VOICES FOR THE NETWORKED SOCIETY

Digital Education Ecosystems

Visions and Decision Needs

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ABSTRACT

With the funding line for the so-called *Nationale Bildungsplattform* (National Education Platform), the German federal government attracted a great deal of attention within the national education landscape in 2021. Alongside praise for the ambitious initiative, there was also criticism of individual aspects. Until the release of the closed beta under the new name *Mein Bildungsraum* (My Education Space) in the fall of 2023, public discussion was quieter. Recently, with the handover of essential middleware components to the Federal Agency for Disruptive Innovation, the initiative is now visibly picking up speed again in the summer of 2024. However, the vision still remains vague, and some doubts persist about the feasibility of the goals set. Against this backdrop, the article explores the question of which target images of a digital ecosystem for education are recognizable and which decisions are required to define a tangible – and therefore also implementable – vision.

The Transformation Process of an Educational Innovation

Even before the announcement of the funding line for the so-called National Education Platform (BMBF, 2021), there had already been some attempts worldwide to bring together existing educational infrastructures at the national level and thereby enable consistent use and synergies in operations. One example was the US initiative inBloom, which was discontinued after heated discussions; data security concerns were brought to the fore, but the different speeds in the technology and education sectors were also an obstacle (Bulger et al., 2017). Similar developments were seen at the state level in Australia with Ultranet (Tatnall & Davey, 2018). In other cases, teachers refused to switch to a new platform because they could not see any advantages compared to the existing solutions, as with Denmark's Aula (Jørgensen et al., 2023). Therefore, the skepticism toward the National Education Platform in Germany was not surprising (Rohs, 2021; Seemann at el., 2022). The examples mentioned above were all designed for the school sector; recently, two promising solutions for the higher education sector have developed: Npuls[1] in the Netherlands and Digivisio[2] in Finland. However, no approach that encompasses all education sectors, such as the German federal government is aiming for, has yet come into service.

As the prototype and the architecture behind the German system became more concrete (Knoth et al., 2022; Lucke et al., 2023), it underwent a name change that can also be understood as a change in the associated educational vision:

\   *Nationale Bildungsplattform* (NBP), the first name, was used in the publication of the funding line and in the subsequent two years. However, it unintentionally evoked associations with terms such as "learning platform" *(is it intended to replace existing solutions?)* or platform economy *(who makes money here?)* and was therefore discarded.

\   In the third funding year, "digital networking infrastructure for education" was used as a transitional term. This shifted the focus toward administrative aspects for education and transitions between education sectors. Even though the name was technically appropriate for the middleware working in the background, it was still somewhat clumsy and was rarely used; the old abbreviation "NBP" persisted.

\   With the release of the closed beta in fall 2023, *Mein Bildungsraum* was established as the new name. This name conceptually emphasized the space as an area to be designed and the individuals as the central actors to shape this space. Reflections on innovative pedagogy are just as relevant as social references.

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[1]   https://npuls.nl/

[2]   https://digivisio2030.fi/

These name choices might be dismissed as mere marketing tactics. But just as the first names of our children contain unconscious associations on the part of their parents, which can result in a powerful imprint, the changing names of this educational innovation (with a focus on users, intermediaries or infrastructure) also reflect different perspectives on (or visions of) digital education. However, even if the focus currently appears to be on the personal, lifelong educational journey with *Mein Bildungsraum*, the previous narratives of the efficient mediation of offers (Gawer, 2022) or neutral networking in the background (EC, 2017) clearly continue to have an effect in the technical developments (VDI/VDE, 2024). Because these resonant potential meanings are a continued source of irritation and speculation, a definition is required here from an educational policy perspective. This article therefore sketches the extent to which an empirically based recommendation for a more precise definition is possible from the perspective of educational technology research.

Research-based Approaches to Sharpening the Vision

The development of the prototype for a national education platform was accompanied by several studies, including on the topic of governance. In a qualitative preliminary study, Gleiß et al. (2023) identified ex ante the regulatory requirements associated with the introduction of such a solution. Dependencies on the functional scope, which was not yet clearly defined at that time, were already emerging. The positions of stakeholders from the German education system on these decision points were then collected in a nationwide survey, which Degen et al. (2024) condensed into three ecosystem visions (and corresponding governance approaches):

\   A *public-private marketplace* can enable precisely tailored recommendations from a wide array of public as well as commercial educational offerings to teachers and learners. This perspective in the sense of a broker between the supply and demand side is also clearly recognizable in the tender and in the term *Nationale Bildungsplattform*. The resulting data not only on educational offerings themselves (the metadata required for their provision), but also on their respective use (i.e., with specific personal references) is highly attractive for education providers: It allows, among other things, the targeted placement and further development of offerings as well as further business models – because the more information available, the better the fit of the offerings. However, users of such an ecosystem can therefore also be regarded as data suppliers and even goods.

\   A *neutral interconnectivity infrastructure*, on the other hand, acts as an intermediary between the supply and demand sides without the need to store personal data on the platform. Data protection and self-sovereignty become more important here; users' data is stored only in their personal

wallet and is used primarily to transfer verifiable educational credentials, provided that the user has given their consent in each individual case. Market mechanisms play less of a role in the provision of educational services; it is difficult to position individual providers clearly. The focus is on administrative services rather than the teaching/learning processes themselves. At the same time, the need for regulation is reduced to a minimum; this approach makes the least use of the innovative potential inherent in the initiative. Interestingly, it is precisely these components that are currently the subject of the handover to the Federal Agency for Disruptive Innovation (SPRIND)[3] .

\   In contrast, an *open educational space* offers a protected environment for individual teachers and learners with opportunities for collaboration based on open educational resources and publicly available tools. It focuses on broad participation and opening up education, seeking to minimize barriers to education access and to strengthen educational equity. Economic interests have no place here; such an ecosystem represents an area protected from commercial interests. However, the topic of open educational resources is not undisputed from an economic perspective: It suggests the free production and provision of offerings by the community, but ignores the expenses still incurred in the creation and maintenance as well as in the tutorial support of offerings – and is therefore occasionally interpreted as a money-saving effort by education policy.

These three options represent a differentiation of the spectrum of platform governance models outlined by Meijer and Boon (2021): Although state or federal (as opposed to private sector or civil society) governance appears to be fundamentally required for education as a sovereign duty of public welfare, within this area the vision of the public-private marketplace tends more toward competition and efficiency (like the commercial sector), whereas the vision of the open educational space has clear characteristics of participation and equality (pointing towards civil society). However, these two more extreme manifestations have partly incompatible characteristics (Meijer & Boon, 2021; Degen et al., 2024). At the same time, aspects from all three ecosystem visions resonate in various representations of *Mein Bildungsraum*, which is why distinct positioning appears essential.

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[3]   https://www.meinbildungsraum.de/informationen-und-materialien/neuigkeiten/detail/gemeinsam-mit-der-sprind-in-die-zukunft

Looking Beyond the Horizon

When weighing up the ecosystem visions outlined above, it may be productive to compare the respective positionings of the above-mentioned international solutions and thereby derive insights for *Mein Bildungsraum.*

The higher education initiatives Npuls (Netherlands) and Digivisio (Finland) can be categorized as open educational spaces according to the spectrum outlined above, which also includes the failed school initiatives Aula (Denmark) and Ultranet (Australia). These cases featured cooperation with companies from the field of educational technologies for the development of tools, but not for the provision of educational content or services. Therefore, questions of quality assurance and monetization did not play a significant role. The situation was different in inBloom (USA), which explicitly granted commercial education providers access to schools, but also sought to oppose the dominance of established players in the education market with innovative offerings. In all cases, however – in contrast to *Mein Bildungsraum* – there was an explicit narrowing down to principles of either the market economy or open education.

Another difference between the above-mentioned solutions – in addition to the specific education sector addressed and more precise vision of each – lies in the approach to vision development. In the school sector, work was carried out top-down due to the strongly hierarchical supervisory structure, whereas Npulse and Digivisio are coordinated centrally but nevertheless draft the target images bottom-up as a broadly supported, cooperative process and thus generate a broader commitment.

The Remaining Need for a Decision

In view of these considerations, the picture for *Mein Bildungsraum* is still unclear. The readjustments in the understanding of the initiatives' goals – reflected in the name changes over time – bring to the fore similarities with the three ecosystem visions outlined:

\   The *Nationale Bildungsplattform*, with its focus on the systems offering the services, corresponded to the model of the public-private marketplace.

\   The "digital networking infrastructure for education" positioned itself as a neutral mediator in the administration of various offerings.

\   *Mein Bildungsraum* has clear echoes of the vision of an open education space.

However, there is still no clear positioning; features of all three ecosystem variants can still be found in recent presentations (VDI/VDE, 2024). This blurred target image makes it difficult not only to develop a suitable prototype, but also – and above all – to involve relevant stakeholders. A definition by the political decision-makers (in view of the positive experiences with Npuls and Digivisio, possibly also with the involvement of these stakeholders) appears urgently needed for the success of the initiative. This may also occur over time as an evolutionary process (Beverungen et al., 2022). Currently, the handover of the central middleware components to SPRIND appears to address the vision of a neutral interconnectivity infrastructure, but this still allows for expansion in one of the two directions. In view of the decisions made in internationally comparable initiatives, the open educational space appears to be the more promising option requiring less effort. At the same time, there is a clear tendency toward this model in educational research, which can be seen as an additional argument in its favor (Dander, 2020; Schiefner-Rohs et al., 2023).

A clarification of the desired ecosystem vision could then result in a review of the design decisions made so far in line with this definition. This may also require the reorientation of technical concepts. In particular, communication measures and the formats for involving relevant stakeholders – depending on which ones they are in this case – would then have to be adapted and expanded. It is to be hoped that decisions will be made in education policy before *Mein Bildungsraum* falls victim to avoidable mistakes.

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