



Course designs in Meebook's course builder

– analysis of 102 course designs

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Abstract

In this article, we present the first systematic study of how teachers design courses in the newly implemented digital learning platforms in Denmark. The study is based on the collection and double coding of the 102 most downloaded course designs in the learning platform Meebook. The descriptive data is analysed in the light of Meebook's affordances, previous research and didactical theory. Our analysis focusses on the three main intentions of the introduction of learning platforms for K9-schools. This concerns firstly the use of learning objectives and their assessment, secondly the use of the platform in relation to the intention of sharing teacher-created course designs and thirdly the question of how teachers deal with the integration of multimodal learning materials in the course design. On one hand, the course builder in Meebook seems to affect teachers' course designs strongly, and on the other hand, the course builder does not facilitate didactical reasoning and coherence. The results of the study have potential implications for platform designers, local school authorities and headmasters who deal with the implementation of platforms as well as teachers that daily use such course builders for teaching and the students' learning.

How do teachers use a digital course builder?

Since 2016, all schools in Denmark are obliged to implement a digital learning platform. A learning platform is a digital platform to be used by students, pedagogical staff, and parents in the student's learning process and the daily work in schools. The introduction of such learning platforms has to be seen in the context of the nationwide Digitization Strategy by the national and local governments (Digitaliseringsstrategi, 2016-2020) that promotes modern digital solutions for primary and lower secondary schools (K9) as well as in the context of the latest school reform of 2013 that focusses on academic achievement and well-being of all students (Reformforliget 2013). The introduction of learning platforms is part of a range of digital initiatives that provide common standards for data exchange in the educational field in cooperation with publishers of digital learning materials (Brugerportalinitiativet, 2014). While the communication platform (not implemented yet) should broadly facilitate the school communication, the learning platform focuses on facilitating teaching and learning as well as professional collaboration by sharing course designs.

The course builder is the core of such platforms and allows - beside the sharing - function teachers to plan, carry out, and evaluate teaching, integrate courses into their year planning and student learning plans, integrate teaching and learning materials, assess individual students' learning activities, and create students' self-assessments. This is in several regards a new situation for

teachers and their practices. Firstly, it is obvious that the course builder frames teachers' planning. One on hand the template of the course builder offers new ways of planning and on the other hand, it may demand or facilitate certain practices. In other words, the course builder represents a more or less standardized idea of the planning of teaching. Secondly, the use of the course builder is partially mandatory. In most schools, teachers were asked to work with one to three course designs in the first year. Never before have K9-teachers in Denmark been forced to follow a standardized planning template and thereby explicate or express their planning. Thirdly the template is digital. Thereby teachers leave digital traces of their planning practices. We took advantage of the digital conditions for course designs under which they in large numbers become both visible and comparable in a systematic way. All of a sudden, it was possible for us to get easy access to a wide range of course designs and study them in a new and systematic way in relation to teachers' planning practices.

In Denmark research in learning platforms for K9-schools is still in its infancy. We can point out an evaluation and two relevant research and development projects. Based on an evaluation of preliminary experiences with the implementation of front-runner schools, The Danish Evaluation Institute published inspirational materials on how to choose, how to implement and how to use learning platforms (Danmarks Evalueringsinstitut, 2016). The demonstration school project Digital supported learning objectives (Digitalt understøttede læringsmål) aimed at the design-based development of a prototype of a course builder (Målpilen) in order to digitally deal with learning objectives. The study claims some potential for technological solutions for structuring teachers planning and monitoring students' learning but points out that the main potential for a course builder does not connect to the technology itself but to ways of enhancing teacher collaboration, developing teaching and enhance capacity building (Misfeldt, 2016). The second larger research and development project, Use of digital learning platforms and teaching materials, was carried out by a broad consortium¹. The project aimed at facilitating the mandatory implementation of learning platforms together with 15 schools geographically spread in Denmark as well as at identifying and disseminating generalized knowledge for organisational, technological and didactical dimensions. In the survey of the consortium, the teachers report that digital platforms facilitate course and year planning as well as the application of learning objectives. In contrary, they see limited opportunities for the platforms to enhance social aims, visible learning and students' evaluation. One of the central conclusions remain: The platforms are not used for teacher collaboration and dialogue on teaching (Kølsen & Qvortrup, 2017).

Our approach is different from these previous studies in several regards. While they primarily deal with organisational and developmental aspects of learning platforms, we focus solely on teachers' visible planning practice within a digital course builder. While the other studies were engaged in best or next practice facilitated by consultants and experts, we know for little about how teachers' course designs look like. How does common planning practice in the course builder without any interference look like? How do teachers make use of the built-in features of the course builder, and how does a course builder affect teachers planning practices? As the course builder's template is designed with specific features, we may assume that they affect teachers planning practices. There has yet not been published studies that describe and analyse the course-planning practices in relation to the use of a concrete course builder. Our results may not only be relevant for the future design of course builders in digital platforms, but also shed light on conditions and practices of teachers' planning practices in digital environment in general. In that sense, our approach has to be seen as a complementary and supplementary study to the precursors. On the background of these previous studies in the field and the above mentioned intentions of recent school policy with learning platforms, our overall research question is:

How do course designs in a digital course builder look like, and how does the course builder frame the teachers' planning practices?

To be able to deal with the overall research question in this article, we choose to focus on three critical success criteria expressed the general requirements specifications for the learning platforms (Generel Kravspecifikation) that are strongly related to the above-mentioned educational policy and reform. For the first, a central agenda of the reform was learning objective-driven teaching (læringsmålstyret undervisning). Course builders should therefore functionally include the common learning objectives (Forenklede Fælles Mål, 2016) and the possibility of creating individual student goals (Generel Kravspecifikation, p. 13). We analyse therefore how learning objectives and corresponding assessments appear in the course designs. For the second, the platforms should make dynamic sharing of course designs possible in order to enhance internal and external professional collaboration among the pedagogical staff (ibid.). Based on the fact that the analysed course designs are publicly shared, we scrutinize in which ways the course designs are communicated to others. Herby we look at how teachers contextualise their communication, to whom they address the courses and how they frame the learning materials. For the third, course builders should make it possible to incorporate all kinds of resources and digital learning material easily (ibid.). We are interested in what kind of learning materials do teachers integrate in the course designs, which modalities do they contain,

and which kind of acquisition activities for the students do teachers connect to the resources and materials. These three themes form the core of our study and subsequently of this article.

Shared course designs in Meebook

There are significant differences between the learning platforms and it would be an interesting enterprise to carry out comparative studies. However, we chose to focus on one platform, Meebook, because it is one of the most used platforms in Denmark and a fairly open and accessible system. In Meebook, shared courses are listed as a function of the number of downloads. Users can view others' shared courses, see some metadata about the courses, and choose to download one or more to their own profile. This gives us the opportunity to study the shared course designs of the three school departments (form level 0 to 3, 4 to 6 and 7 to 9) nationwide. This means that when we focus on the most popular courses, we know that these are courses that other teachers than the original creator of the course have found usable or valuable for some reason.

By the date, August 18th 2017 we generated lists of the 34 most frequently downloaded courses for each department, totalling 102 courses. We created screen dumps and fixed the course designs by downloading them to a research account in Meebook. In a second step, we coded the 102 courses according to our coding manual. The first coding section includes the available basic metadata such as the name of the course designer, title of course, form level, subject, number of chapters (parts of the course), number of common and self-created learning objectives, the applied assessment scale as well as the open course description of the teacher. The second coding section describes the following categories with subcategories: the teacher's framing of acquisition activities, inclusion of the students' preconception, social organising, student activities, used modalities, integrated and external learning resources, process, assessment practices, recipients, and estimated duration of the course. While the first coding section involved a mere registration of available data in the platform, the second coding involved interpretation. The coding manual was developed on the basis of a pilot coding process and an ongoing calibration of definition of the categories among the three authors. Finally, we carried out a double coding of the categories of the second section in order to validate our data. Hence, we ended up with 102 double coded course designs equally distributed on the three departments. Our data is fixed and reproducible as well as collected with no interference from our side.

We do not have a privileged perspective on the courses as we access them like any other peer teacher in the platform. These are the strengths of our approach and represents a first empirical step in representative studies of course designs in Denmark. The limits of our method is obvious. By solely

studying the fixed course designs, without access to the concrete teaching or the intentions of the teacher who created the course, we may not conclude on teachers planning practices in general. Nevertheless, our approach seems promising in order to identify patterns of typical practices within digital course builders.

From an overall methodological view, our study is located in the cross point of four approaches. For the first, we approach our research interest by taking advantage of the new digital possibilities of creating a larger sample of course designs and collecting the visible data. For the second, we heuristically scrutinize the data in the light of three central intentions connected to the introduction of learning platforms, develop a coding manual and carry out descriptive statistical analysis of the coded course designs identifying specific patterns. For the third, we analyse the coded material in relation to the relevant affordances of Meebook's course builder. Finally, we discuss the results as well as the template of the course builder in Meebook in the light of didactical theory. In that sense our study started out primarily data-driven, while the research interest emerges during preliminary analysis and turn into a theory-guided analytical process. Unfortunately, we have no comparable knowledge about teachers' previous practices or just planning practices outside digital platforms.

When we use the term "didactical" we refer to the concept of "Didaktik" in the German-continental tradition. Furthermore, we draw on the didactical theory of learning materials developed in relation to the national Knowledge Centre of Learning Technology (Læremiddel.dk) and on social-semiotic theory in relation to the concept of multimodality. For the conceptualizing of the interaction between teacher and technology, we adopt the Gibson notion of affordance (2015). Affordance is seen as dialectic between user and technology. It is a matter of what technology makes possible for users, not only by expanding the notion of the user, but also by considering the question of what users do to the technology (Bucher & Helmond, 2017). The "written" course designs have to be seen in the context of the specific affordances within Meebook. That means we have to describe and analyse how Meebook makes certain practices possible and restrains others. More detailed theoretical and methodological issues are unfolded in the relevant sections.

The main body of our article is divided in three sections. First, we deal with the learning objectives and their assessment. In the second section we discuss the use and status of the course designs in the light of the sharing-intention and, in the third part we analyse modalities and student activities connected to the sample of course designs. Finally, we discuss the results and the course builder template in Meebook considering didactical theory, which is a

coherent system of the central categories for planning, realizing and evaluating of teaching and learning.

Learning objectives and their assessment

In Denmark, there has been a focus on mandatory and more precisely defined national learning objectives in the curriculum for about two decades (Forenklede Fælles Mål, 2016). This curriculum describes the common binding end objectives for students in each subject and form level through competences and the corresponding pairs of knowledge objectives and skill objectives. The school reform of 2013 and the revision of the common objectives from 2013 to 2015 can be seen as the preliminary culmination of the effort of school policy to enhance higher academic achievementⁱⁱ. We have already showed that the introduction of learning platforms represents one tool for these intentions. Hence, the general requirement specifications for the learning platforms (Generel Kravspecifikation) focus largely on the teacher's possibility to include and monitor the common learning objectives, teacher goals and asses according to them. In order to analyse teachers' use of objectives and assessment scales, we need to identify, how Meebook affords these functionalities.

Meebook has chosen an open way of including objectives and their assessment in the course builder (Figure 1). Beside the opportunity to edit the course (Rediger forløb), assess objectives (Evaluer faglige mål) and evaluate student reflections (Evaluer refleksioner), the course builder makes it easy to include objectives (Faglige mål). The teacher can either retrieve the common learning objectives from the black box in the right upper corner (Hent mål fra UVM) or create own goals in the turquoise box (Mål til lærerevaluering). To import a common objective the teacher has to select the subject, the level, the area of competence, and the subarea from a drop-down menu and then mark as many objectives from the list as wanted. Integrated in the list there is information about the corresponding assessment scale, how many times the objective has been used already in the class (typical learning group in Danish schools), as well as an overview of how many students have fulfilled it. According to the current curriculum logic in Denmark, the objective tool in Meebook presents always a skill and knowledge objective synoptically as a pair. In the chosen competence area, the pairs of objectives are listed together and structured in one, two or three phases that express the intended progression within the relevant department. In addition, the teacher can create and formulate own goals and freely choose between a variety of assessment scales. It is important to understand that neither the common nor the self-created objectives are visible for the students. However, there is a functionality for creating visible student reflexions in relation to the objectives (Evaluer faglige mål).

Figure 1: Example of learning objectives in Meebooks course builder

The screenshot shows the 'FAGLIGE MÅL' (Subject Objectives) section of the Meebooks course builder. At the top, there are navigation tabs: 'REDIGER FORLØB', 'FAGLIGE MÅL', 'EVALUER FAGLIGE MÅL', 'EVALUER REFLEKSIONER', and 'SE ELEVVISNING'. Below the tabs, the main heading is 'TILFØJ FÆRDIGHEDS-, VIDENS- OG KOMPETENCEMÅL' (Add Skill, Knowledge, and Competence Objectives). To the right of this heading is a button 'HENT MÅL FRA UVM'. Below the heading, there is a form with two main sections: 'MÅL TIL LÆREREVALUERING - IKKE SYNLIGE FOR ELEVER' (Goals for teacher evaluation - not visible for students) and 'MÅLESTOK' (Assessment scale). The first section has a text input field with the placeholder 'Beskriv fagligt mål og vælg målestok' (Describe the subject goal and choose the assessment scale). The second section has a dropdown menu with the placeholder 'Vælg målestok...' (Choose assessment scale...). Below the form is a red button '+ TILFØJ TIL LISTEN' (Add to list). Below the form, there is a list of three objectives:

- 1: FASE 1 - VIDENSMÅL** (with a crown icon)
 - Eleven har viden om bogstavlydforbindelser og enkle regler for ord- og sætningsdannelse (Ved ikke / Ved)
 - Anvendt: 0 Sidst: –
 - (Samlet gennemsnit for hold)
- 2: EGET**
 - Genkende vokalerne og deres lyde. (Kan ikke / Kan)
- 3: EGET**

In Figure 1 we see firstly a common knowledge objective together with the assessment criterion “Don’t know/Know”, and secondly a self-created goal with the criterion “Cannot/Can”. The integration and creation of objectives or goals and their assessment scales is not only easy but holds a very prominent place in the course builder.

How do teachers deal with learning objectives?

In a qualitative case-study of teachers use of the common learning objectives the Danish Evaluation Institute concludes that there is still a gap between teachers use of objectives and the logic behind Forenklede Fælles Mål. Teachers do not use the hierarchy of common objectives for the planning of specific courses. Some teachers rely solely on the teaching and learning materials from publishers, and some use them solely for year planning. All in all, teachers as well as school leaders do not consider the learning objectives as a question of teaching quality (Danmarks Evalueringsinstitut, 2012, p. 8).

Taking these results into consideration, it is surprising that 76% of all 102 courses we analysed show at least one common or self-created objective. The rest of 24% of the courses without any objective can be explained partly by

the fact that not all 'courses' in our sample represent courses directly aimed at students' learning where objectives are relevant. In other words, most relevant courses actually include at least one goal. While the Danish Evaluation Institute in 2012 observed a limited use of common objectives, we can document that 43% of the course designs contain at least one common objective. The course builder in Meebook seems to encourage teachers to include goals in general as well as the specific common objectives. We assume that this new practice is related to the specific goal-feature and the easy drag-and-drop-use of the common objectives. In that sense, the platform meets the intentions of school policy and the curriculum to a certain extent. This tendency appears even stronger when you consider that the number of common objectives for a single course ranges from 1 to 32. More precisely do 30% of all courses contain between 5 and 32 common objectives. This is quite astonishing when we from a pragmatic point of view consider the application of 5 or more objectives to one single course as a rather complex endeavour. We may ask, whether it is reasonable or possible to pursuit and realize a high number of objectives in a single course. The predominant and easy goal-feature seems even to stimulate an overuse. Since we have no access to the teachers' reasoning about their goal-practice in our study, we can only refer to generalized conclusion from previous studies. May the objectives be barely used as a checklist (Danmarks Evalueringsinstitut, 2012, p. 8), or are there a whole range of different ways teacher conceptualize objectives and goals (Carlsen, Hansen, & Tamborg, 2016, p. 17)? In the case of self-created goals, we find a similar percentage, namely in 44% of the courses designs. Here, the number of goals per course ranging from 1 to 9 seem more practicable than in the case of common objectives. In the view of this relatively high percentage, we may conclude that Meebook also facilitates the creation of own goals. An in-depth-analysis of the self-created goals is still pending. Are these goals as well learning objectives or goals for teaching? Are they goals for processes and steering or output-goals? Further investigation should not only be able to shed light on the different kinds of goals, but also include teachers' reasoning about these practices.

However, our data allows some comparative analysis of the use of the common objectives. Table 1 shows the percentages of skill and knowledge goals distributed on the three departments and the three phases within a competence area. The phases represent the progression within a competence area, but not all competence areas include a third phase. That is one reason for the low numbers in phase 3.

Table 1 and our supplementary analysis show that the third department except for phase 3 retrieves significant fewer common objectives than the other departments. This is surprising. One could expect that the final

examination in form level 9 would put some pressure on teachers to follow the common objectives. The tables' highest percentages are in phase 1 for the first department. When we disregard phase 3, we can in general observe falling percentages for all figures from phase 1 to 2. Otherwise in the third department, where the percentages throughout the three phases are more equally distributed. This pattern calls for further investigation.

Table 1: Percentage of course with at least one common objective

Department	Phase 1		Phase 2		Phase 3	
	Skill	Know- ledge	Skill	Know- ledge	Skill	Know- ledge
1 (Form level 0 - 3)	48%	36%	27%	21%	3%	3%
2 (Form level 4 - 6)	32%	29%	32%	24%	0%	0%
3 (Form level 7 - 9)	18%	14%	11%	4%	11%	11%
<i>All together</i>	34%	27%	24%	17%	4%	4%

As mentioned above Meebook displays pairs of objectives. In phase 1 and 2 the skill objectives are clearly retrieved more often than the knowledge objectives. As we see later, this corresponds with the high occurrence of training activities in the first two departments (see Table 5). We also had a look at the frequency of pairs by counting the courses that contain at least one skill or one knowledge objective within the same phase. We can state that when teachers retrieve at least one type of common objective (either skill or knowledge) in a phase they are very much likely to also retrieve an objective from opposite type (Table 2). Even though we do not know whether the pairs themselves are reasonable, or whether we count pairs between common and self-produced objectives, teachers tend to import pairs of objectives rather than single skills or single knowledge objectives. Despite teachers are not forced to retrieve both, the design of the course builder in Meebook seems to some extent to facilitates teachers' use of pairs and therefore support the curriculum logic of Forenklede Fælles Mål.

Table 2: Pairs of objectives

Phases	At least one objective	Pairs	Percentage
Phase 1	35	23	66%
Phase 2	23	16	70%
Phase 3	6	2	33%

The use of assessment scales

Additionally, we have coded whether course designs contain assessment scales that are visible for the students and invites them to answer. In around 42% of all courses across the types of objectives, teachers connect at least one of the available assessment scales to at least one objective. As stated before the strong relationship between learning objectives and evaluation as visible learning is part of educational policy and the introduction of digital learning platform (Carlsen et al., 2016, p. 91). It is possible to conclude that the course builder seems to facilitate the interconnection of objectives and assessment as intended. In addition, teachers also conceive goals in the light of evaluation and vice versa (Carlsen et al., 2016, p. 24). Furthermore, our more detailed analysis of the types of assessment scales in relation to the types of objectives reveals a clear picture.

Table 3: Types of assessment scales and types of objectives

Types of assessment scales	Common objectives	Self-created objectives
cannot/can	41%	34%
don't know/know	29%	6%
do not understand/understand	1%	5%
not finished/finished	0%	0%
scale 1 to 5	3%	8%
no/yes	0%	4%
never/often	0%	0%
bad/good	0%	0%
do not recognize/recognize	0%	0%
should practice/are able to	0%	0%

Table 3 shows the percentage of courses that include a given assessment scale distributed on the two types of objectives. We see that teachers apply mostly skill assessment (cannot/can) and less the knowledge assessment (don't know/know), while the other assessment scales are not used quite as often. In the case of common objectives, the two most frequently used types of assessment scales seem to reflect the frequency of skill and knowledge objectives and their predefined assessment scale. Even though scales could be changed in the course builder, teachers are not likely to use this opportunity. We can conclude that the teacher practice seems to mirror the possibilities and restraints of the predominant elements of Meebooks course builder. In relation to the self-created goals, teachers are even more likely to apply the skill assessment than the knowledge assessment scale. This pattern occurs despite the fact that teachers here have the opportunity to choose any assessment scale while creating a goal. This suits well the finding that goals are highly conceived as skill goals and measurable (Carlsen et al., 2016, p. 17).

In the case of self-created goals, we observe a slightly higher use of three alternative assessment scales. Especially the slightly more frequent use of the understand/don't understand-scale adds some counterweight to the predominant use of the skill-scale. In general, teachers do not use the broad range of scales the course builder provides. In other words, they do not use and exploit the open possibilities in the course builder. Something other than Meebook may frame their practice. Maybe it can be explained by how teachers conceive the intentions of educational policy as stated in the above-mentioned study on teachers' reasoning about goals. While they struggle with the evaluation of (broad) competence goals, it is much easier to deal with the assessment of skill-goals (Carlsen et al., 2016, p. 15).

In the next section, we investigate the course designs from the perspective of the sharing function.

The courses in the light of the sharing function

The sharing functions in the digital learning platforms hold great potential allowing teachers to invite other teachers to view, share, re-use, remix course designs and even collaborate on designing them. We are interested in analyzing the course designs in the light of these sharing-intentions on one hand and in the light of the affordances of Meebook on the other hand. Approaching the courses as we do with professionally published learning materials, makes it apparent, that the context and use from which these shared courses emanate has an impact on the degree of comprehensiveness and, hence, potential degree of usefulness for other teachers. In a first step, we analyze the communicative situation between the course-creator and the recipient. In the second step, we have a look at how the courses consider the local and generalized regards of teaching and learning. Our analysis of the metacommunication to the course design represents the third step. Finally, we examine the types of learning materials the courses connect to the course designs.

The course as residue or learning material?

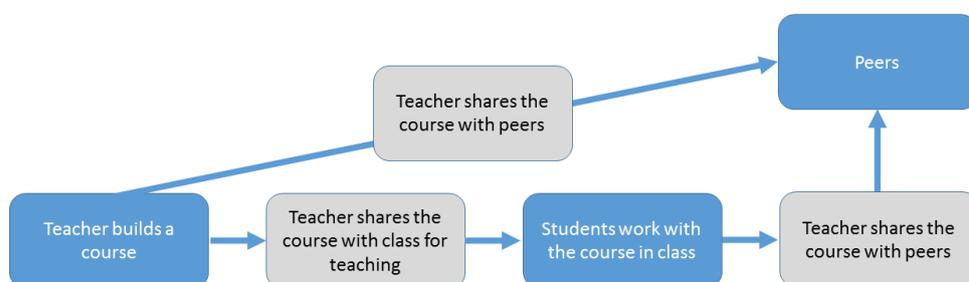
A course created in a digital learning platform potentially qualifies as a didactic learning material (Hansen, 2006; Hansen, 2010; Bundsgaard & Hansen, 2011). Didactic learning materials are produced for instructional purposes. They have a built in didactic intention and they facilitate teaching by identifying aims, supplying relevant content, and often contain activities, assignments and a teacher's guide. When a didactic learning material is produced by a publisher, the authors must balance the need to make the learning material useful for a specific purpose, i.e. teaching in a specific form level in a specific subject, while at the same time making sure that the learning

material will suit a wide variety of students, classes and teachers within the target group. Furthermore, professional authors of didactic learning materials will carefully try to facilitate teaching with the learning material by instructing both teachers and students in what to do to realize the didactic potential in the material. For example, the teacher's guide can instruct the teacher in what to say to students when presenting an activity to the class and in the student's book supply further support for performing the activity.

For each of the 102 courses in our course sample, we recorded whether students, other teachers, or both were the intended recipients. We did this by evaluating to whom the speech acts in the text generated by the course-building teacher were directed. Most often, in elements directed at students, they are addressed as 'you', whereas elements directed at other teachers refer to students in the third person. 61% of courses exclusively show direct address to students, and 31% address both students and teachers. 6% of courses are aimed solely at other teachers; in these cases teachers use the platform as a tool for transmitting content, mostly PDF-files, that other teachers may use for their purposes. In the light of the sharing function, it is important to whom the course design is produced.

When teachers share a course built in a digital learning platform the authoring process is radically different from professional authoring. Figure 2 shows the two potential paths from course building to shared course. Typically, the teacher plans a course in the platform and realizes the design for learning in the teacher's own specific class. The digital platform is used as a tool by the teacher and students for their specific purposes. In other words, the course-building teacher will design the course to meet the local needs for executing a design for learning. In this path, an external addressee is not necessarily in play before the teacher decides to share the course with other teachers. Moreover, the course creator will not necessarily modify the course to meet general needs, i.e. facilitate that other teachers and students can use the course.

Figure 2: Two potential paths of sharing from course creation to recipients.



However, the instant the teacher shares the course, peers become the immediate recipient, because students cannot access a course unless a teacher assigns the course to their class. In other words, the teacher always acts as a gatekeeper vis-à-vis their classes' use of courses in the digital learning platform. Consequently, the other teachers will have the opportunity to perform the modifications and redidactization (Hansen, 2006) necessary to make a course work in a new context.

The second path goes from a teacher building a course and directly shares it with other teachers, without executing the design in his or her own class. In this latter scenario, the communicative act resembles that of publishing houses, and the course-creating teacher can focus attention on meeting the general needs of other teachers and students. Figure 3 shows an example of this. The course-creating teacher provides information to other teachers about content, organization, aims, and some practical tips. The course content consists of 20 PDF-files with tasks relating to 20 easy read books in the same series. Obviously, the platform course is not intended as an interface for students in this course; the PDF-files are to be printed and used with the analogue Ignora books. In this course, the platform is used more as a transmitter of resources than as an actual course planner.

Figure 3: Course aimed directly at other teachers (Our translation)

KAPITLER
KAPITEL 1
Opgaver til Frøken Ignora bøgerne

KAPITEL 1
OPGAVER TIL FRØKEN IGNORA BØGERNE

KORT FORTALT OM OPGAVERNE

De vedhæftede filer er lavet i samme format som Ignora-bøgerne.

Opgaverne er tænkt til slut 2. klasse begyndelse af 3. klasse.

De er beregnet til pararbejde, hvor der arbejdes med at læse på linjen, mellem linjerne og efterfølgende at kunne perspektivere bøgernes indhold på forskellige vis. Der sluttet af med skriftligt arbejde hver gang.

Opgaverne printes som tosidet-kopi og foldes i samme format som bogen.

Frøken Ignora eksploderer
Opgaver til pararbejde.

Frøken Ignora i skolegården
opgaver til pararbejde

Frøken Ignora og stjernehimlen
opgaver til pararbejde

Translation: "Chapter 1. Worksheets for the Miss Ignora books. Briefly about the work sheets. The attached files are made in the same format as the Ignora books. They are aimed at the end of 2nd grade or the beginning of 3rd grade. They are intended for work in pairs, working with literal and inferential reading, and relating the contents of the books to a broader context in different ways. Each time students finish off with a writing activity. The worksheets are to be printed as double-sided copies and folded in the same format as the book."

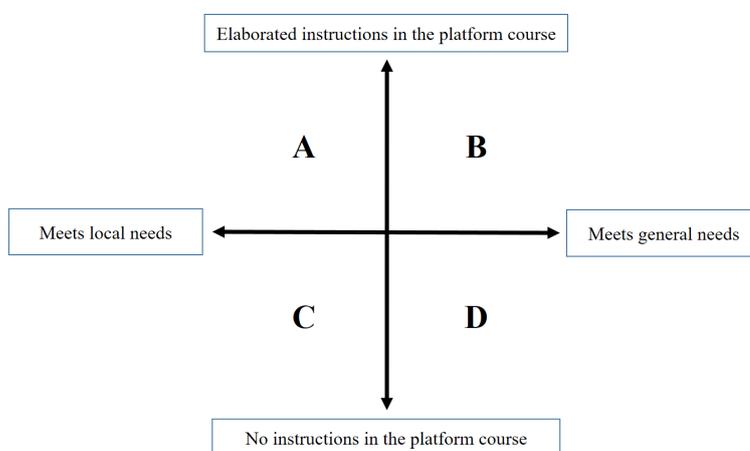
An important point here is that teachers have neither incentive (apart from altruism) nor demands to make their courses apt for external recipients. When building a course in Meebook the teacher is required by the platform

editor to provide metadata on which subject the course is intended for, but apart from this, there is no minimum requirements for publishing a course. Hence, we see varying degrees of comprehensiveness in the shared courses, ranging from courses consisting of a single text box with scribbles to thorough course designs. In addition, we see varying degrees of decontextualization in the teachers' course designs.

Decontextualization and local needs

We suggest that we can view this variation in comprehensiveness and decontextualization along two continuums (Figure 4).

Figure 4: Four types of courses in the platform



⊙ ⊙ ⊙ ⊙ ⊙ ⊙ ⊙

One continuum in course design ranges from the course meeting local needs to meeting general needs. The other continuum ranges from elaborated instructions in the course to the counterpart, the lack of elaborated instructions in the course. This yields four prototypical course designs. The Ignora-course is an example of type B where the teacher solely pays attention to the needs of the recipient teachers and provides instructions for the unknown recipient. When courses have been designed for a particular class and elaborated instructions are present, the instructions will often reflect the situatedness of meaning in the class community. In one example in our course sample, the teacher shared a course in which student names are listed for purposes of group formation, and in another example the teacher refers to an upcoming class excursion to the beach. These are traces of the specific context in which the course was originally used and examples of an irrelevant degree of detail for other teachers.

For a course to meet the local needs of a teacher and class, elaborated instructions in the platform course are not a mandatory ingredient. We see numerous examples of courses that seem very sketchy, and where resources are presented without much instruction for students and without much didactical integration between elements. A possible explanation for this is, that the learning platforms in the Danish public schools are not primarily intended and used for E-learning scenarios where teacher and learner are separated by distance, time, or both (Keller et al., 2007; Tarhini et al., 2016). A course built in Meebook is used within a classroom scenario where both teacher and students meet face to face. Consequently, a course in the platform is used as one resource that acts in interrelation with all potential elements that characterize a classroom situation: teacher presentation and instruction, dialogue, analogous learning materials, as well as other digital learning materials etc. Hence, a teacher might find it optimal to share a digital resource through the platform but choose to deliver instructions vis-à-vis activities with the resource orally in class, whereby the course will be type C (Figure 4). In this case, other teachers will have to guess what students are supposed to do in a shared course, what went on in the course creator's class, and what the course creator's intentions are with integrating the resource.

The question is, whether or not and how other teachers can use courses without explicit instructions to either students or teachers (type D). Does the opposition between the course creators' incentive towards minimalistic platform course designs that work in their local context in conjunction with the totality of their design for learning and other teachers' need for facilitation of teaching make most of the courses rather useless for other teachers?

Metacommunication in Meebook

Teachers can optionally supply metacommunication for other teachers that is visible in the metadata in the course search engine, which many teachers choose to do. However, there is no functionality dedicated to allowing teachers to communicate to other teachers when the teacher has accessed a course. Hence, Meebook does not have a design that affords creating 'considerate' texts, for example with information for other teachers about how to present an activity to students or what to consider when adapting an activity to a specific school class.

Some teachers have found an innovative way of dealing with this lacking functionality. For each block created in the course creator, the teacher can choose to hide it or make it visible for students. Some teachers create hidden textboxes that communicate directly to other teachers embedded in courses aimed at students. In a course about commercials, we see an example of an instruction that would seem directed from teacher to students: "Form small

groups and choose a commercial. Analyze it and present to the class. [Our translation]” We know that teacher clarity in instructions is very important for student learning outcome (Cruickshank & Kennedy, 1986) and presenting students with a task as vaguely defined as this surely would lead to numerous follow up questions from students. Most likely, the teacher has been much more specific in the verbal instructions to the class or the teacher draws on local understandings and routines, for example regarding what and whom constitutes small groups, how students make presentations etc. Again, others teachers’ use of the course requires very active and substantial redidactization and the course in the platform seems sketchy and probably constitutes only a partial representation of the full design for learning.

Learning materials: integration and didactic framing of resources

In the previous sections, we pointed out, that a course that is shared after having been used in the course creators’ classroom often seems rather incomplete and esoteric. We see a similar pattern in the reference to and integration of learning materials in the courses in our course sample. We looked at which types of learning materials are used in the courses. We distinguish between digital and analogue learning materials. By digital learning materials we mean all materials formatted and/or distributed digitally. Secondly, we distinguish between three types of learning materials (Hansen, 2006; Hansen, 2010; Bundsgaard & Hansen, 2011):

Didactic learning materials are produced for instructional purposes. These are often made by publishers, but, as mentioned previously, a course in a learning platform potentially qualifies as a didactic learning material.

Semantic learning materials are texts used outside school. Examples include a novel, a YouTube-recipe, or a newspaper article. To use these for educational purposes, the teacher has to didacticize them, i.e. frame the use of the resources didactically by designing activities, tasks to fulfill a didactic intent and so forth.

Functional learning materials act as tools used to handle content and processes in teaching. Examples are software for editing movies, Padlet, or a ruler. As with semantic learning materials, the teacher will have to frame the use of these didactically.

We scored the courses to see if these types were present or not, regardless of how many occurrences the same type may count.

Table 4: Type of learning materials in the courses

Type of learning material	Present	Not present
Digital, didactic learning material	45 %	55 %
Digital, semantic learning material	57 %	43 %
Digital, functional learning material	17 %	83 %
Analogue, didactic learning material	6 %	94 %
Analogue, functional learning material	1 %	99 %
Analogue, semantic learning material	10 %	90 %

Table 4 shows that digital formats are much more used than analogue in the shared courses. This may not be surprising, since it is a digital platform that affords integration of digital resources. On the other hand, it is unlikely that these figures are representative of the full spectrum of teaching in the classes to whom these courses were aimed. We know from previous research that the analogue textbooks play a primary role in for example maths on all form levels (Gilje et al., 2016) and in Danish first language teaching – especially in the primary form levels (Bremholm, Bundsgaard, Skyggebjerg & Foug, 2017).

45 % of the courses refer to a digital, didactic learning material and in as much as 57 % of courses a digital, semantic learning material is in use. However, only in 17 % of the courses a digital, functional learning material is in use. When we look at the affordances in the course builder in Meebook, this pattern makes good sense. Meebook facilitates easy integration of still images (Google Drive) and embedding video (Vimeo, YouTube, SkoleTube). As mentioned, using such semantic learning materials requires didactization. However, in many courses we see bundles of semantic learning materials that are presented without metacommunication from the teacher regarding why they are relevant and what students are supposed to do with them. Furthermore, these resources are not tied together by a didactical common thread by the course creator. In other words, the metacommunication (B in Figure 4) that should make the integrated semantic learning materials (C) didactically meaningful is absent. We speculate that this metacommunication may be performed orally in class (A). In the course builder, the functionality for integrating video or images allows the teacher to write a description of the resource and the teacher could create an assignment or a textbox. However, teachers generally refrain from communicating these parts of their design for learning in the platform. Similarly, Meebook allows for easy integration of digital, didactic learning materials produced by a publisher. The platform generates a preview in the course. But again, teachers refrain from meta-

communicating to students about what to do when they access the learning materials.

Previous research has shown that digital, functional learning materials play a significant role in teaching in Denmark (Agergaard, Graf & Puck, 2016). The rather low number of occurrences in the shared courses can also be attributed to the affordances of the course builder in Meebook. Meebook facilitates integration of a few digital, functional learning materials (Google Drive, OneDrive and SkoleTube). If a teacher wants to direct students to other learning materials, the only option is to create a link to the material in a textbox. Consequently, students are directed outside the platform when working with these tools, and the tools do not communicate back to the platform unless students upload their work in Google Drive, OneDrive or SkoleTube. It would seem, that teachers do not regard this setup in the platform as sufficient facilitation and that they use other platforms of communication to students when functional learning materials are in play.

Now we move to the third section where we deal with kinds of acquisition activities, types of learnings resources and modalities in our sample of course designs.

Acquisition activities and multimodality

In addition to the registration of learning material, we also coded the types of acquisition activities and the different modalities visible in the courses. When teachers make resources available to students or design tasks in the course builder, they consequently frame a certain student activity. We distinguish between two types of student activities: receptive and productive. Productive activities can further be differentiated between training and construction. Hence, we talk about receptive acquisition activities when students are expected to read, see or hear something. Connected to such activities, resources are most often containers for content. Training acquisition activities we registered when students are expected to find answers to closed tasks or engage in skill training (e.g. fact finding, control questions, multiple choice procedures). We registered constructive acquisition activities when students are meant to work with the content in a way that involves more than training. Constructive tasks are open and require comprehensive investigation, finding solutions, or experimenting. Table 5 shows the percentage of the three acquisition activities in all 102 courses and distributed on the three departments (Gissel, Graf & Slot, forthcoming). We counted when a certain activity type occurred at least once in a course design. Consequently a course design may be coded for one, two or three activity types.

Table 5: Percentage of courses with types of acquisition activities

Department	Acquisition activities		
	Reception	Training	Construction
1 (Form level 0 – 3)	64%	72%	58%
2 (Form level 4 - 6)	76%	74%	41%
3 (Form level 7 – 9)	68%	57%	39%
<i>All levels</i>	69%	68%	46%

In 69% of the courses, the teachers are framing receptive work for the students. In these cases, teachers primarily import digital, semantic and/or digital, didactic learning materials such as reading material, pictures and videos. Most often students are to perceive the content on screen. Often there is no further instruction connected to material and resources. And, if there is an instruction, it is often very short and without further scaffolding the receptive work, e.g. "Read about possible consequences of climate change". In other words, the course designs seldom invite students to do something else than perceive the specific content. Scaffolds of the receptive work like taking notes, doing source critique, or identifying important issues are missing. Training is staged in 68% of the courses. It fits well with the high frequency of skill objectives as mentioned above. Either students have to answer questions, whose purpose is to identify, whether their understanding of the perceived content is adequate or not, or they have to train certain skills most often in specialized skill-training material or resources. In 46% of the course designs, we found signs of constructive acquisition activities. In many cases, students have to discuss a subject specific issue, write down an argumentation on a self-chosen theme or create a product that communicates what they have learned in a specific course. By these acquisition tasks, students are invited to produce more varied and self-reflective products and are likely to work with knowledge construction. Table 5 shows also some differences between departments. Both training and construction activities are decreasing from department 1 to 3, while receptive work is highest in the middle department.

Available receptive and productive modalities

In the context of students' acquisition activities and the use of different kinds of learning materials the question of modalities arises. On the bases of our data to the course designs, it was possible to identify the modalities used in the courses and relate them to two types of acquisition activities. We were interested in whether there are differences between the available modalities in relation to student's productive and receptive work, see table 6.

Table 6: Modalities compiled with acquisition activities

Modality	Definition	Receptive	Constructive
Written lang.	Signs used in written language	94%	76%
Oral lang.	Oracy, talks, pronunciation	6%	17%
Pictures	Photo, painting, drawing, icons	60%	29%
Diagram	Graphs, diagrams	12%	5%
Symbol	Symbols / notations in math	5%	5%
Video	Moving pictures	53%	12%
Sound	Recorded sound, music, clear sound	11%	6%
Body	Body experience	6%	20%

Written language is the most widely used modality in all courses for both receptive and constructive student acquisition. Nordic and international studies point out, that modes (or semiotic resources) in school subjects are highly hierarchical, with the written language as the dominant modality (Kress, 2010; Kress & Van Leeuwen, 2006; Løvland, 2006). Even though digitally designed courses potentially could challenge the use of 'traditional' semiotic modes, the results demonstrate that written language still is the most foreground modality. In relation to receptive activity, there is a surprisingly high degree of use of pictures and video. As shown above this practice seems to be a result of Meebook's technical affordances (importing pictures and videos). On one hand, the visual part of the receptive work is challenging the dominant modality, but on the other hand, we have seen that the receptive work lacks didactical scaffolding. Table 6 shows clearly that the use of the modalities oracy and sound is very limited. Here there may be yet unexploited didactical potential. The rare use of symbolic representations and body-involving activities is surprising. Although we observe some variation in modalities connected to receptive activities, it is doubtful whether this has impact on the academic participation of all students.

In relation to the constructive work, the use of modalities is slightly different. Written and oral language, pictures and body represent the most used productive modalities. Compared with the receptive use of video, it is striking that only in 12% of the courses video is part of a constructive task. This difference may not only be explained by the difference of receptive and productive difficulties, but also by Meebook's affordance, that makes it much easier to import videos than to create them. Meebook does not include the smooth integration of digital, functional learning tools such as a video editor. Oracy is used more often for students' productive work than in receptive

activities. The instruction related to the productive tasks typically goes “discuss” or “present” the matter. Sound as a productive modality is very little used although theories on multimodality have pointed out, that sound has potential for students' productive learning processes, e.g. through the recordings of explication of mathematical matters or oral teaching activities e.g. in First Language (Gissel, 2016). “Body activities” for student’s productive acquisition seems to be used moderately (20%). This is the case when students are asked to experience physical experiments or create a dance.

In summary, teachers plan both receptive and productive acquisitions with written language as the foreground modality. The most frequent ways of letting students acquire something is to let them read written text, and watch digital content on a screen. The most frequent ways of letting student’s produce content is to let them write, make them find and insert pictures, and do some kind of body activity. These results have to be seen in the light of the official platform requirements. They stress that the learning platforms should facilitate multimodality in students’ productive work. The platforms should make it possible for students “to work multimodal (audio, image as well as text)” (General Kravspecifikation, our translation). However, in general, digital student products are not created in Meebook but in other digital environments outside the platform. Meebook becomes a platform for storage, distribution and up- and download of digital material, rather than a platform for students’ multimodal productive activities.

Acquisition and use of modalities in a course on neighbouring languages

Finally, we follow up on our results by presenting an example of a course on neighbouring languages in second form level that shows some of the properties that fit well to our statistical findings. The course consists of 7 chapters and 24 digital uploaded items containing video-clips, songs, stories, games and maps, i.e. semantic learning materials, that invite students to listen and acquire knowledge of the Swedish and Norwegian languages and cultures. Furthermore, the teacher links to a very widely used didactic learning material, a learning platform named Gyldendal.dk.

When Nordic students as in this specific course are learning about neighbour languages, the learning objectives are not functional communicative language skills, but rather to understand that the Nordic countries form a cultural and linguistic community and companionship. This might be the reason why the course is packed with visual clips and games showing identic Nordic words and typical expressions in Danish, Norwegian, and Swedish. In the course, students are not even invited to perform oral expressions in Danish or to talk about the many visual and oral receptive resources. Still, for 2nd grade an objective is “to express themselves in writing, speech, sound and image in

close and familiar situations” (Forenklede Fælles Mål, 2016). That means, teachers are supposed to plan student work that is both receptive, e.g. when they listen to expression or read about subject content, and productive by expressing themselves in various kinds of modalities. Here the low affordance for student-produced content within Meebook may counteract innovative teaching that includes production of digital, multimodal texts (Bremholm, Hansen, & Slot, 2016, 2018).

Conclusion and discussion: course builder and didactical reasoning

Our study has shown that the digital design of the course builder in the learning platform Meebook strongly shapes the teachers’ planning practices in several regards. On the background of previous studies that identified an insufficient use of learning objectives and corresponding assessment, we observe an increased incorporation and creation of objectives, goals and assessment scales in our sample of course designs. The number of objectives, however, seems pragmatically and didactically questionable. The application of assessment scales appears highly restricted. The dominant use of skill objectives and skill assessment reveals a fundamental pattern.

The analysis of the communication of the teacher as the designer of the course in relation to the recipients shows a range of unsolved issues. Generally, the courses neither include sufficient instruction for the students nor for the peer teachers. Here Meebook is open in a way that does not afford informed teacher practice. The teachers’ instructions and explications in the course designs – and lack thereof, reveal that courses in the platform most often seem to be incomplete representations of the full design for learning that the teacher presented to students. Especially, the context specific communication from teacher to the students as they meet face to face in class is not transformed into didactical, generalized communication in the courses. The affordances of the platform do not facilitate teachers in providing context independent communication to peer teachers.

Finally, we have documented a dominant use of didactical and semantic learning material, while functional learning material are not in play. This pattern seems to correspond to the affordance of the course builder that facilitates the creation and incorporation of receptive material, while it appears difficult to incorporate resources for students’ productive work. The course builder serves rather as a residue than a platform for active and productive learning. This pattern repeats itself when we observe acquisition activities and modalities. Dominant activities are reception and training, while productive work and knowledge construction hold a moderate place. In relation to receptive activities, teachers are more likely to incorporate

pictures and videos than in productive activities, where the written modality is heavily in foreground. Although many subjects have specialized symbol systems, we observed a very limited use of symbols in the course designs. Promising is the use of bodily experience in relation to students' productive work. In contrast, and despite promising research results, sound seems to be an underestimated modality.

The three school policy intentions of the implementation of learning platforms - the objectives and assessment, the sharing as well as the use of multimodal learning materials and related learning activities - seem in some ways enhanced and in other ways restricted. We see very little creative use of the course builder and attempts for innovative teaching in the sense of problem-based, productive, student-directed and collaborative acquisition activities. Not even obvious methods for such learning platforms like flipped classroom are used.

We may assume that course builders of other learning platforms shape teachers' practices in similar ways. Despite we have strong indications of the course builder of Meebook affecting teachers' course designs, there are certainly many other factors that influence teachers' planning practices. For example, we mentioned that the discourse of educational and school policy in general, may shape teachers' conceptualisation of didactical categories like objectives, goals, evaluation, assessment and the like. Yet we cannot tell whether the digital planning practices have impact on teaching quality and/or students' achievement. The latter needs a very different research approach. The first can be seen in different perspectives. As our sample of course designs represents the 102 most downloaded courses, we may assume that the downloading teachers have good reasons in doing so. We could call that for a teacher perspective on quality in course designs. Quality can also be defined through didactical theory in the sense that theory points out a coherent system of central and necessary categories for teaching and learning. This we call a theoretical perspective on quality.

Most models and planning theories in Didaktik underline strong relations between didactical categories (Hiim/Hippe, 1993/1996), interdependency or the notion of mutual implication of the didactical categories (Klafki, 1985/2007; Heimann, 1962/1976). The notion of interdependency stresses that reasoning on the mutual relationship between didactical categories is critical for quality. Paraphrasing Klafki you can say that e.g. the learning activities need to be seen, adjusted and qualified in the light of the chosen objectives and objectives have to be seen, adjusted and qualified in the light of the activities in question. In the same way, objectives have to align with chosen content and vice versa, content has to be aligned with chosen media

and vice versa, and media has to be aligned with the activities and vice versa (Klafki, 1958/1995). The course builder in Meebook in contrary is design differently. As shown before the course builder supports a strong connection between objectives or goals and the corresponding assessment scale. The goal template as entity nevertheless is separated from the creation of chapters, content and activities as well as from the creation and import of media and resources. The two sets of didactic enterprise are designed in parallel tracks and do not invite considering the categories in relation to each other. Especially, the design of the course builder does not enhance didactical reasoning on the very close interdependency of goal and content (Graf, 2012). Considering that the strong concept of interdependency forms the core of didactical reasoning and hence enhances quality of teaching and learning, the the course builder in Meebook is designed on the background of a different logic. As concluded above the course builder often serves just as a residue for learning resources under the first menu (Figur 1, Rediger forløb) and a separate residue for learning objectives and goals under the second menu (Faglige mål). Moreover, there are two separate menus for evaluation (Evaluer faglige mål, Evaluer refleksioner). Another critical issue of learning in the perspective of Didaktik would be the interdependency between intended acquisition of skills, knowledge and motives, and students' preconception (Graf, 2012). The course builder does not facilitate such didactical reasoning. Despite this, we were able to code for expressed inclusion of the students' preconception in 22% of the course designs. Practitioners seem to feel an urge to consider them.

Overall, we have to ask in which sense the course builder of Meebook is a course builder. We have highlighted some evidence to claim that the course builder in Meebook adopts the logic of educational policy in continuation of the reform of 2013 and the national curriculum of 2016. By over-exposing the interplay of objectives and their assessment the course builder creates a didactical black box, where solely the before-teaching and the after-teaching seems relevant. The teaching itself (content, media, activities) and the related didactical reasoning on acquisition seems needless. In other words the course builder in Meebook does not enhance reasoning of the interdependency of the core categories of Didaktik and hence, in the perspective of theoretical quality. At the best the course builder in Meebook may display a course in a new template and in unchanged didactical quality. By fragmenting what theory of teaching and learning puts at the core of planning, course designs in such course builders may quality diffuse.

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ⁱ Under the leadership of Aalborg Universitet (AAU) the consortium consisted of Syddansk Universitet (SDU), Alexandra Instituttet (AI), University College Syddanmark (UCSyd), University College Lillebælt (UCL), University College Sjælland (now PH Absalon). The project produced a range of inspiration materials and six reports that are available on the following site retrieved 17.10.2017: <http://www.emu.dk/modul/anvendelse-af-digitale-1%C3%A6ringsplatforme-og-1%C3%A6remidler-3>.

ⁱⁱ There are currently discussions about the purpose, the number and the quality of the common objectives and to which degree they can be declared mandatory/compulsory for the teachers (e.g. Skovmand, 2016). This discussion is not in the scope of this article.