: *"In some difficult domestic situations, going to school is also a bit of an escape. If that disappears, and children also live in on very limited space and are hardly allowed to go outside, that weighs very heavily. We are in a catch 22",* said Nadine Engels (Vrije Universiteit Brussel) about the effects of the lockdown in Brussels (De Sloover, 2020). Since the COVID-19 crisis, more than ever the home learning environment is part of this goal. For governments, schools and especially parents, providing solutions for inadequate learning conditions at home can be challenging. Keeping this in mind, it is also useful to focus on the basics: a

quiet place at home that accommodates pre-teaching and gives pupils control over their learning process (cfr. infra).

What does environmental psychology teach about a basic learning environment?

A learning environment is a context that supports the required learning processes, in order to achieve desired learning results. Recent conceptions of physical learning environments stress how they connect formal and informal learning, next to individual and social learning (Kuuskorpi & González, 2011). Also at home, it is important to think about the design of the physical learning space (Lensink, 2009). It should be a space that motivates and stimulates users to learn and supports their learning activities. The basic requirements for a learning space include: something a pupil can sit on (Yang, 2020), something he or she can sit at, something to write (on), a computer with access to the Internet, a power supply for the device and if possible also a printer. Further, a box or bag to store and collect learning material can bring structure and order to a learning space (see also Tondeur et al., 2018).

When children learn at home, "the most important feature […], are their interactions with people who provide the love, security, encouragement, conversation and positive role models to help [a] child to thrive. A good home learning environment encourages children and young people to have positive attitudes to learning, to be curious, and to have confidence in themselves." (Parent zone Scotland, 2020). An important element, however, is that pupils feel they have ownership over their own learning process. Ownership includes responsibility but above all (a sense of) control. This control should also extend to the learning place at home. Strong ownership over their own learning can compensate for inadequacies in the learning environment, such as poor guidance (Conley, 2014).

As students under semi-quarantine become online learners, distraction is the most important risk (Yang, 2020). Electronic multitasking (e.g. alternating between study material and social media visits) facilitated by digital technologies is detrimental to concentration and study results (Carrier et al., 2015; Junco & Cotten, 2012; Wang & Tchernev, 2012). Every distraction hinders the learning process (Cottrell, 2019, xiii). It is therefore necessary to optimise the learning place at home. There are several options to realise such a learning place. This can be a separate room or a shared room that is only used for schoolwork during certain periods of time by, for example, using folding tables and chairs. The possibilities depend strongly on the family situation and the living conditions of the pupil. People will have to be creative in certain situations. If necessary, the teacher can bring on ideas too. It is important that there is a clear demarcation between the place in time and/or space where people work for school, and the rest for leisure and family matters.

If it is impossible to create a permanent learning place of one's own (due to communal areas, non-differentiated layout, atypical decoration) then one can create such a learning place through agreements with other family members and temporary adjustments. It is recommended to formalise such matters; the pupil must have an effective sense of control over the space. In many cases it will come down to making part of a secondary territory, in relation to the primary territory of the parents and learner's own primary territory. The possession of a primary territory is essential for the well-being of a human being. As such, to a degree, the primary territory can compensate to some extent for the lack of optimal learning guidance. How can a pupil gain control over the (temporary) learning place?

- By personalising the (temporary) learning place, e.g., display of personal belongings, makes it easier to identify with the learning place. Putting up a label can also help: it indicates that the learning space is occupied for a certain period of time.

- Clear agreements are made about entering others in the room. The pupil must be able to deny access. An example: if the learning space is reserved from 10 am to 2 pm, one should have it at his own disposal. Only after knocking and explicit permission, someone is allowed to visit.
- Good privacy also guarantees the student full control over when and with whom information is shared about the learning process. The parent can keep an eye on the student, but privacy must be respected. The learning place must allow the learner to regulate social interaction: he or she should only be able to learn as he or she wishes (Standaert, 2014).

A basic learning place, optimised for the learner under the given circumstances is thus:

- Separate from the activities of other family members,
- (temporarily) allocated,
- (temporarily) customizable,
- (temporarily) marked as a 'space in use' by means of personal and identifying items,
- controllable (for the pupil),
- quiet, so with little sensory stimulation, especially auditory (ear plugs).

If the student has a good primary territory at his disposal (his own bedroom or study room), extra agreements should still be made regarding visits (Altman, 1985; Lyman, 1967). Just being able to enter the learning space without permission, immediately degrades that space to secondary territory and causes stress. To put things straight, an optimal learning place is:

- permanent,
- differentiated,
- separated,
- gives identity, and
- is closed.

It has stimulating aspects (elements providing identity, study related elements such as books, world globe, etc.) and avoids direct distractions. The best lighting conditions are a combination of daylight and artificial light (Erwine & Heschong, 2002). Sitting next to the window is positive in so far as the visual and auditory stimuli are non-specific (noise) and the incoming light is not too bright. The learning area is regularly ventilated and has a temperature of between 19 and 23 C° (Versteeg, 2007). For many families, however, the opposite is the case: only a temporary learning place is possible, it does not differ from other rooms in terms of decoration, the learning space is part of a multi-functional space, it is not exclusively allocated, not personalised and it is open to all family members (Dimensions to Altman, 1985).

What about digitisation?

According to the guidelines (Dept. of Education and Training), distance learning can be accomplished in two ways: via online learning and on paper (bundles), with contact by telephone where necessary. Schools know best what works best for whom. As far as working on paper is concerned, teachers may deliver bundles with exercises to pupils at home. Students or their parents are also allowed to go to the school to pick up their own learning materials. In the case of online learning, learning content, tools and services are made fully available (or at least 80%) via the Internet (Allen & Seaman, 2014). If work is done synchronously, communication between teacher and pupils takes place at the same time. This is not the case when you work asynchronously. The distinction

between the two should not be taken too strictly: a well-considered combination is possible and sometimes even desirable.

Both approaches to education put different demands on the physical learning environment. For example, if you have learners who only have a learning space available at certain times, do not impose short deadlines. Instead, provide tasks on a weekly basis, so pupils can manage their time independently. Also, synchronous moments can follow the rhythm of the student. We propose to work mainly with multiple, flexible moments of dialogue between teacher and student (individually or in a small groups). Those short periods of time can be used to work with content, assignments, and problems with processing learning content that students have worked on asynchronously. In addition, for each pupil it is best to look for a balance between external control by the school and self-management by the pupil himself/herself. The school provides tools that encourage students to maintain a 'school-like' structure, but also allows students to deviate from this if necessary. These tools also encourage pupils to take the learning process into their own hands, especially now that direct external control is no longer possible.

Online learning offers many opportunities, but it is also important to take into account the 'digital divide.' In addition, we note that children are sensitive to the presentation of the self and self-representation, but can also become very vulnerable if their home situation is exposed to their peers. One of the fears is bullying by other children who may, unintentionally, get a different image of the pupil in question on the screen. An adapted learning environment should also be sensitive to this. For example, an idea is blurring the background or ensure that pupils can personalize it (e.g. with own posters).

Lastly, the affordances of educational technology require a rethinking of physical learning environments due to its dominant presence as physical items with a role as a psychological tool (Neill & Etheridge, 2008). Key affordance of digital technologies stress: private use, interactive use with social partners outside the home space, linking digital information to off line information, semi-permanent access requirements … This can be linked to how we expect children to sit or be seated, how long we expect them to use an often shared device in the home setting, the required connectivity, and for instance access to power.

The role of parents

In the organization of distance education, parents should only be charged with giving structure to their children and provide space for school work; all this within the rhythm and situation that fits the family situation. We should not assume that parents always have the opportunity to take control of their child's learning process in terms of content and/or didactics. Anything that goes beyond the structuring of time and space is not necessarily the responsibility of the parents (and the home environment), but is supported by the school. Teachers are responsible for encouraging and guiding pupils in the learning process by offering synchronous and asynchronous content. In a number of cases this may also involve home visits.

More than ever, it will be an important task to support parents and families in structuring time and space for school work. In addition to general sources of information, it seems a good idea to set up helplines for families, schools and teachers who are left with specific questions. This can offer tailor-made solutions for the specific problems at home parents have to deal with. After all, many parents are still illiterate and this illiteracy (digital, but also linguistic) is one of the biggest barriers. They cannot simply be reached by digital means. The school can be a special facilitator here. Instructions have to

be tailored especially for them (interpreters, instructions in several languages, etc.). In this context, spatial lay-out, computer infrastructure or furniture are the last link in a broader process.

Back to school: learning environments after pre-teaching

After a period of pre-teaching at home and as the COVID-19 outbreak is getting over its peak, schools will gradually reopen their doors. There is a real chance that in the first phase of the reopening of the schools, a form of blended education will be offered in which pupils are taught part-time at school and follow distance learning from home the rest of the time (Arnou, 2020). School teams will then have the freedom to adjust their organization to the applicable safety regulations and school guidelines, such as smaller class groups or adapted timetables. What can this mean for the physical learning environment at school? Social distancing at school does not necessarily have to lead to uninspired classroom set-ups in which every pupil ends up at a corner of the table. Teachers may want to pay attention to an alternative layout. If necessary, schools can use the cafeteria or multipurpose hall, for example. It is important that students feel welcome again, with attention to communication and enthusiasm to get back to work. It goes without saying that all this takes place within the safety regulations (Dept. of Education and Training, 2020). Doing things together and sharing experiences was less possible during the closure of the schools. Keeping the 1.5m distance is difficult in a learning environment: teachers easily enter pupils' personal space (0.45m-1.20m) during learning activities. Pupils, on the other hand, have the natural reflex to respect the social distance of at least 1.2 m (respect for authority).

The challenge we face when gradually reopening the schools, is the (re)design of the classrooms so that social distance regulations are met, while taking into account the learning experiences pupils have gained during the lockdown: individual work and, above all, working at their own rhythm. These new 'habits' of the previous weeks, in which e-learning and independent learning gained in importance, can therefore find a place from the very first days. This can be done in the existing classrooms, but spaces can also be reconfigured. We also have to take in account that schools at the same time will provide child-care and pre-teaching for certain groups of students (cfr. supra), which will make efficient use of rooms and spaces even more challenging.

Switching from a traditional classroom lay-out to something new, requires scenarios and inspiring sample plans to make the switch. Experts can help with that. However, there is very little time. In the short term, during the 'exit-back to school' phase, there will only be room for experimentation: a 'test set-up'. In order to start the next school year (2021-2022), additional steps have to be taken. Teachers can feel secure that that lessons gradually can be learned from practice and changes can be made. Towards the beginning of the new school year one can choose the most appropriate physical setting. The involvement of the team is most important in testing what works. Schools can make use of manuals and good practices if they want (see also Tondeur et al., 2018; Nuyens, 2018; Department of Education and Training, 2020). Evaluation and adjustment are inherent to learning, and also to setting up a learning environment.

Conclusion

Learning environments at school, and by extension also at home, are to a certain extent always mirrors of society. They structure daily educational practice in time and space, contributing to the (re)production of the educational system. On the other hand, they do this imperfectly. Pupils, teachers

and also parents are able to change and re-interpret their physical and spatial learning environments in the course of interaction (Leemans & Vonahlefeld, 2014).

We mention some points of interest regarding the COVID-19 semi-lockdown. Although learning environments at home and at school are adaptable and reinterpretable through the actions of their users, they can only do so to a certain extent. Housing conditions and the absence of learning devices can be so problematic that distance learning from home becomes (almost) impossible. In many cases, there is a relation with poverty (Vlaamse Woonraad, 2011). Van Lancker and Parolin (2020) state: "While learning might continue unimpeded for children from higher income households, children from lower income households are likely to struggle to complete homework and online courses because of their precarious housing situations". In the short term, child-care can be a solution; at a later stage, the problem can be picked up as a transversal policy theme by policy makers and can reach out to different kinds of facilities (e.g. libraries, youth centres).

A physical learning environment is only supportive in so far as it is mobilised in space and time by knowledgeable actors (see also Giddens, 1984). A good physical learning environment at home and in school doesn't function by itself but is part of the broader learning environment (cf. supra). In practice, schools and teachers will have to approach the learning environment at home in an integrated way (whole-of-school), just as this is the case at school. A simple translation of spatial interventions to the home situation without taking into account the broader educational context is therefore insufficient. This also applies to (aspects of) the differentiated learning environments for 21st century learning.

Often, the physical learning environment only gets real attention as schools get involved in a building project. The building project gives, so to speak, an impulse to reflect on the pedagogical project and to implement pedagogical innovations. In a preliminary phase, a project definition (design brief) is drawn up and translated into a spatial design (Tanner & Lackney, 2006). The semi-lockdown may possibly have a similar effect when schools try to integrate new learning experiences. An important distinction is that the whole existing school building stock comes in the picture now. In addition, the learning environment will be extended to the home environment and possibly other facilities as well. Therein lies an important challenge for applied research, in collaboration with designers and producers, to develop new concepts that can support schools in setting up an effective learning environment.

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