

# Digital learning platforms and pedagogical context – a comparison between Brazil and Denmark

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## Abstract

*This paper deals with digital learning platforms (DLPs) as part of a global tendency. The research question, “does the digital learning platforms relate to the pedagogical context?”, lead us to the following hypothesis: DLPs are strongly related to the pedagogical context, being more oriented by the local specificity, presenting particular features and pedagogical methods appropriate for each country, other than being just a market tendency that shapes the DLPs in the same way all around the world. To test the hypothesis, we chose a study case that draws a comparison between a Brazilian and a Danish DLPs used in Primary School: Positivo On and Meebook, respectively. The idea was to present the platforms and compare the companies’ descriptions about their own DLPs and the tools available in each one. While the descriptions are quite similar, the tools available point out some relevant differences in terms of collaboration, publisher’s content use and relation to local public policies. As a conclusion, the initial hypothesis cannot be refused. Even though there is a share of global business factor involved, the materials also consider pedagogical context. In particular, they represent two models of DLPs: textbook-oriented or goal-oriented.*

## Introduction

Digital technologies, especially the internet and mobile devices, can break the restrictions on time and space with effects in education in contemporary society. Andreassen & Christiansen (2017) argue that what is happening is a global process that changes the teacher's work and everyday life in schools. One aspect of these changes is the use of disruptive technologies, in synchronous and asynchronous formats, for teaching and learning (Lindsay, 2016) – digital learning platforms (DLPs) are one possible example of this.

DLPs can be defined as a networked environment that includes interactive interfaces for teachers and students with three major requirements, according to Richards & Dede (2012): (i) specific tools for teachers to create lessons and assignments for students and to manage and evaluate their work; (ii) interactive elements and multimedia materials that provide the content of the curriculum; and (iii) a real-time and teacher-directed interaction in the classroom (but not limited in its space and time).

As part of a global process, we can ask whether the DLPs are related or not with pedagogical contexts. As pedagogical context, we mean, what is the role of the school in the society, what goals and approaches are most valued, how the school culture is and how the interaction among teachers, students, parents, knowledge, assessments, teaching methods and media typically occurs.

The study hypothesis, that we try to refute, is that there is a world phenomenon, but each DLP is strongly related to the pedagogical context. In other words, that the pedagogical aspect is stronger than the market tendency attached to the creation of these DLPs. To test that, we compare the available tools and the companies' descriptions about DLPs in two very different countries: Brazil and Denmark. If the DLPS look like the same, as a unique shape to frame the teacher's work with no consideration about the local scholar culture (e.g.

collaboration work in Denmark or exercises-driven in Brazil), then we have a piece of evidence against the hypothesis.

The paper starts with a discussion on the concept of DLP and showing it as a part of a global movement. The next section details the research question, hypothesis and methodology. The results and their discussion involve a comparison between the companies' descriptions about their DLPs in each country: Positivo On in Brazil and Meebooks in Denmark, as well as the available tools in each one. In the end, a conclusion summarizes the results and presents consequences and challenges.

## **What is a Digital Learning Platform?**

Lochner, Conrad & Graham (2015) identify the origin of DLP in the late nineties Learning Management Systems (LMS), as an infrastructure created to support online courses, providing instructors with a way to create and spread content, to observe student engagement, and to evaluate scholar performance. Thus, "LMSs enable the communication of course expectations through various resources such as a syllabus, as well as of assignment instructions, grades, and instructional materials" (Lochner, Conrad & Graham, 2015, p. 64). Closed-response multiple-choice questions, discussion forums, RSS feeds, chats, email and podcasts were some of the tools integrated with web-based LMSs, and, of course, new features have been added since then.

But it was a movement concentrated in virtual schooling, while regular education has been adopting technologies slowly (Cuban, 2013). It is not the goal of this paper to discuss why it happens in regular education and its advantages or disadvantages. We aim only to indicate that the expression "digital learning platforms – DLP" (or digital teaching platforms – DTP) started to be used more frequently in the academic field (and in the business lingo)

when governments and private companies created and negotiated platforms to be part of the daily work in Primary and Secondary Schools. It was a new moment of the Internet, with blogs, videos, wiki documents, embedded multimedia content, larger broadband and easier access with tablets and smartphones. In the late 2010s, the technical possibilities of the DLP included digital social media tools (including comments fields and buttons to vote or like, e.g.), statistical responsive methods and gamification (Artuso, 2016).

Richard & Dede (2012) also argue that one reason to change the expression from LMS to DLP (or DTP) is the theoretical background. They claim that LMS is a sustaining technology based on a behaviourist psychological theory, with a fairly rigid assessments model between content management and students tasks, with little flexibility in its diagnostics response. In contrast, DLP based, apparently, on constructivist theories. Therefore, these platforms require a more open response from students, that have opportunity to express their creativity, and require the diagnostic presence of a teacher to evaluate the students tasks such as writing, project work, brainstorming, digital portfolio, etc. Another aspect of DLP is that not only students and teachers can use them, but also the school pedagogical staff and the students' parents. One last relevant feature is that many publishers created their own DLP or associated with other companies or public initiatives to provide content to DLPs. So, teachers can still make their own content, but they can also use the content provided by the publisher.

Thus, we work here with the definition of a DLP as a web-based instructional environment to bring curricular content in a digital way and interactive technology to classrooms. The interactivity involves, at least, relations between students-content and teacher-student in and outside of school. The platform's content and tools can support the teacher's work in the classroom, but they can also be accessed anywhere, anytime.

## **DLP as part of a global tendency**

Gros & García-Peñalvo (2016), Lindsay (2016) and Andreasen & Christiansen (2017) are some of the authors that identify DLP as a part of a global process that uses disruptive technologies for teaching and learning. The core of this tendency, according to the researchers, is the pressure over educational institutions to develop innovative strategies that lead to an effective educational environment where teachers and students design solutions that make them able to teach less and learn more. Innovation and effectiveness of a new era are the keywords, in contrast to a school culture with lessons and methods that remain the same. For instance, Andreasen & Christiansen (2017, p. 1) claim that “digital platforms in primary schools challenge this culture and teachers are forced to innovate on their daily routines to meet these external and governmental decisions”.

Taking the Danish case as an example: the introduction of DLP was part of the latest school reforms, that took place in 2013 and focused on the well-being of all students and the academic achievement. It is also part of the Digitalization Strategy Program for the period 2016-2020, that promotes modern digital solutions for Primary and Lower Secondary Schools leads by the national and local governments (Graf, Gissel & Slot, 2018). As a result, the use of DLPs is now mandatory in Danish schools.

Although it is controversial to define which learning outcomes are important and how to measure the effectiveness of technology innovations in education, the global mindset seems to work with a constant search for innovation and effectiveness. It aligns an easy speech about technology and education that can bring advantages for those who declare it – politicians, e.g., can be elected with this kind of claim. But it does not necessarily improve education, after all, the knowledge about how the use of DLP changes the practices in schools is still relatively scarce (Adams Becker et al. 2016).

Some of the scientific findings about DLPs show that it changes the teachers' work (e. g. to create new content for it) (Anderson & Christiansen, 2017), that its usage makes certain practices possible and restrains others (planning, for instance) (Graf, Gissel & Slot, 2018) and that it improves the educators perception about their practices, but not the students' achievements (West, Morton & Herlihy, 2016).

For the concerns of this article, we do not wish to go further into discussions about the pros and cons, positive or negative learning outcomes, but merely point out that the use of DLP is an outcome of educational public policies. Therefore, as a technology present in schools, we are interested in investigating if it takes the pedagogical context in account or not. We are concerned with the discussion of whether the DLP movement is just global-market-oriented or more pedagogical-oriented.

## **The research question**

Our overall research question is: "Does the digital learning platforms relate to the pedagogical context?". Our hypothesis is that, yes, DLP is strongly related to the pedagogical context, being more oriented by the local specificity, with particular features and pedagogical methods appropriate for each context than just a market tendency around the world.

We focused on two aspects of DLP related to the concept of the platforms, but not directly with their use: the tools available for teachers and students and the companies' descriptions (including advertisement texts) about their own DLPs. We consider that if DLPs were created or selected based on local aspects, then the tools and the descriptions must be different in different countries.

Therefore, to test the hypothesis, we chose to do a study case with a comparison between two very different examples: Brazil and Denmark. The researchers have experience

in these countries, which gives support to a better understanding of their pedagogical contexts.

## **The pedagogical context**

Both Brazil and Denmark have implemented DLPs in the Primary School. But these countries have significant differences. Denmark is a small country in area and population, with a developed economy, a welfare society, high scores in PISA and a legal obligation to use DLPs in schools. Brazil is a big country in area and population, a developing economy, a very unequal society, low scores in PISA, a huge and centralized initiative of textbook purchase and no obligation to use DLPs in schools.

The pedagogical context between them is also different, which may affect how teachers, students, scholar pedagogical staff and parents use the platforms.

### **Brazilian pedagogical context**

In Brazil, Bastos (2008) highlights the role of the blackboard/whiteboard/computer screen in the Brazilian scholar culture as part of a learning process centred on a full-lesson teacher presentation driven by traditional exercises, with little space for dialogue or teamwork. According to the researcher, there is a “pedagogical centrality of and on the blackboard [that] results in the absence of school manuals and other visual learning resources, and also results in centralizing the pedagogical process in the figure of the teacher” (BASTOS, 2008, p. 133).

In a study about the various conceptions of difference existing in Brazilian educational practices, Candau (2011, p. 240) claims that “the prevailing school culture in our educational institutions gives priority to the ordinary, uniform, homogeneous.”. Trying to change the

scenario, the researcher defends that differences are inherent part of the educational practices and it is urgent recognizing them into the Brazilian schools.

The results of the Brazilian primary school in large-scale standardized tests in the early 2000s was analyzed by Soares (2005) and, in the period from 2000 to 2014, by Rocha & Ferreira (2017). Both studies shows that a dual school system persists, with a quality gap between the public schools, which attend the weaker segments of the society and have high rates of failure and evasion, and the better-ranking private schools.

## **Danish pedagogical context**

In Denmark, Townshend, Moos & Skov (2005) wrote a report for OECD about the Danish educational context and formative assessments and argues that there is a tradition of diversity and dialogue in schools. Two highlighted cases in the report used to illustrate the Danish context are the Statens Pædagogiske Forsøgscener – SPF (The National Innovative Centre for General Education) and Snejbjerg skole (Snejbjerg school). In the first one, “much of the work is centred on the importance of dialogue, verbal and written feedback, and active student (and parent) involvement in setting learning goals and evaluating work.”

(Townshend , Moos & Skov, 2005, p. 118). About the Snejbjerg skole, the authors claims that “True to Denmark’s strong democratic tradition in education, the school has established a transparent learning environment. Teachers, parents and students engage in dialogue about their expectations of teachers, the school and each other – for academic, social and emotional aspects of education” (Townshend , Moos & Skov, 2005, p. 118).

Skovmose (2001) exposes some other aspects of the Danish pedagogical context in a work that defend an educational movement from the exercise paradigm to landscapes of

investigation paradigm, particularly in mathematics education. He highlights the no-fail-after-exams policy, in which “marks will be given, but everybody will pass.” (Skovmose, 2001, p. 128). He also argues that, the national mathematics exam “supports an investigative approach since, in its written part, it does not presuppose any memorised knowledge and, in its oral part, it concentrates on groups of students making mathematical investigations.” (Skovmose, 2001, p. 128).

Blossing, Imsen & Moos (2014), in a book about Nordic school, analyze the tension between the Nordic educational ideology – with an integrated, collaborative and comprehensive school system – and the neo-liberal education policy. According to the authors,

Historically, the Nordic model of education has been based on a vision that schools should be inclusive, comprehensive, with no streaming and with easy passages between levels. [...] Based on an egalitarian philosophy, it was considered the state's duty to provide equal educational opportunities for all children, regardless of social background, abilities, gender and place of living. [...] More and better education for all has been considered a prerequisite for economic growth, and bringing children with different backgrounds together physically was seen as way to reduce social class differences in society at large. The aims of schooling were to develop social justice, equity, equal opportunities, participative democracy and inclusion (Blossing, Imsen & Moos, 2014, p. 2).

## Methodology

Because these differences between the Danish and Brazilian contexts, we are not looking at how DLPs are used in the teaching-learning process, but what DLPs have before teachers, school leaders, students and parents to be in touch with them: the tools available in the DLPs and the texts used by the companies to describe their products and try to convince the

stakeholders to use them. As mentioned, if the DLP is strongly related to the pedagogical context, we expect that the tools and the descriptions will be severely different, given the difference between both contexts.

The Danish and the Brazilian cases seems to be critical cases according to Flyvbjerg (2006), because they permit a logical deduction such as 'if this is not valid for these cases, then it applies to no cases'. Thus, if the DLP tools and the companies' descriptions about their products are equal between Brazil and Denmark (if, even with so many differences, DLPs are not related to pedagogical context in these critical cases), then we have evidence that the DLPs features tend to be equal in any case (DLPs are not related to pedagogical context) and we can refute our hypothesis.

We collected the companies' descriptions from the companies' websites and advertising texts. The tools were described based on the layout of the DLP for a teacher, with its logins provided by the companies Positivo On in Brazil and Meebooks in Denmark. These are two of the most popular DLPs in both countries and both allowed the researches to log in the platforms.

We based our analysis of the tools in the Gibson's concept of affordance (Gibson, 2015) that, expanded for the digital technology, is a matter of which types of actions or interactions between user and technology are encouraged and which ones are restrained. This notion that there is a mutuality of user interactions and technology capabilities that provides the potential for some particular actions has been already used by Gros & García-Peñalvo (2016) and Graf, Gissel & Slot (2018) to study learning platforms.

According to DeVito, Birnholtz & Hancock (2017, p. 741), the user perception is critical to any discussion of affordance: "if people do not see or understand that a particular behavior is possible, they are unlikely to engage in that behavior (except by accident)." Thus, the

system features or design alone are not enough to induce actions or behaviours, because the users' perceptibility affects the probability that they will notice or understand specific features.

Therefore, we describe the interactions possibilities, the features available and the practical uses that they inspire in each platform. The core of the platforms are the course builder function and the following analyzes focus on that, but also describe the communication, planning and schedule tools. In the next section, we begin the analyzes, starting with the companies' description of their own platforms.

## **The companies' description of the DLPs**

### **Brazil – Positivo On**

Positivo On is a digital learning platform created by the publisher Positivo, a traditional Brazilian company that publishes textbooks and other learning materials. The company is one of the largest educational brands in the country, serving more than one million students and three thousand schools (Voitch, 2016). The quote below is part of advertisement text when the digital platform was launched, in January 2017:

The new solution developed by Positivo Publisher, Positivo On, stands out in the educational and pedagogical market by treating the student as the protagonist in the learning process. The platform has been developed with a set of technologies and tools that identify the needs of the students in order to enhance the learning and engagement in the classroom. In addition, the new

solution enables teachers and parents to monitor school progress through intelligent reports and analysis provided by the platform (Positivo, 2017a).

The technology allows access to the content from desktops, laptops, tablets and smartphones. In an introductory text available on the platform website in May 2019, the company says that Positivo On is: “a set of technologies and tools that allows students to leverage their individualized learning and engagement. In addition, it enables the school leader and the teacher to follow the school process through real-time reports with intelligent analysis of the performance of each student” (Positivo, 2019).

In both texts, we can see the concept of innovation behind the “set of technologies and tools” provided by the DLP, in expressions like “new solution” and “real-time reports”. The pedagogical framework core is based on individualized learning and the student as the protagonist. The goal is to enhance learning and engagement. Four actors were mentioned: students, teachers, parents and school leaders. For the last three, the real-time reports and analysis were highlighted. Parents and teachers can monitor students, school leaders can monitor teachers and students. The main idea seems to be a better way to watch the school. This passage reinforces this idea when it claims that teachers have “the possibility of evaluating the knowledge of each student, before and after the development of the tasks. The development of the class can be monitored by school leaders, who also have access to reports that assess the performance of teachers” (Positivo, 2017b).

The student-centred discourse aims to overcome the traditional teacher central position in the Brazilian culture (Bastos, 2008), in a search for improvement of the quality and

to follow new educational tendencies. But, as we will see in the next topic, this concern is more in the discourse level than in the actual practice of the platform.

For teachers, the website emphasizes the “learning path” tool. It is the main part of the DLP course-builder and it will be described closely later in this article. However, one important aspect is that the DLP is only sold with the printed textbooks in a “whole set of educational solutions”. Therefore, the “learning paths” are just the contents provided by the publisher. Teachers, with some limitations, can customize them, but they are almost a one-way road from the publishers and they are not individualized to the students, except because the content appears to students according their answers in the exercises. But the content and the sequence are the same for all students. According to the company:

Learning paths are pedagogic itineraries previously planned by Positivo Publisher, aiming to provide the best possible student learning performance. They originate from the mapping of the whole set of contents addressed in the learning materials [...]. They can include questions, texts, videos, images, textbooks, games, among others, that, in an intelligent way and based on the student profile, are able to guide and offer adequate subsidies to learning (Positivo, 2019).

Once again, we can see the concern with student learning performance. But here it also appears a “time saver” argument for teachers: the publisher provided the whole content for the lessons, not only the textbook content but many add-ons, like games, tasks, videos, etc,

that are capable to engage the students. As a dark side of the “time saver” argument, teachers are not part of the learning planning.

## **Denmark – Meebook**

Created in 2012, Meebook is Denmark's most widely used learning platform, implemented over 45 Danish municipalities and used by more than 500.000 students (Meebook, 2019).

According to the website, “with Meebook you get a method-free learning platform for planning, organizing and evaluating your teaching – together we strengthen the students' learning, knowledge sharing, school leadership and parent cooperation.”

The initial target is the teacher, as we can see in this other passage: “In a busy day, where time is scarce, it is important that the learning platform helps to facilitate and strengthen the teachers' work and cooperation. That is why Meebook has been developed [...] with the goal of creating a method-free and intuitive tool that everyone can use.” (Meebook, 2019). The time saver argument is also present, and more highlighted than in the Brazilian case, but here we have a different methodological approach. While Brazilian discourse is based on a student-centred method, Danish one appeals to a method-free that can fit in any particular teaching method. But, once again, the idea of improving students' engagement with multimedia content and web features is present.

Though the initial target of the text is teachers, the website also lists benefits for school leaders, parents and students. School leaders can have an overview of the work at the school. Parents can be closer to the school, in permanent communication and with an easy tool to “follow and support the child's educational development” (Meebook, 2019). Students have a good overview of teaching and tasks and can access all content from multiple platforms.

For teachers, besides to monitor the students' progression, the company says that the DLP allows to "share knowledge and collaborate with your colleagues and the students' parents" (Meebook, 2019). The sharing and the collaboration idea are not presented in the Brazilian descriptions.

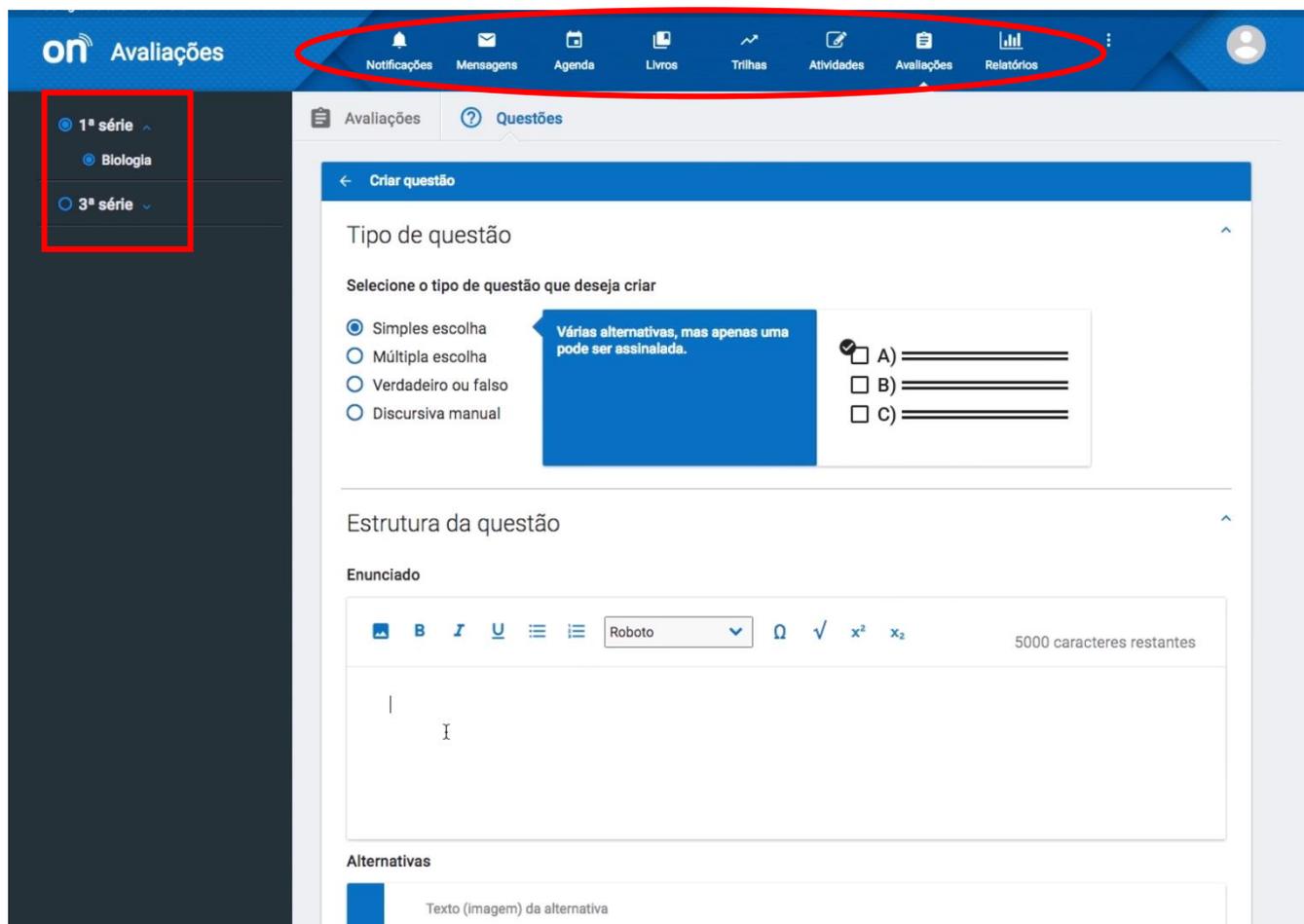
Therefore, until now, we can recognize a pattern in the descriptions, a common way of thinking, as expected for a global movement. Nevertheless, there are also some differences, not in the discourse core, but in marginal aspects, as the collaboration. Analyzing the tools, we can advance in the relation (or not) between the DLPs and the pedagogical contexts.

## The available tools

### Brazil – Positivo On

Positivo On highlights the integration with the Positivo's own textbook, so teachers have access to complete content already developed in courses of all subjects and for all grades. In the platform, they call it the "learning path" – a course composed of diagnosis tasks, main content, multimedia and assessments, all ready to use. Teachers can make schedules, hide or show parts of the learning paths and create new content, exercises and evaluations, but cannot replace the publisher's content.

Figure 1 shows a view of the DLP teacher version and helps to clarify how Positivo On works. On the left side, the teacher chooses the grade level and the subject. In the top, there are eight buttons, with the functionalities of the platform.



**Figure 1.** Positivo On teacher version – this specific page is a form to create new activities for students.

### Communication and schedule

The first and second buttons are about communication (In Portuguese, *Notificações* e *Mensagens*): the first one shows the notifications and the second one allows teachers to send and receive messages, that can be addressed to students in particular or the whole class. The third button is a calendar (*Agenda*, in Portuguese), where the teacher can manage the start and end dates of each lesson or assessment. The fourth option (*Livros*) is the link to see a

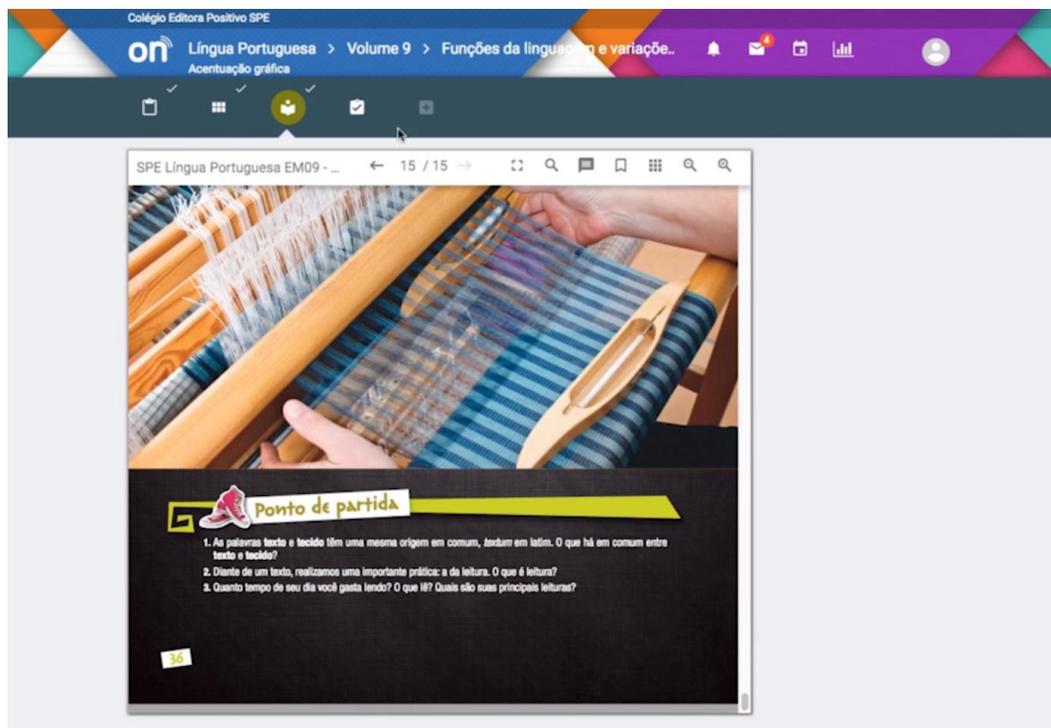
digitized version of the textbook (as the Figure 2 shows), with no possibility to edit or customize the textbook content or which pages will be shown. It is just a PDF that teachers can allow the students to see or not.



Figure 2. Student view of the textbook in a smartphone

### Course-builder core

The fifth button on the top part of Figure 1, Trilhas in Portuguese, is the learning path, composed of five parts: (i) an initial survey to diagnose the students' previous knowledge about the content; (ii) a reinforcement that shows to students a review according to the deficiencies found in the previous part; (iii) the main content worked in the textbook linked to digital educational objects and other accessory contents (as shown in Figure 3); (iv) evaluation assessments and (v) learn more, a customized content that gives the students the opportunity to deepen their knowledge.



**Figure 3.** The content part of the learning path in Positivo On. It is mostly the same as the textbook but enhanced with digital educational objects such as videos or simulations (not embedded).

The only aspects of the platform that the teacher can control are which learning paths will be visible to students and when they will be available (using the calendar to schedule them). They can also turn on or turn off the initial questionnaire and the evaluation assessment but, once the learning path is visible, teachers cannot edit the content or the assessments. The course must be used as the publisher created it.

The part to create a new course is composed by the sixth and the seventh buttons of Figure 1: Atividades and Avaliações. In a literal translation, the name of the sixth button is “tasks”, however, teachers can create any content with this tool. They fill the form that is shown in Figure 4 with a title for the course and the main field with the text. There is some few format options for the text (such as bold and bullets) and four buttons to insert links, videos, multimedia content or files.

The image shows a screenshot of the 'Nova atividade' (New activity) form in the Positivo On system. The interface is in Portuguese and features a dark blue header with the 'on' logo and 'Atividades' text. A navigation bar below the header contains icons for 'Notificações', 'Mensagens', 'Agenda', 'Livros', 'Trilhas', 'Atividades', 'Avaliações', and 'Relatórios'. On the left, a sidebar shows a tree view with '1ª série' selected, and 'Biologia' and '3ª série' listed below it. The main form area is titled 'Nova atividade' and includes the following fields and options:

- Volume:** A dropdown menu set to 'Volume 1'.
- Unidade:** A dropdown menu set to '1 - Introdução à Biologia'.
- Título da atividade:** A text input field containing 'Biologia'.
- Descrição da atividade:** A rich text editor with a toolbar containing icons for bold (B), italic (I), underline (U), bulleted list, numbered list, and link. Below the toolbar is a large text area with the placeholder text 'Elabore uma descrição para a nova atividade'.
- Entrega de trabalho:** Radio buttons for 'Sim' and 'Não', with 'Não' selected.
- Adicionar etapas da atividade:** A row of buttons for 'Link', 'Vídeo', 'Conteúdo multimídia', and 'Arquivo'.

At the bottom right of the form, there are 'X' and checkmark icons for closing and saving the activity.

**Figure 4.** Form to teachers create a course in Positivo On

ESCOLA JOSÉ ABÍLIO ARISTIDES ALCÂNTARA E RIBAS

LÍNGUA PORTUGUESA > VOLUME 2  
TÍTULO DA ATIVIDADE

ATIVIDADE 01 - QUANDO USAR O 'S' E QUANDO USAR O 'Z'? ENTREGA 15/03

DESCRIÇÃO DA ATIVIDADE, AQUI VAI A DESCRIÇÃO DA ATIVIDADE QUE PODE SER LONGA E PODE PREENCHER VÁRIAS LINHAS. LOREM IPSUM DOLOR SIT AMET, CONSECTETUR ADIPISCING ELIT, SED DO EIUSMOD TEMPOR INCIDIDUNT UT LABORE ET DOLORE MAGNA ALIQUA. UT ENIM AD MINIM VENIAM, QUIS NOSTRUD EXERCITATION ULLAMCO LABORIS NISI UT ALIQUIP EX EA COMMODO CONSEQUAT. DUIS AUTE IRURE DOLOR IN REPREHENDERIT IN VOLUPTATE VELIT ESSE CILLUM DOLORE EU FUGIAT

TRABALHO

Enviar

OLÁ PESSOAL! SEGUIM AS INSTRUÇÕES PARA A ENTREGA DESSE TRABALHO:  
- UT ENIM AD MINIM VENIAM, QUIS NOSTRUD EXERCITATION ULLAMCO LABORIS NISI UT ALIQUIP EX EA COMMODO CONSEQUAT.  
- DUIS AUTE IRURE DOLOR IN REPREHENDERIT IN VOLUPTATE VELIT ESSE CILLUM DOLORE EU FUGIAT NULLA

RECURSOS

JOGO

LINK

SHORT LOIN SPARE RIBS  
PORK CHOP SWINE FATBACK  
PASTRAMI BOUDIN JOWL  
SHANKLE MEATBALL COW  
STRIP STEAK SHANK

VÍDEO

ÁUDIO

SISTEMA DE ENSINO  
POSITIVO

**Figure 5.** Example of content created in the Positivo On course builder. After an introduction and a task to students (they must upload the task in the platform), there is a game, one link, one video and one audio. The content relates to Portuguese orthography.

The title of this functionality (tasks), the not so attractive form design and the limited format options seem to dissuade teachers to create their own courses. The feature exists, but its perception and usage is not friendly and can make it unlikely for teachers to engage in this behaviour.

## Assessments and reports

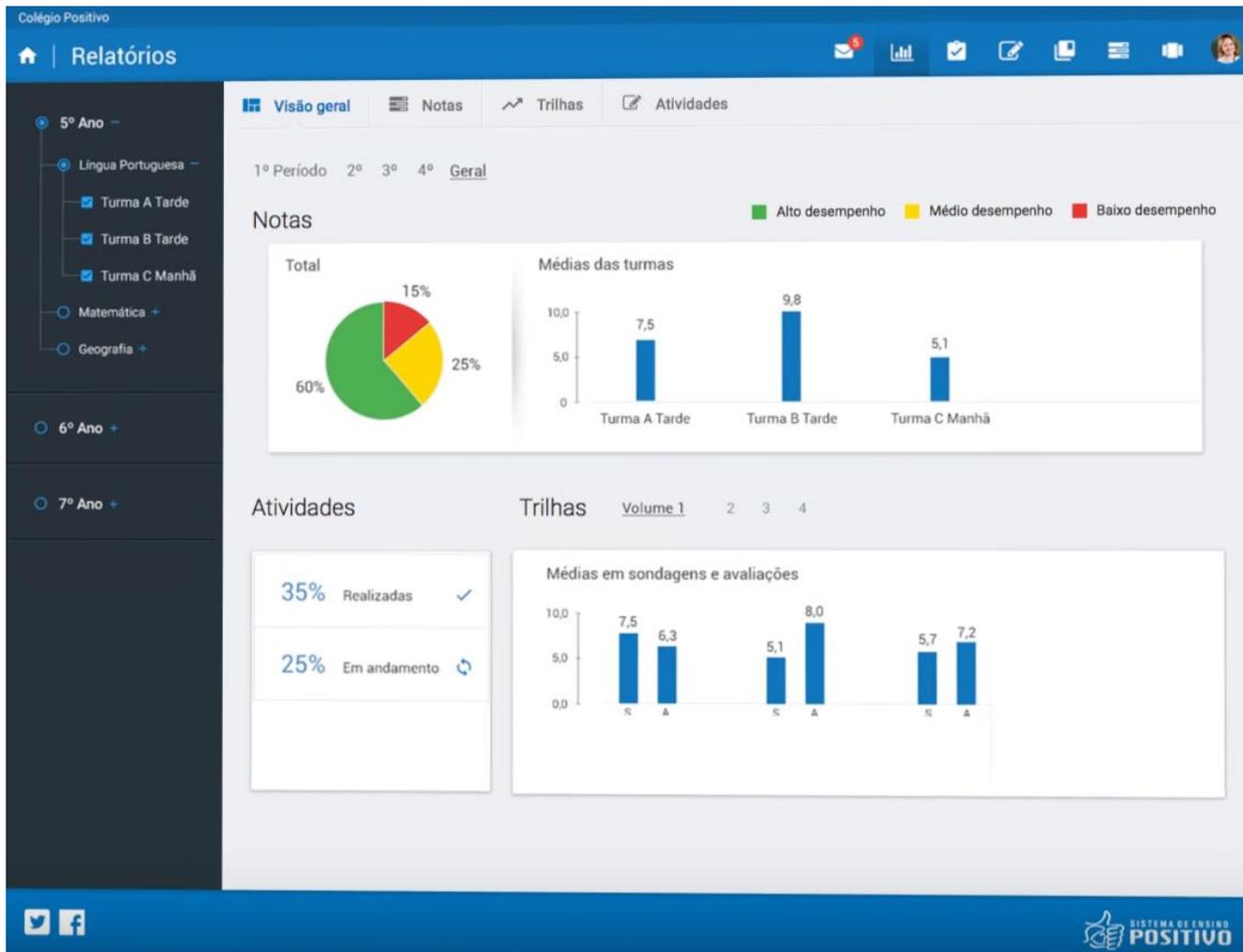
The seventh button is used to create exercises and evaluations. Figure 1 shows an example of a multiple-choice question, but many options are available, such as true or false questions or open-problems. Except by the open-activities, the platform automatically corrects the exercises and show the percentage of right answers. To facilitate teachers' work, there is also a database of exercises that can be used. They can search for activities based on the grade level, subject, type and difficulty.

However, the activities created or searched by the teachers (and that will generate later reports) cannot be linked with the courses developed. Thinking about affordance, the lack of integration acts as a disincentive to the use of own courses and self-assessments and, once again, stimulates the use of the integrated solution already provided by the publisher. As a result, the Brazilian scholar culture of uniformity and homogeneity (Canday, 2011) is reinforced: it does not matter where the school is or which students it has, there is an ideal course for the teachers to use.

The same cultural reasoning is behind other features. The exercises database also incites the use of pre-made activities and does not promote teachers' autonomy and creativity – the ordinary is the pattern. The autocorrecting of the closed-questions also makes it easier to use the exercises database and the multiple choice questions instead of creating their own open-questions. In the name of saving time, the DLP contributes to restrain the teachers' work.

Finally, the last button (Relatórios) shows the reports integrated with the platform. They can inform the classes' or students' progress before and after each course, including the assessments in the learning path or the ones that were created by the teacher. Figure 6 shows

an example of classes report (Turma A, Turma B and Turma C being different classes) with a comparison among the three classes and the number of tasks done or in progress.



**Figure 6.** Report provided by the Positivo On. In this case, to compare the progress of different classes.

## Summary

The platform affordance reinforces the use of the publisher's courses and does not encourage teachers' creation. The usage is quite intuitive, but Positivo On has few format options for teachers to insert their own content and it does not allow elaborate layouts in comparison with the publisher's content. The template for the teachers own content is very simple.

Learning goals are completely absent on the platform and the DLP seems to aim a report generation based on the achievement rating. The role of the student in the available courses is very limited, as they cannot customize the content, highlight passages, comment or evaluate the courses, share them or communicate with other students, for example. A more active posture depends exclusively on the courses created by the teachers, without incentives previously given by the platform design. The only feature in which the platform provides a student-centred method is that in some contents of the publisher's courses, more specifically in the reinforcement and learn more parts, where the content appears to the students based on their achievement. But even at this moment, the content and the sequence are always the same, the achievement works more as a "hidden" or "see" key, not as adaptive learning.

## Denmark – Meebook

On a first look, Meebook seems cleaner in comparison with Positivo On. The initial page, shown in Figure 7, has only four tabs: Hold (Class), Forløb (Courses), Års-/Elevplan (Annual/Student plan) and Share It. The first tab shows the classes, the number of students and the last course of each class. The students' names and contacts can be imported from other documents (as an Excel file) or filled in manually. This way, messages can be sent to students in particular or whole classes, the courses can be assigned to the classes and the evaluations can generate reports integrated with the students' plans.

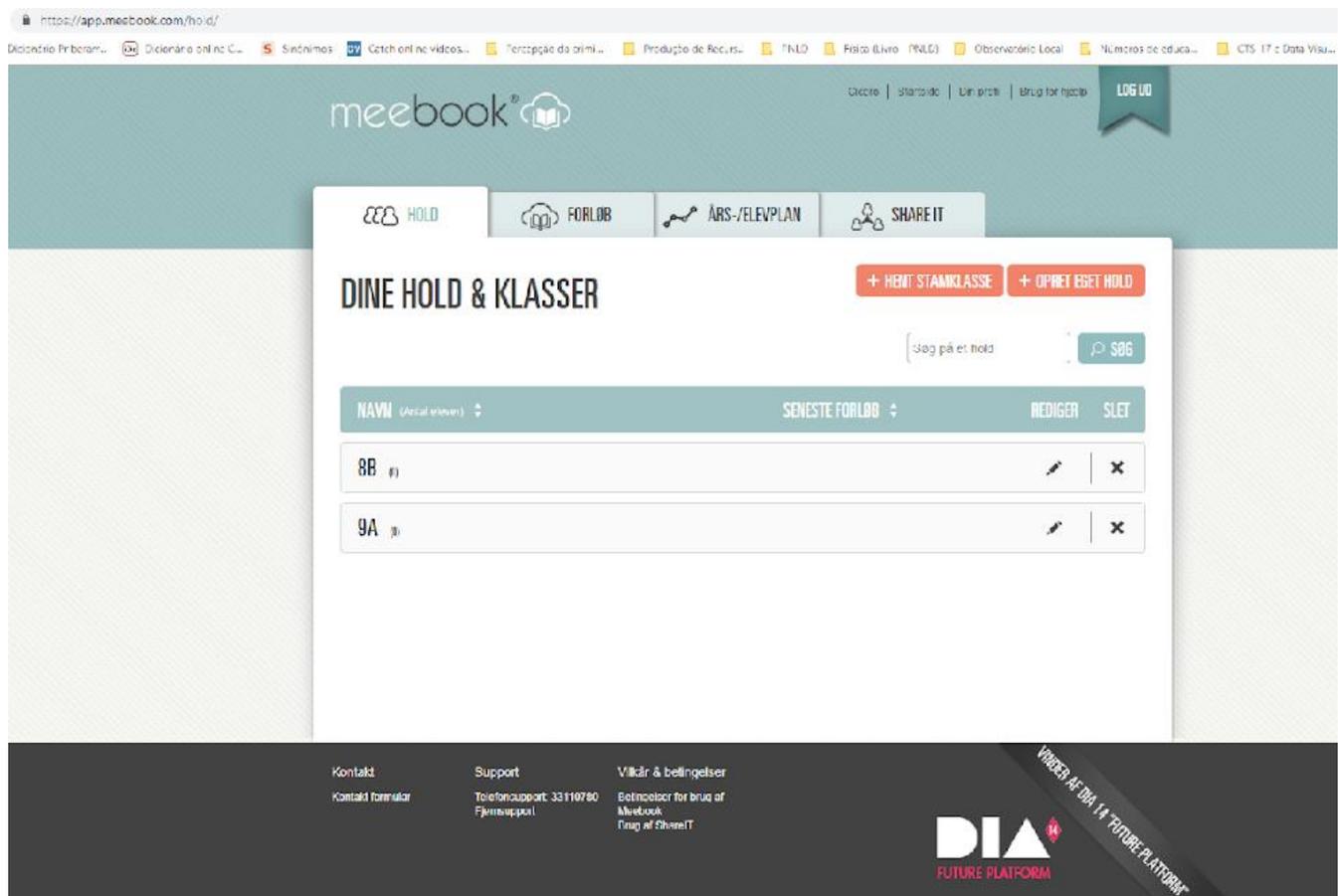
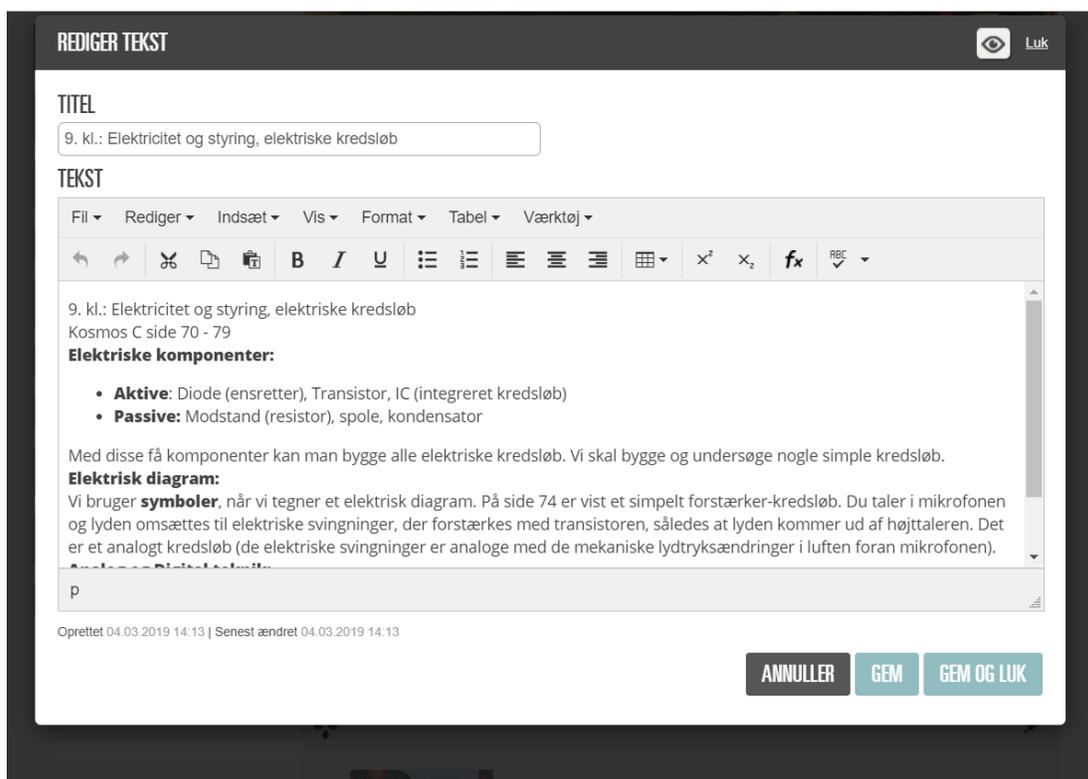


Figure 7. Initial page of Meebook platform.

### Course-builder core

The second tab is where the course builder feature is located. The main options are to create new courses or to edit the courses that have already been created. This means that a teacher can use and edit courses created by other teachers that also use the platform. These courses are available in the fourth tab, which will be detailed later, but once one is selected by the teacher, it becomes available in the second tab, where it can be freely edited.

It is possible to schedule a course, make it available only for some classes and see the students' submissions. When the teacher chooses to create a new course, many options are given, with a menu to format the text and insert tables, for example (Figure 8). As in Positivo On, images are not inserted with the texts, but in a separate button, so teachers do not have full control on the text layout, even though Meebook gives more options and enables a more complex template than Positivo On.



**Figure 8.** New course creation form available for teachers in Meebook.

Figure 8 shows some other options available for teachers to create their own courses. It is possible to add ten types of content: new chapters, texts, images, videos, PDFs, link, tasks, group tasks, evaluations, learning goals/students' self-assessments and link to publisher's

materials. The last one links to websites that commonly have controlled access via a login requirement (UNI-login) and that store a content database provided by publishers, such as Alinea, Clio and Gyldendal. This is possible due to an agreement between the institutions or municipalities with these publishing companies. The content from publishers is not editable and can overlay the course content or be opened in a new tab/window.

Figure 9 presents an example of a course created by a teacher. On the left, it is possible to see the ten chapters that students have access to. Once the course is adopted by another teacher, she/he can change it and select manually the content that will be available to the students. Other important features are the six options in the top of the platform: edit course (rediger førlob), academic goal (faglig mål), evaluate academic goals (evaluer faglig mål), evaluate students' self-assessments (evaluer refleksioner), evaluation assessments (opgavebesvarelser) and see as a student (se elevvisning). Even though the first web page of Meebook platform is cleaner than Positivo On, we can see that many layers of features unfolds as teachers navigate it and more possibilities soon become available. The platform is not simple, it just seems simple at first view

The screenshot displays the Meebook course-builder interface. At the top, a navigation bar contains several tabs: 'REDIGER FORLØB' (highlighted with a red oval), 'FAGLIGE MÅL', 'EVALUER FAGLIGE MÅL', 'EVALUER REFLEKSIONER', 'OPGAVEBESVARELSER', and 'SE ELEVVISNING'. On the left, a vertical sidebar lists 10 topics, each with an eye icon and a plus sign: '1: HER KAN DU LÆSE OM EMNET', '2: STATISK ELEKTRICITET OG LADNING', '3: MASSETILTRÆKNING OG TIDEVAND', '4: ELEKTRISKE KOMPONENTER', '5: OHMS LOV  $U = R \cdot I$  [VOLT = OHM \* AMPERE]', '6: ELEKTRISK KREDSLØB', '7: ELEKTRISKE DIAGRAMMER', '8: STYRING OG ELEKTRISK FORSTÆRKNING', '9: VIL DU ARBEJDE VIDERE MED ELEKTRONIK?', and '10: TEST'. The main content area features a central image of an oscilloscope displaying a sine wave. Below the image, a lesson plan for '9. KL.: ELEKTRICITET OG STYRING, ELEKTRISKE KREDSLØB' is shown, including the text '9. kl.: Elektricitet og styring, elektriske kredsløb Kosmos C side 70 - 79' and a list of 'Aktive: Diode (ensretter), Transistor, IC (integreret kredsløb)'. A right-hand menu is open, showing options: 'Kapitel', 'Tekst', 'Billede', 'Video', 'PDF', 'Link & drev', 'Opgave', 'Gruppeopgave', 'Link til forlag', and 'Mål og refleksion'.

**Figure 9.** Example of course created in Meebook’s course-builder and some of the options to create content

### Learning goals, assessments and reports

The second, third and fourth tabs of the web page shown in Figure 9 are related to learning goals and students’ self-assessments. The learning goals can be created by teachers or, what is easiest in the platform, imported from the common core standards provided by the Danish Ministry of Education. The platform’s design encourages the use and the evaluation of the learning goals. Based on tasks and self-assessments, teachers evaluate them manually and then the platform generates some reports about students’ progress based on the number of

right answers or the learning goals achieved. The fifth option is to see the students' submissions and also evaluate them. The last tab is just to see the course as a student, without the features available for teachers.

This set of layers and features frames the teachers' course design with the idea of a content closely related to the learning goals. In other words, the course builder represents a standardized idea of the planning of teaching and, in this sense, the DLP (that it is mandatory) works as a tool to implement the educational policies in the classroom, namely the use of the learning goals established by the Ministry. In Meebook, the students cannot create content or even interact with the provided content, features that are also absent in Positivo On.

### **Plans and schedule**

The third tab, Annual/Student plan, works as a calendar with the annual plan week-by-week (and day-by-day when a week is clicked), describing the content, tasks, deadlines and any other practical information. Figure 11 shows an example of this. Together with the course builder, it is a way to integrate courses into the year plan and the students' learning plans.

← Til årsplansoversigt Du er ejer | Samarbejder med 3

## HISTORIE 2018 / 2019

HOLD/KLASSE: 9.B

ÅRSPLAN | KLASSENS MÅL | ELEVPLANER/STATUS

SYNLIG FOR ELEVER:  SYNLIIG FOR FORÆLDRE:

Uge	Dato	Undervisningsmateriale
32	6 AUG - 10 AUG	BAG MENNESKET HITLER - HISTORIE
33	13 AUG - 17 AUG	DEN KOLDE KRIG - HISTORIE, HARALD BLÅTAND - HISTORIE
34	20 AUG - 24 AUG	KONSTANTINOPEL - HISTORIE
35	27 AUG - 31 AUG	KONSTANTINOPEL - HISTORIE
36	3 SEP - 7 SEP	BAG MENNESKET HITLER - HISTORIE, KILDEKRITIK - HISTORIE, CUABKRISEN - HISTORIE

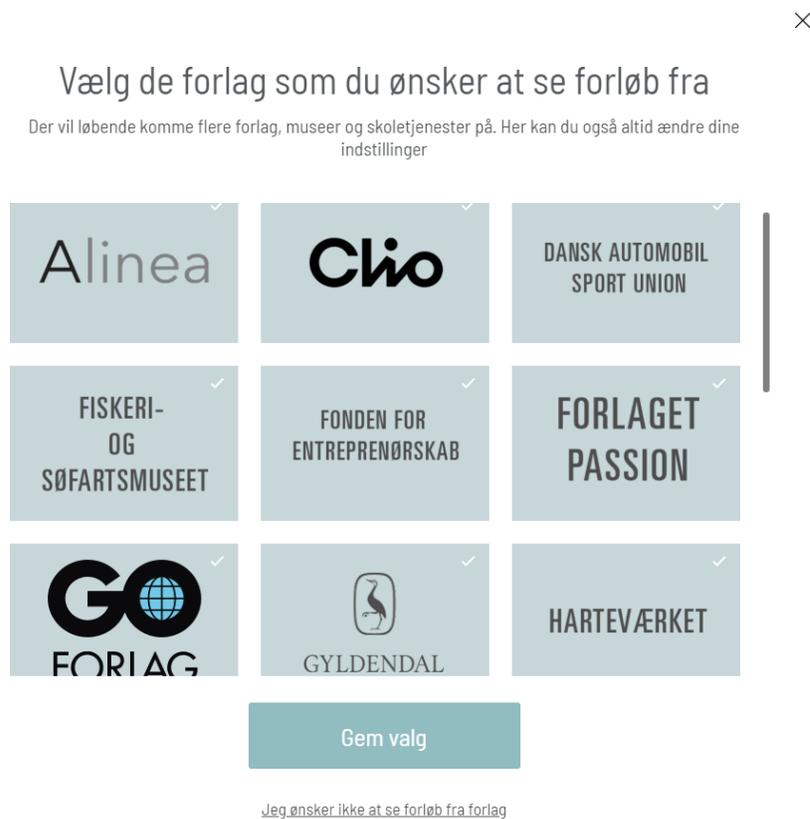
**Figure 11.** Example of annual plan in Meebook

But the annual plan is just one of the features in this tab, that contains classes goals and the students' learning plans as well. Once again, the learning goals are closely related to the DLP usage and its completion is encouraged by the platform. The students' learning plans are individual plans with goals that may be different for each one, an option consistent with the Danish school culture. With the teachers' evaluation, the platform shows the status of accomplishment of each student and generates some graphs as report.

## Searching and sharing courses

The last tab, Share it, allows sharing, retrieving and remixing courses. It is possible to search by keywords, grade level and subject. The results are listed as a function of the number of downloads as default, but the user can also rank them by title, grade level, subject or author. When a teacher downloads a course, it is available in the second tab (forløb) for edition in the same way as if it had been created by the teacher him/herself. The last three options are to see a course preview, its information or to download it. In the info are presented the metadata (title, grade level, author, etc), a description of the material and the learning goals. Once again, the learning goals have a highlighted role in the platform.

There is also a checkbox to show only courses from publishers in the searching engine, but it does not show any course as default. The way to allow the publishers' courses in the searching engine is not intuitive. The user must go in the configurations (the gear icon) and then select the companies, as shown in Figure 12.



**Figure 12.** Configurations step to select the companies and allow the search engine to show publishers' courses.

Despite the fact that there were 4706 publishers' courses and 3677 teacher's ones (8383 in total) available in Meebook in June 2019, the most popular courses are not from publishers. In the top-100 most popular courses, there are no publishers' courses. In the top-500, only 4. In the top-1000, only 25. One reason can be the tortuous way to find them in the searching engine. As mentioned by DeVito, Birnholtz & Hancock (2017), if the user does not perceive the feature, the behaviour is not stimulated.

Nevertheless, this number does not mean that teachers avoid using publishers' materials, they just do it in a different way in Meebook (partially due to the way the platform

is designed). It is very common for teachers to mix their own content with publishers' materials using images or PDFs from textbooks or links to specific parts of publishers' portals accessed with the UNI-login. In another ongoing research about Course designs in Meebook's course builder, we detected that 77% of the courses mixed own content with publishers' materials. For example, after many chapters of own content, a course asks "what the light is" and presents, as the answer, twenty pages from two textbooks. Of course, there is a copyright issue involved in this practice.

### **Summary**

The platform affordance reinforces the use of the learning goals. In a first view, Meebook platform is even more intuitive to user than Positivo On, although some resource, as the publisher content searching, are hard to find. Again, the student interaction is very restricted, without options to customize, comment, evaluate or share the content.

In what concerns the "Share it" functionality, it is an important difference between Brazilian DLPs and Danish DLPs. Positivo On and any other known Brazilian DLPs do not include a feature to share and remix courses. On Danish context, both Meebook and MinUddannelsen – the second most used DLP in Denmark – have the sharing feature. It is a strong sign that the platforms have, at least, a partial adaptation to the pedagogical context, after all, collaborative work seems to be of great importance in the Danish school culture (Skovsmose, 2001; Blossing, Imsen & Moos, 2014).

We also saw that Meebook design strategy highlights the learning goals. They appear constantly when you create or search for a course and are integrated with the scheduled plans and reports. Therefore, a clear perception of the learning goals relevance makes possible to engage the teacher in the work with the learning goals. It is a functionality not presented in Positivo On course builder.

## Discussion

Positivo On and Meebook are two DLPs from very different countries: Brazil and Denmark. They were taken as critical cases (Flyvbjerg, 2005) to investigate if the digital learning platforms relate or not to the pedagogical context. The study hypothesis is that DLP is strongly related to the pedagogical context, being more oriented by the local specificity, with particular features and pedagogical methods appropriate for each country, than just a business and political tendency around the world.

However, the DLPs have relevant differences that coincide with each pedagogical context and public policy. In the Danish case, there is a strong presence of collaborative tools and work of learning goals, aligned with the tradition of diversity and dialogue (Townshend, Moos & Skov, 2005) and collaborative environment of the schools (Skovsmose, 2001; Blossing, Imsen & Moos, 2014). In the Brazilian case, we see a standardization of the courses and tasks, with the content provided by the publisher and a lack of incentive for teacher creation, what is coordinate with the idea of uniformity and homogeneity (Candau, 2011).

Therefore, once again, we can recognize a pattern in the DLPs design that can be associated with a worldwide movement business-oriented. But this is not the whole story, once the DLPs are somehow shaped for each context and their tools encourage or restrict the actions that the companies believe to be desired by teachers. Analyzing the tools, we cannot rule out that DLPs are related to the pedagogical contexts. Even if “pedagogical context” means a more focused look at each scholar culture or public policy and less on granting for particular teachers’ needs. Of course, the local orientation can be also part of a business strategy, but here we are only interested in analyzing whether DLPs are driven by a global movement that shapes them all in the same way or not. If so, then their tools and the speeches used by the owners would not differ according to the country.

So, we cannot refuse the hypothesis. The DLPs have many things in common, as expected within the global tendencies, but not enough to claim that the local aspects do not affect them. Definitely, DLPs are not just a global movement that ignores local specificity and shapes the DLPs in the same way, providing the same discourses and tools anywhere, although its business-oriented aspects are not negligible. To support this result, Table 1 summarizes the advertising texts used by the DLPs owners and the tools available in each platform.

	Both DLPs	Positivo On exclusively	Meebook exclusively
Descriptive texts	<ul style="list-style-type: none"> <li>• For teachers, students, parents and school leaders</li> <li>• Technological innovation</li> <li>• Access from multiple platforms</li> <li>• Time saver</li> <li>• Monitor students' progress</li> <li>• Improve student learning performance</li> <li>• Many medias for student engagement</li> </ul>	<ul style="list-style-type: none"> <li>• Student-centred method</li> </ul>	<ul style="list-style-type: none"> <li>• Method-free</li> <li>• Sharing and collaboration</li> </ul>
Tools	<ul style="list-style-type: none"> <li>• Course-builder for teachers</li> <li>• Messages for students and classes</li> <li>• Planning calendar</li> <li>• Reports</li> </ul>	<ul style="list-style-type: none"> <li>• Only Positivo's courses are available</li> <li>• Exercises database</li> </ul>	<ul style="list-style-type: none"> <li>• Can share courses with other teachers</li> <li>• Courses available from other teachers and publishers (but hard to use publishers' materials)</li> </ul>

	<ul style="list-style-type: none"> <li>● Limited student interactions</li> <li>● Fixed templates</li> <li>● Students cannot create content</li> <li>● No interaction between students and content (highlight, comment, customize, share, etc.)</li> </ul>	<ul style="list-style-type: none"> <li>● Closed-questions autocorrect facility</li> <li>● Absence of learning goals</li> <li>● Hard to create own content</li> </ul>	<ul style="list-style-type: none"> <li>● Easy to create or edit content</li> </ul>
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**Table 1.** Differences and similarities between the descriptions used and tools available in Positivo On (a Brazilian DLP) and Meebok (a Danish DLP)

The second column shows that there are many similar elements in both platforms. The core seems to be the same: the innovation speech, the argument to saving teachers' time, the possibility to monitor and improve students' performance in the discourse level, and the capability for teachers to create or use prebuilt courses, handle administrative functions, communicate with the students and have access to reports in the features level. In both platforms, the course builder replicates a standardized idea of the teaching planning, with content provided by teachers or publishers and tasks to evaluate students. Students are relegated to the background, with few advertisement arguments related to them and limited interaction possibilities in the platforms.

Many features are the same in both platforms not because the pedagogical practices are the same in both countries, but because this shape reflects a worldwide tendency market (Gros & García-Peñalvo, 2016; Lindsay, 2016; Lin, Chen & Liu, 2017); therefore, there is a market-business factor involved on the creation and marketing of these platforms. As was

shown in this article, they do not ignore pedagogical context, although they did not necessarily take an account the local needs.

The DLPs affordance study makes it clear that course builder frames teachers' work and restrain certain practices at the same time that facilitate others, a result aligned with the Gros & García-Peñalvo (2016) and Graf, Gissel & Slot (2018) conclusions. One example is how the DLPs measure the students' learning: according to the number of right answers. This promotes and facilitates an overall evaluation for teachers and school leaders, even if it is a superficial view dissociated from a pedagogical theory. As a result, the DLP can support its welcome argument of saving time, but not necessarily with productive results in educational terms. Once again, we have a business-market factor reinforcement behind the DLPs.

Nevertheless, the reports tool also shows that the DLPs are not disconnected from the local aspects. In the Danish platform, the reports can consider learning goals. The use of learning goals is part of a Danish educational public policy and common goals were introduced in 2003-2006, revised in 2009 and again in 2015 by the Ministry of Education. They are presented in many user's interactions in Meebook: to create a course, to schedule an activity, to search for a course and to see a report. Thus, the design strategy to highlight them and, with this, encourage teachers to use them works as an implementation of the public policy.

The Brazilian platform Positivo On has no feature like that and one reason can be that it is not a Brazilian tradition to work with learning goals. Just in 2018 common core standards were introduced in Brazilian public policies and the DLP owner company does not seem to recognize them as a relevant criterion on the adoption of the DLP. Therefore, considering how different this aspect is between Meebook and Positivo On, learning goals in the DLPs can be identified as a relevant element associated with the pedagogical context.

This is also seen in the collaboration discourse and the course share tool available in the Danish DLP. Collaboration is part of Danish culture and there is no similar tools or discourse in the Brazilian context. On the other hand, the saving time idea has more emphasis on Brazilian DLP (although it is present in the website texts about Meebook). Among the features, a database with tasks and a closed-questions autocorrect tool facilitates the assessment planning but also discourages the teachers' creativity and the use more open and reflexive tasks. One more time, we see the platforms' affordances working to frame teachers' practices and the teachers' autonomy seems to give place for an ideal planning, an ideal course and an ideal evaluation assessment already provided by the DLP.

It is especially strong in the Brazilian scenario, where one publisher has already created the courses and assessments. Teachers can create their own courses within the platform, but, again, it is not as easy and attractive as using the publisher ready course provided by the Positivo On. It is part of the business interests of the Positivo On owners because they are a publishing company. The same explains the reason why only Positivo's content is available in the DLP. In contrast, Meebook is not part of a publishing company and then the platform allows content from many publishers, although the biggest stimulus is to courses' creation, sharing and remixing by the teachers.

## **Final considerations**

Divergences in sharing, collaboration and learning goals, as well as ready content versus teachers' creation, are aspects relevant enough to say that the platform differences are more than marginal. The DLPs are aligned with each scholar culture and work with pedagogical

context, but not necessarily according to teachers needs in each country and neither aligned with scientific theories.

Two DLPs models emerge from the analyze, textbook-oriented or goal-oriented. In Brazil, Positivo On point out more to save teachers' time while protecting the publisher's interests, in a textbook-oriented model of DLP. Besides the discourse, it is not a student-centred educational process and does not encourage teacher autonomy and creativity, presenting an already done sequence of contents and assignments. In Denmark, Meebook follows a goal-oriented model with an affordance that promotes the use of standardized learning goals and produces reports based on them. As result, it fragments the didactical reasoning and reduces students' productions and interactions.

In both models, teachers are absent from structure planning the courses. The DLPs providers give them a ready way to structure planning, namely based on goals or based on the textbooks. In the perspective of the most models and planning theories in German-continental pedagogical tradition of Didaktik, there should be strong relations among diverse didactical categories (Klafki, 2007). For example, the goals have to be seen, adjusted and qualified in the light of the learning activities and vice-versa , content must be aligned with chosen goals and vice versa, and, in the same way, content and media (such as textbooks and other didactic, semantic or functional learning materials), activities and media and so on (Klafki, 1995).

But the DLPs studied were not designed in this Didaktik way. What we see is only a strong connection between content and textbook or learning goals and reports. For example, as Graf, Gissel & Slot (2018) have already observed, in Meebook the learning goal template is separated from the creation of content, activities or the creation and import of media and resources. The generated reports simplify the achievements in the number of right questions.

Goals that cannot be evaluated by automated answers are not incentivized. This simplification reaches also Positivo On, that does not even have a direct link to learning goals. Integration, happiness, complex self-evaluation, the domain of procedures, reflection about attitudes and socio-affective competencies are examples of what is virtually out from the reports.

In order to be a “time-saver” for the teachers, the DLPs restrain the teachers’ creativity and attempts for innovative teaching. Problem-based, productive, student-directed and collaborative acquisition activities are examples not encouraged by the affordance of the platform (Graf, Gissel & Slot, 2018).

In general, the content, media or teaching activities and the associated didactical reasoning seem nonessential to the teachers in the DLPs. At the best, they were provided by the textbook authors in case of Positivo On or in the ready courses in Meebook, but both cases fragment what theory of teaching and learning puts at the core of planning and, therefore, do not strengthen reasoning of the interdependency of the Didaktik categories.

Concluding, one big challenge to DLPs providers seems to be how to expand the possibilities of teacher’s creativity and students’ interaction in a virtual environment that allows not-fragmented didactical reasoning. At the moment, the textbook or the goal-guided models are far from this target. Of course, it is a complex task surrounded by many interests and influences. Even in the pedagogical aspects, the Didaktik tradition is only one among many positions, and the business aspects, technology restraints, and the role of DLPs as a way to implement educational public policies must be considered in this complex scenario. Nevertheless, a first step could be a closer relationship among students, teachers, researchers and developers to create or improve DLPs in a more aligned way with the scientific theories and the pedagogical context of each local.

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