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Scarcity at school

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Abstract
In this review essay we examine the consequences for education of the insights shared in the book *Scarcity* by Mullainathan and Shafir (2013). After a brief summary of the book, we describe three possible links between scarcity and 1) the creation of slack at school, 2) the student's personal environment and 3) and the turning of learning into a production process. Based on these three possible consequences further avenues for research are presented.

Keywords
Scarcity, slack, learning as production process, education, prior knowledge

Ever since the publication of *The Bell Curve* (Herrnstein and Murray, 1994) and the discussions it inspired in many countries, the question of the possible link between intelligence, origin and poverty has been a highly charged subject. In 2013, Mani et al. (2013) published the findings of a research study in *Science*, in which they reviewed the connection between intelligence and poverty in a new and inventive way. In particular, the researchers analysed the possible negative influence that poverty might have on the intellectual abilities of a person. In essence, they abandoned the idea of intelligence as a fixed given. The results of their research indicated that concerns about poverty had a negative influence on the IQ of the respondents, amounting to some 12 to 13 points. This is comparable with taking an intelligence test after 'a night on the town', as summarised by Mullainathan and Shafir in their book *Scarcity* (Mullainathan and Shafir, 2013).

Based on this research (amongst other things), the behavioural economist Mullainathan and the psychologist Shafir have developed a new theory about the influence of 'scarcity' on our thinking and behaviour. They do not simply focus on the scarcity caused by poverty, but also on the consequences of other less obvious forms of scarcity, such as the scarcity of time faced by employees in

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busy, high-pressure jobs. In this review essay, we aim to value their work by discussing the possible implications of this theory for education and for educational research, also in relation to European policy discourses.

Scarcity

Thinking about scarcity and its consequences is nothing new. Mullainathan and Shafir jokingly define it as the essence of what we now call 'economics': human beings want many different things, but only have a limited amount of resources at their disposal. We cannot buy everything we would like to buy. However, both authors conclude that when the level of scarcity becomes chronic, it may result in very negative consequences for both our thinking and our behaviour, since our mental 'bandwidth' decreases significantly in such circumstances. In this way, Mullainathan and Shafir describe what has already been identified as 'reduced attention' in the field of psychology. They define 'bandwidth' as 'a measure for the number of mental operations our brains are capable of dealing with; it represents our ability to pay attention, to make the right decisions and to resist temptations' (Mullainathan and Shafir, 2013: 61).

The authors subsequently make a distinction between important matters and urgent matters. When the mental bandwidth decreases as a result of scarcity, there is less scope for dealing with aspects of life other than the most immediate and most urgent matters. The reason for this is that scarcity causes a kind of tunnel vision, in which the 'here and now' is the only thing that counts. According to Mullainathan and Shafir, this is the reason why poor people who are already under severe budgetary pressure still take out payday loans, which force them even deeper into debt. This is also the reason why someone with an overfull agenda can sometimes be overtaken by events, so that their work keeps piling up. Scarcity and tunnel vision may ultimately result in a person finding themselves in what the authors call 'the scarcity trap', a downward spiral in which the cognitive abilities further decrease and new decisions are increasingly focused on the urgent rather than on the important.

Mullainathan and Shafir believe that the solution for a decreased bandwidth and the adverse consequences of the scarcity trap lies in the creation of room to manoeuvre or 'slack'. Slack is the opposite of scarcity. A day off in your busy agenda, money you can easily miss for a while, helping poor people to fill out complex forms: these are all examples where slack is present or can be created, so that the adverse consequences of scarcity can be countered.

Translation of the theory to education

The concept of scarcity and the corresponding image of mental bandwidth are immediately recognisable and applicable in the field of education. We all know of children who are less able to concentrate at school because of troubles at home, just as we are all familiar with teachers who focus too much on urgent matters and consequently feel that they are constantly lagging behind events. But there are also indications – and the European policy discourse offers a clear indication – that the creation of scarcity becomes itself part of how we look at and organise learning.

There are many possible themes and consequences that can be picked up from the work by Mullainathan and Shafir, but in the following paragraphs, we want to focus on three concrete consequences of scarcity that may have a major impact on the way we think about education in the European context:

- Scarcity and the creation of slack at school
- Scarcity and the possible connection with the student's personal environment
- Scarcity and turning learning into a production process.

The first two consequences are closely related to the discussion about access to education and the current inequality debate, two of the more important themes in both the European Horizon 2020 programme and the Education and Training 2020 Strategic Framework. The third consequence is related to the current focus on learning outcomes and learning efficiency in the European policy discourses on the rethinking and related reforms of education.

Scarcity and the creation of slack at school

Mullainathan and Shafir refer to education when they discuss absences from study programmes and professional retraining courses. Their research showed that the participation of unemployed adults in training sessions of this kind is often quite irregular. Mullainathan and Shafir argue that this absence could result from the compulsion to mitigate urgent problems (e.g. a lack of money), as a consequence of which seemingly less urgent but nonetheless important issues (in this case, additional retraining) are neglected or pushed into the background. It is precisely this irregular attendance at the courses that results in these students having greater difficulty in understanding their lessons, as a result of which the scale of the problem increases exponentially. In this way, Mullainathan and Shafir highlight the problem of the continuity requirement usually attached to such courses. For this reason, they advocate short modules for these courses, with only a very limited continuity requirement.

Extending this idea to the school context, it is clear that the most important task for a school team is to create slack for the student. This goes beyond simply not having to think about the problems at home for a short while, but must also offer breathing space for the student's own actions and provide support for the issues that people suffering from scarcity usually do not have time to deal with.

As previously indicated, Mullainathan and Shafir (2013) describe how people who are burdened by some form of scarcity tend to emphasise the urgent matters of the 'here and now', thereby losing focus on the more important long-term issues.

To make it more concrete:

> I need money now and so I take out a loan now, but I fail to appreciate that at the end of the month its repayment will be much more expensive than the original sum involved. In other words, I first complete what I feel I have to complete, because I have a deadline, but I do not plan ahead to take account of other important (but not immediately urgent) matters.

This is why support in long-term planning and monitoring matters can be of huge benefit to scarcity sufferers, both in school and out. As a teacher or as a school team, it is important, in consultation with the student if appropriate, to draw up and maintain a well-balanced work programme, in which there is sufficient slack to allow the student to spend some time as he or she wishes, not regulated by obligations or well-defined tasks.

In kindergartens and primary schools, this 'slack' might be periods of 'free play' (which already has an added value; see Barker et al., 2014; Jarvis et al., 2014). In late primary and secondary education its might include homework-free days (for the importance of learning breaks, see Ashley and Pearson, 2012; Hattie and Yates, 2013). In adult education or types of education with a high rate of truancy, it might be the use of a modular system (as suggested by Mullainathan and Shafir).

Scarcity and the value of the connection with the student's personal environment

Scarcity can also play an indirect role. Mullainathan and Shafir refer to a research study involving the children of air traffic controllers, which showed that during busy, stressful periods, when the

bandwidth of the controllers is completely absorbed by their work, they inadvertently treat their children more negatively. Mullainathan and Shafir also describe how children who live in poverty display more negative behaviour at the end of the month than at the beginning, which the researchers link to the decreased bandwidth of their parents, who are confronted with increasing financial scarcity as the month progresses.

If we examine the study designs used by Mullainathan and Shafir to reach their research conclusions – in some of which they made the test subjects think about their situation and in others not – it becomes clear that there are questions that need to be posed about the validity of a popular didactic dictum; namely, the necessity of taking the personal background and social environment of the student as the starting point of learning or at least trying to connect with that environment.

This didactic recommendation is far from new. At the beginning of the previous century, Decroly was already talking about 'interest centres' (*centres d'intérêt*), which he defined as topics belonging to the personal environment of the children, around which activities could be organised (for example) in nursery education (Decroly and Boon, 1921). In 1954, Aarts referred to this idea as the 'didactic principle', arguing that 'all education should be oriented in the local environment' (1954: 192). By this, Aarts means that education must reflect and connect with the surroundings in which the child grows up. In the Anglo-Saxon literature, there is mention of the so-called 'situated nature of learning', but this can relate not only to the personal environment of the student, but also to the relevant profession or course of study being followed (Driscoll, 2000).

The argument in favour of an educational connection with the personal environment is closely linked to the concept of motivation. Connecting with the personal environment is seen as a basis for enthusing students more easily and also (possibly) for motivating them intrinsically (Schuit et al., 2011). Moreover, it also creates an important degree of authenticity (Devlieger et al., 2012). When students are confronted with 'real' or 'authentic' problems that they recognise as such – problems in a didactic sense and not, for example, their own poverty – the reasoning is that the students will more easily assimilate the material being taught.

But what if references to the personal environment affect the bandwidth of the student in a negative way? Accepted thinking on cognitive overload indicates that 'bad' circumstances (stress, pressure, etc.) put learning ability under increased strain (Hattie and Yates, 2013). Mullainathan and Shafir (2013) observed that when they asked their test subjects to think about their personal situation, this had an immediate negative effect on their intellectual abilities. Conversely, when they allowed their test subjects to forget about their personal situation, this had an immediate positive effect on those same abilities.

This is consistent with what we described as the basic operation of the school as a possible 'liberator' and 'equaliser' (Masschelein and Simons, 2012). Clearly, we know that it often does not work in that way, but the school holds the promise that children are made 'equal' in their shared role as students, even if only for a short while. At the same time, school 'liberates' them from their social background and their personal environment. When being addressed as a student, and when the school actually works as a school, it somehow suspends these factors and contextual variables. And when this happens, school becomes a place where children can – in principle – briefly forget their personal worries. Viewed from the perspective of the scarcity theory, this can also have a positive effect on learning.

The extent to which ignoring the personal environment in education has an effect on the bandwidth of the students probably varies from child to child and situation to situation. Moreover, it must be remembered that the students' personal environment probably includes more than just their problems and worries. Nevertheless, Mullainathan and Shafir argue that in scarcity situations the nature of the problem may become overpowering, leading to the emergence of what they call

tunnel vision. For example, someone who is following a diet, which can be considered as a scarcity of food, may constantly think about food. Similarly, someone who lives in abject poverty will also instinctively be inclined to think about their sorry situation.

Does this mean that the role of the personal environment as the starting point for learning is no longer important? This should not be confused with what is known as 'prior knowledge'. In 1806, Herbart already hinted at this idea in his *Allgemeine Pädagogik* and nowadays the concept is more current than ever. Hattie and Yates (2013) describe the link with prior knowledge as one of the six basic principles of learning, viewed from the perspective of cognitive psychology. It is certainly true that new knowledge can only become meaningful when it displays points of reference with prior knowledge. Geake (2009) demonstrated that the inability to recognise or place study material as a result of a lack of prior knowledge does not induce learning. This prior knowledge can certainly come from the personal environment of the child, but it can also be based on previous experiences at school.

The difference between the personal environment and prior knowledge is the fact that the first concept refers explicitly to everything that exists in the life of the child or adolescent, whereas prior knowledge is knowledge relating to a specific topic that is present in the memory and on which can be built. For example, in a lesson about transport you can use questions such as 'who has already flown in an airplane' to tap into the personal environment of the students, whereas the question 'what is an airplane' probes for prior knowledge about the concept 'airplane'.

Scarcity and learning as a production process

The ideas of Mullainathan and Shafir can also be used to explore how and to what extent the creation of scarcity is the result of how education and learning is being organised. There is a tendency towards reforms in education that create a kind of tunnel vision, as described in general by both authors, among students and we want to argue that this could decrease their mental bandwidth.

This tendency is clearly articulated in European policy discourses. In the document *Rethinking Education* (EC-document 2012), for instance, the European Commission argues for a reform of educational institutions in order to make them more efficient and flexible and in view of enhancing the employability of students as part of strengthening competitiveness and increasing economic growth. The suggested reforms include 'stimulating open and flexible learning' and 'improving learning outcomes, assessment and recognition', with as the basic assumption that 'achievement should be driven by learning outcomes … and the power of assessment needs to be better harnessed' (Communication from the Commission, 2012: 7). The focus is no longer on different predefined stages and institutionalised requirements being set by schools or other training institutions but on the individual learning process and the recognition of the produced learning outcomes. Part of the reform focus is the call for changing teaching and assessment in education, and particularly the need to reframe what has to be learned in terms of learning outcomes. This approach clearly not only entails a particular view on the organisation and administration of education, but also includes a very specific conception about and organisation of learning. Three reform tendencies along these lines will be shortly explored: the focus on permanent assessment and learning outcomes, increased personalisation and the deployment of so-called 'active' teaching methods.

First, learning is foremost considered to be a production process in need of careful monitoring and assessment. This approach often implies that improving learning is about making it more productive, and hence, imposing the criteria of efficiency and effectiveness on the process of learning. Part of this framing of the learning is the need for permanent monitoring and assessment in view of measuring strengths, weaknesses and possibly also challenges and opportunities bearing in mind the desired outcomes. The idea or ideal is to offer the learner feedback at any moment, and make her know on a permanent basis what is needed or expected. This could result in what Douglas

Ruskoff (2013) in his book *Present Shock: When Everything Happens Now* refers to as a mode of presentism. Students are drawn into the here and now and as a result they are increasingly occupied by the learning needs presented to them on a more or less permanent basis. More generally drawing on Mullainathan and Shafir, it is possible to argue that the conception and organisation of learning as a production process, which includes the concept of always limited resources, results in the creation of scarcity as part of learning itself. Similar to what happens in conditions of poverty, one can expect that students increasingly are focused on the urgent here and now, and forget about the important in the long term. In reforms along these lines, the creation of tunnel vision in view of a strong output-driven learning process would not be a by-product of the organisation of education but turns into the ultimate goal of educational reforms.

This is linked closely to a second reform objective: increased personalised learning trajectories. Instead of departing from a given institutional context with fixed stages and a common, normalised curriculum, the point of departure is the individual and more precisely the unique personal traits, talents, capacities and needs of each of these individuals. Personal and personalised learning trajectories seem to appear as a kind of ideal (and one could argue this is a radicalisation of the focus on the student's background discussed in the previous section). Clearly, the focus on the person compensates for a long tradition in education where the curriculum was developed in view of the 'norm(al) student' and where all deviances where immediately translated in hierarchical classifications of students (see also Hartley, 2008). But a consequence of increased personalisation could be – and again we extrapolate insights from Mullainathan and Shafir – an induced self-reflection and even self-centredness that prevents students escaping immediate, pressing and urgent issues. The risk is that the competition with fellow students is replaced now with a continuous competition with oneself, which again implies a narrowing down of the available bandwidth. Furthermore, increased personalisation could result in a state where the student is completely responsibilised for what goes well and also for what goes wrong, for his or her successes and also for his or her failures. When being personally addressed, it is more and more difficult to locate a responsibility (for what was not a success, for instance) outside oneself. In other words, all attributions to something else are suddenly regarded as simple excuses. One should wonder what the effects of an excessive and internalised blaming and shaming are.

The increased focus on so-called 'active' teaching methods is the third and final reform we want to bring to attention. This is reflected in the widely embraced ranking of teaching methods ranging from 'passive' to 'active' on the side of what students are expected to do (too often based on the infamous Learning Pyramid debunked in e.g. De Bruyckere et al., 2015). The message is that we have to replace all (too) passive methods (such as lectures, for listening and note taking is regarded as a passive activity) with active methods (including, for instance, group work and problem-based learning). What we want to stress is that this focus on 'activity' and 'being active', combined with the framing of learning as an output-driven production process, might result in learning for the student (as well as for the teacher) being about carrying out carefully planned and programmed activities. The consequence of this perspective is that not performing planned activities is equalled with not learning, and hence, with loosing time or being not effective and outcome oriented. The imperative is 'you should always be busy' and thus also 'you should keep students busy all the time and everywhere'. It comes very close to what Jonathan Crary in his book *24/7. Late Capitalism and the Ends of Sleep* describes as 'a generalized inscription of human life into duration without breaks, defined by a principle of continuous functioning', and 'a time that no longer passes, beyond clock time' (Crary, 2014: 8) Probably, the increased focus on programmed tasks and predefined projects with work packages not only occupies the time of students but also turns their time into a scarce resource. It would be interesting to further elaborate on this thesis drawing on Hartmut Rosa's theory about the 'acceleration of society', and his observation of the paradox that while we have actually more time available – it takes less time to perform certain activities due to technological innovation and acceleration – we

experience at the same time the acceleration of the pace of life and thus the experience of a shortage of time (Rosa, 2013). The latter is related to our willingness to choose or realise as much as possible while facing the always-increasing number of available options and possibilities. An elaboration along these lines could support the thesis about the risk for students that their mental bandwidth is decreased and that the important or valuable is replaced by the urgent and useful.

The famous reminder of Thoreau is still useful here: 'It is not enough to be industrious; so are the ants. What are you industrious about?' (Thoreau, 1857: 496). Moreover, also in education and as a learner, multi-tasking in the here and now could become the rule which, according to Mullainathan and Shafir, is an indication of a tunnel vision.

New avenues of research

Although their claim may be somewhat exaggerated, Mullainathan and Shafir are convinced that their approach opens the door to new avenues of research and perhaps even a new research discipline. In our opinion, their thoughts on scarcity offer an interesting new way to observe existing phenomena in our society. Research based on their insights can be relevant for the field of education. For instance, research can focus on the extent to which reference to the personal environment of students is made during lessons, and perhaps the time has indeed come to question or at least nuance this long-standing didactic theory. Or research can be oriented towards currents reforms in education that might make scarcity a basic condition of student learning. But the insights of Mullainathan and Shafir also allow examining what the concept of 'slack' can mean for education. At least three levels of further study can be distinguished in that regard. First, the question about the kind of slack that is needed *for education* as a whole in order not to be drawn into the here and now of a turbulent policy environment with increasingly pressing mechanisms of accountability. The second question is about what kind of slack is desirable *in education* and should be offered in schools, both for students and for teachers, and as part of the curriculum or job description. And finally, the question about slack *as education*, that is, whether disrupting the focus on the urgent and displacing the students' orientation to the important is perhaps what education is about.

All this can be done on the basis of existing research, but it can also be based on new studies that deal with the conceptual apparatus of bandwidth, new forms of scarcity and possibilities for and effects of slack.

The most important contribution of Mullainathan and Shafir to this debate, according to the authors themselves, is that the 'blame' for poverty and all other forms of scarcity does not necessary lie with the poor or over-busy persons themselves. They describe how various circumstances can create these situations and how scarcity can then cause a negative downward spiral. This is exactly what we tried to indicate when exploring on the principle of taking into the student's background and the possible consequences of policy reforms that are induced or supported at the European level. How this downward spiral can be reversed – whether by creating 'slack' for schools, by reassessing the extent to which we should seek to connect with the students' personal environment, by considering learning as a specific kind of slack, or by some other means – is possibly the most important question for further research.

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