

# Basic Building Blocks Map as a Key to Activating Education

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*One cannot educate without at the same time teaching, [...] but one can quite easily teach without educating.* – Hannah Arendt (Arendt, 2006, p. 192)

## 1. Introduction

Creating an effective seminar for a large number of students is often quite a challenge for teachers. It appears to be quite difficult to encourage all students to engage with the material. Consequently, a lot of students have difficulty grasping the full meaning of the material and just learn it by heart. Because of this, they are not able to reflect critically on the material.<sup>1</sup> In addition, students tend to see the material as abstract information that is independent of their experience and existing knowledge.<sup>2</sup> Engaging with the material would ensure that students are able to reflect critically on the material, connect abstract theory with their concrete

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- 1 Critical reflection requires presenting and defending opinions by making judgments about information, validity of ideas or quality of work based on a set of criteria. These skills are classified as 'evaluation' in Bloom's Taxonomy. By contrast, 'knowledge' is explained as recalling facts, terms, basic concepts and answers without understanding them. This is the lowest level thinking skill. See Bloom 1984.
- 2 For instance, (Dutch) law students tend to use the law in a fragmented manner. Students see different areas of law (criminal law, private law and constitutional and administrative law) as islands and often do not realize that different areas of law must be consulted in the event of a legal dispute. Linking their concrete experiences with (potential) legal conflicts would stimulate an integrated approach.

experience and – eventually – develop the ability to become self-directed learners (Ambrose et al., 2010, pp. 202-203). However, a necessary requirement for engagement is active participation (Barkley, 2018, pp. 35-57).

It is not easy to make all students participate actively. Most of the time, only a few students actively participate in class. They present their answers to the self-study questions, discuss arguments and criticise theories. Other students in the classroom remain silent and mainly make notes. This tendency is sometimes stimulated by the behaviour of seminar teachers, behaviour that is provoked by the passive attitude of most students in the classroom. To reach all the students and to prevent one-on-one dialogues, teachers often become the main speaker.<sup>3</sup> By means of telling interesting stories and engaging anecdotes, teachers hope to enthuse and interest the students and to clarify the course material. Because of this, dialogues dry up completely and all students tend to only listen. In extreme cases, teachers are seen as machines that produce correct response models. These models are then passively adopted and learned externally.

In my teaching, I have found that drawing a Basic Building Blocks Map (BBB Map) helps to overcome these problems. Discussing the learning material by asking all students to give input for a BBB Map creates a situation of engagement for every student in the class room. In this way, students get the opportunity to formulate the course material in their own words. Furthermore, students need to think about their contribution, since they can expect critical questions. Additionally, students can easily be encouraged to consult peers if a part of the course material is unclear and can be challenged to link the course material to their prior knowledge. Thus, all students need to contribute to the map, ensuring active participation by discussing the course material with their fellow students and the teacher. Moreover, students are stimulated to participate actively because the teacher is prone to adopting a facilitating role instead of an expert role, as the teacher focuses mainly on facilitating the conversation among students.

In this article, the BBB Map is employed as a didactic method. I start by providing a theoretical background to this variation of mapping. Thereafter, I break down the idea of a BBB Map by providing a detailed description of an actual lesson of mine in which I drew a BBB Map with my students. In addition, I discuss the results of this teaching method. The purpose of this article is to inspire teachers to use BBB Maps and to provide them with tools to translate it into practice. Accordingly, I conclude the article with a section on tools for teachers.

3 It is important to keep in mind the difference between two forms of education at the law faculty of the university, namely lectures and seminars. During a lecture, the students (100+) will listen to the professor (or teacher), who discusses, complements, reflects on and criticises the material. The student is expected to listen actively, think critically and take notes. Parallel to the lecture, students (15-25) participate in a seminar, during which they actively discuss the material, learn to apply theories to concrete situations and critically reflect on the course material.

## 2. Theoretical Background of the Basic Building Blocks Map

A lot of work has been done on mapping in higher education. There is a wide variety of information maps, such as mind maps, argument maps and concept maps (Davies, 2011, p. 280). These maps differ in certain respects. For instance, a mind map is 'an intricate diagram that mirrors the structure of a brain cell with branches reaching out from its centre, evolving through patterns of association' (Buzan, 2018, p. 10). This map mostly uses free association by means of symbols and drawings. In contrast, an argument map focuses on the inferential structure of arguments (Twardy, 2004, pp. 99-100). The argument map is usually a box-and-arrows diagram that shows claims with supporting arguments or objections and their inferential connection. A mind map and an argument map differ from a concept map in that the latter focuses on the relationships between concepts (Ausubel, 1963; Novak & Cañas, 2006; Novak & Cañas, 2007). Consequently, linking words are an important feature of concept maps. The goal of concept maps is not to generate spontaneous associative ideas or to evaluate connections in terms of validity of argument structures but to outline the relationships between ideas (Davies, 2011, pp. 279-290).

The didactic method presented in this article is a new variation of mapping, namely a BBB Map. BBB Maps concentrate on the 'basic building blocks' of a topic that is discussed during a seminar session. These basic building blocks are separate knowledge components that together constitute a field of knowledge of a topic. For instance, a seminar session about the concept of law could contain basic building blocks such as the definition of positive law, rights versus law, objectives of law, primary and secondary rules (see Hart, 1961) and the state of nature (see Hobbes, *Leviathan*, 1651 and Rousseau, *Du contrat social*, 1762). Together, these basic building blocks generate the field of knowledge surrounding the concept of law. The map would have the main concept, 'concept of law', in the middle and would be surrounded by relating concepts, which are linked to the main concept by means of lines. This type of mapping is different from mind maps, argument maps and concept maps in that it focuses on separate components of knowledge, but is not concerned with associations, explicating relationships or inferential structures. Rather, the BBB Map is concerned with creating a compact, approachable and clear overview of the field of knowledge that surrounds the topic discussed during a seminar session.

This type of map is easily combined with learning objectives (also known as learning outcomes, learning goals or course objectives) of a seminar. Nowadays, learning objectives play an important role in university courses. Very many university courses are developed according to Bloom's taxonomy of learning objectives (Bloom, 1984), sometimes supplemented by the idea of constructive alignment of Biggs (Biggs & Tang, 2011). Learning objectives are statements that describe the knowledge students should acquire by the end of a particular course. A learning objective includes the topic that the student should master and the way that he or she needs to master it. For instance, a learning objective could be 'applying primary and secondary rules to a simple case.' According to the learning objec-

tive, students need to be able to memorise the content of primary and secondary rules (remembering), explain the concepts (understanding) and apply them to a certain situation (applying). BBB Maps could integrate these learning objectives since the separate knowledge components could easily coincide with the topics that occur in the learning objectives, and a teacher could ask students to perform the desired action with the specific topic.

The BBB Map is strongly rooted in cognitivism. Cognitivism characterises the learning experience as combining separate knowledge components into a meaningful whole. Knowledge is created by an internal learning process in which new connections, relationships and combinations are made between different concepts and observations. These activities consist of (re)structuring, organising and giving (new) meaning to facts, diagrams and data. Knowledge is thus a network of parts, which is expanded and strengthened at will. Ideally, this network is a systematic organisation of knowledge. By creating BBB Maps, manageable knowledge components are formulated and placed in the field of knowledge, and, by this means, the teacher helps to create a rich, meaningful knowledge structure.

The BBB Map builds on the idea that prior (or background) knowledge plays an important role in the learning process. To this end, prior knowledge is noteworthy and needs to be taken into account. Emphasis on prior knowledge is characteristic of cognitivism. Meaningful learning can only occur when new knowledge is connected to prior knowledge. To gain knowledge, one needs to link new concepts, principles and theories to the terms, schemata or experience one already has. BBB Mapping makes it possible to take prior knowledge into account, since the students themselves deliver the contributions to the BBB Map. The contributions stem from their own understanding of certain concepts or theories. Students will relate the contribution to their own experience or examples. By explicating prior knowledge, manageable knowledge components are developed and interwoven into the knowledge network that students already had. This ensures that newly acquired knowledge becomes long-term knowledge and is not quickly lost.

The didactical method that I propose in this article combines an activity – creating a BBB Map – with a specific style of teaching. This style of teaching is in line with the views of constructivism. According to constructivism, students will gain new knowledge if they are actively involved in their learning process. By looking for meaning and trying to find regularity and order in the course material, the student engages with the material and constructs his or her own understanding. According to a constructivist, it is important to keep in mind that this understanding is embedded in the background, culture and worldview of a student. This is what makes the individual unique. At the same time, an individual is part of a particular culture and will gain knowledge through social interaction. However, the responsibility of learning resides with the student.

In order to stimulate the students in their active participation, the teacher takes on a different role. Where an expert role is customary in university teaching, creating a BBB Map stresses the facilitating role of teachers. As facilitators, teachers are mainly focused on motivating students and guiding them in their quest for knowledge. Because of this, the primary focus of teachers will not be knowledge transfer, but helping students by creating a cooperative learning climate. Since the

BBB Map is constructed mainly by students, teachers are mostly concerned with encouraging, motivating and helping students. Therefore, teachers ask questions, challenge contributions of students and give them confidence in their potential for learning. Furthermore, they focus on showing different worldviews instead of dictating one correct answer. Learning is not so much about getting an answer right or wrong as about making information unique to students' understanding. Feedback on answers is therefore mainly intended to be informative rather than corrective.

### 3. Practical Approach: Creating a Basic Building Blocks Map

During the course *Introduction to Law* at the Free University Amsterdam, I often made BBB Maps with my students. The course focuses on basic definitions, basic distinctions and basic structures of law. In seven weeks many different topics are discussed. Some weeks are devoted to a particular area of law. For instance, the first few weeks cover public law, private law and international law. Each of these areas has its own basic definitions, distinctions and structures. The last few weeks deal with auxiliary sciences, such as history of law and philosophy of law. During the first week of the course, the concept of law is explored in greater depth. This first week will be used as an example of the BBB Map.

As mentioned previously, a course week on the concept of law contains the following learning objectives: knowledge of the concepts of positive law, right and law, objectives of law, primary and secondary rules, the state of nature and applying these concepts to a simple case. Students will gain insight into these subjects by studying the prescribed literature, attending a lecture and participating in a seminar. For the course *Introduction to Law*, the book *Over recht gesproken* (Talking about Law) by Soeteman (2016) is prescribed. In this book, the mentioned concepts are explained and contextualised. In the lecture Professor Veraart<sup>4</sup> explains the material and reflects on it. Additionally, students participate in my seminar. There, the course material is discussed by students and answers to self-study questions are presented. The aim of this week is to help students master the learning objectives by providing them with the course material through the literature, the lecture and the seminars.

The start of my seminar with a BBB Map is almost always the same. I ask the students which theme or subject we will discuss this week. The answer to that question might seem obvious, but it turns out that it is not an easy question. Many students cannot answer it since they are often mainly occupied with gathering the correct answers to specific self-study questions. By focusing on answering the self-study questions, they overlook the underlying theme. My opening question forces students to realise what this week concerns and to formulate the subject of this week. The answer I obtain from the group then forms the word in the centre of the BBB Map (see figure 1).

4 See <https://research.vu.nl/en/persons/wouter-veraart>.

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I then ask each student for input for the BBB Map. This is an open question. Their input may concern something they have read in the literature or heard during the lecture. Often, certain themes or subjects are mentioned that are reflected in the learning objectives. For example, a student may want to explain the difference between positive law and desired law. In many cases, I will ask for a clarification, an explanation or an example. I can then ask the next student to answer the self-study question regarding this theme or subject. For example, whether positive law is always the same as desirable law, may be a question that the next student must answer. The examples they mention here stem from their daily lives. If they cannot come up with an example, I ask them how they feel about controversial themes such as abortion and prostitution. Their opinion can then be contrasted with regulations surrounding this theme. This can then be added to the BBB Map (see figure 1).

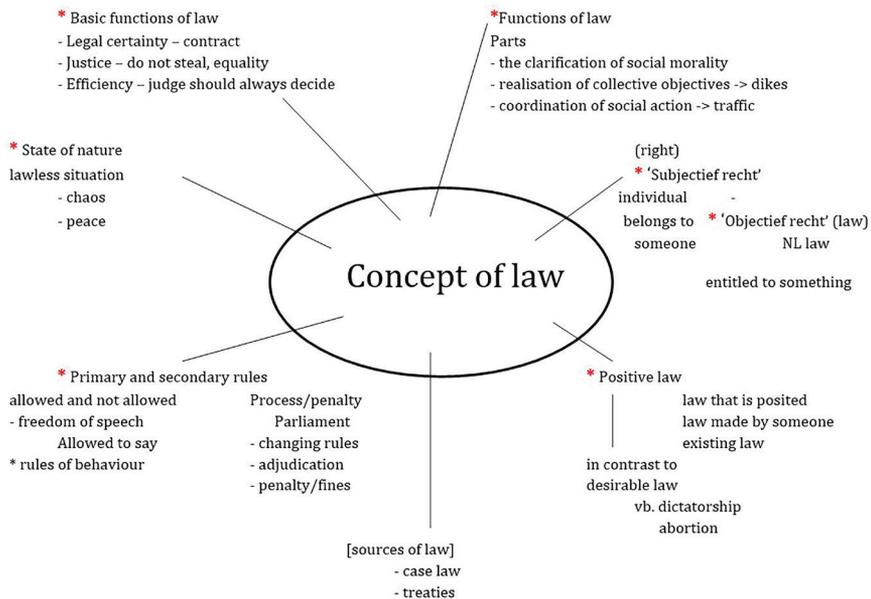
If students cannot come up with a contribution for the BBB Map, I ask them if they have any questions about the course material. They may have found certain aspects difficult or unclear or may have questions that arose during the preparation of the seminar or during the lecture. One student, for example, had heard something about a chat room on the Internet during a lecture. This was indeed part of the lecture by Veraart. By further exploring this contribution, I could make it clear to the student that this part of the lecture was not an isolated remark, but that it had to do with a learning objective, namely the state of nature. Veraart used the example of an online chat room to give a recent example of a lawless situation, a situation that corresponds to Rousseau's and Hobbes' states of nature.

Another part of the course material that raised questions in this specific case was the objectives of the law. By asking questions I try to find out what exactly is unclear. In respect of this particular subject it was unclear what the difference was between the basic functions of the law and the functions of the law, since both speak of 'functions of law' (see figure 1). By questioning the student who found the difference between the functions vague, I could add the parts he was able to reproduce on the board. This way, I had a starting point to ask a follow-up question. The student in question could name the respective functions, namely, on the one hand, legal certainty, justice and efficiency and, on the other hand, the clarification of social morality, the realisation of collective objectives and the coordination of social (inter)action. A follow-up question, such as 'Can someone give an example for each function?', I will not answer myself but ask the group. I will then wait until another student formulates the answer, or ask someone I have not yet heard during the seminar to formulate an answer. If the student's answer is correct, I ask the student to repeat the answer for other students to hear. I take the way in which the student formulates his or her contribution or question into account when adding the contribution on the board.

If all students have contributed and the material has been discussed in sufficient depth, I complete the BBB Map. Completion takes place by physically indicating the learning objectives in the BBB Map (see figure 1). In this way, the various educational facets - learning objectives, seminar questions, literature, examples from everyday life - are processed during the seminar, and students get an overview of the study material of the week in question. This holistic experience is

worth pursuing in the seminars, since it has a number of advantages. In the next section, I will elaborate on the results of the class discussion of the material by means of a BBB Map.

**Figure 1** BBB Map 'Concept of law'. The red dots indicate the learning objectives.



#### 4. Results of Creating a Basic Building Blocks Map

The method of BBB Maps in class has a number of concrete advantages. First of all, the basic building blocks and their presence in the field of knowledge become the main focus of the seminar. Visualising these building blocks in a map enhances the realisation that the separate knowledge components share a connection, namely the overarching topic (O'Donnell et al., 2002, p. 76). In this way, fragmented knowledge can be prevented, because the BBB Map ensures the need to specify the relationship with the subject or theme of the seminar. In addition, students will be able to introduce their prior knowledge by providing concrete examples and relating the course material to their daily lives. Thus, prior knowledge is activated and linked to the course material that is to be discussed (Ambrose et al., 2010, pp. 10-39).

Furthermore, the student will train a number of skills by contributing to the BBB Map in a class environment. For example, the student will learn to formulate and reason. Explaining the course material in his or her own words to others will

help better understand the material (Chi et al., 1994, pp. 439-477). Also, students will learn to listen and react to one another. In this way, they practice adopting a critical attitude towards one another's contributions and learn to ask one another for help if they do not understand something. Furthermore, contributing to a BBB Map makes it possible for students to evaluate their way of presenting the course material. The map can function as a framework to decide on main issues and side issues (Fiorella & Mayer, 2015, p. 47).

Another advantage of a BBB Map is the shift of responsibility for the content and quality of the seminar. Asking students to give contributions to a BBB Map casts them in the role of leading the seminar. Thereby the students determine the tempo and the level of difficulty. In this way, students come to feel that their presence during a seminar matters and their sense of autonomy is stimulated. Also, by transferring this responsibility to the students, teachers enable them to realise that they need to prepare themselves properly. After all, students are expected to participate actively and must be able to contribute spontaneously. Through this experience, students will realise that they are responsible for the quality of the seminar. Moreover, leading the seminar together and working towards a common goal stimulates the students' commitment and creativity. This leads to an active, cooperative and constructive working atmosphere (O'Donnell et al., 2002, p. 81). The activity of students allows the teacher to take on a facilitating role. The facilitating role of the teacher provides the students with the opportunity to organise the structure of the course material themselves and to put forward their own considerations or theories. Moreover, students thereby become detached from the way the course material is presented and from the order of the self-study questions. Themes, subjects and self-study questions are discussed randomly as it depends on the decision of a student to discuss a specific part of the material. In this way, students lead the seminars and can determine the structure of the components of the course material. Consequently, they will realise that the course material becomes meaningful if they engage with the material themselves and create their own map drawing upon prior knowledge, instead of relying on memorisation techniques and cramming of PowerPoint slides of the teacher (Davies, 2011, p. 292).

The facilitating role ensures that a teacher can acquire various skills, such as asking questions. Asking questions for the benefit of the learning process is an important instrument of the teacher. Different types of questions can be used to generate different outcomes (Airasian et al., 2001). For example, teachers can use general questions to get students acquainted with certain theories or viewpoints, but resort to questions about the validity of arguments when a critical attitude is desired. Furthermore, the teacher can discover useful information by means of specific question formulation. Questions such as 'can you recall the components?' provoke answers at a different level from those associated with questions such as 'can you elaborate on the reason for this distinction?'. In this way, the teacher can gain insight into the level and existing knowledge of the students. It then becomes clear what students know, what they find difficult to understand and how they would explain the course material. Misconceptions and knowledge gaps can be addressed and corrected early on in the knowledge acquisition process.

The teacher can also use questions to guide students. For example, the teacher can provide feedback by asking whether the subject is of main or secondary importance, but can also invite a student to look at the course material in an analytical way by asking about the relationship between the contribution and the theme of the week. Furthermore, students can be guided by suggesting proposals for a reformulation of the contribution or, by means of a paraphrase, incorporating the contribution in the appropriate terminology. Guiding students enables teachers to shift their focus from transferring knowledge to facilitating the process of gathering information. This creates space to ask about learning expectations, and subsequently adjust expectations or reassure students that certain parts of the course material are difficult. This ensures realistic expectations of the students and prevents haughtiness or perfectionism.

By focusing on asking questions, the teacher is also encouraged to listen carefully to the student's answers. This listening skill is essential for guiding students properly. Only by this means is the teacher able to gain access to the student's perception and to properly address the bottlenecks in his or her learning process. The teacher is thus forced to become sensitive to 'the ways of thinking, explanations, confusion and mistakes that students, as laymen in a certain knowledge domain, experience' (Moust & Schmidt, 1998b, p. 25). Mastering this listening skill encourages the teacher to look at the course material through the student's eyes. In this way, the teacher can find out how the student structures his or her knowledge and propose adjustments to the structure. This also improves the learning process of students (Ambrose et al., 2010, pp. 40-65). Furthermore, by focusing on the contribution of a student, it becomes a small step to increase self-confidence of students since a teacher can praise students for their contribution and ask them to repeat their input once more for the other students to hear. Thus do students become confident in their ability to formulate the course material in their own words.

## 5. Tools for Teachers

The purpose of this article is to inspire teachers to use BBB Maps. To this end, I will provide tools for a challenging lesson with a BBB Map, in which all students actively participate in the classroom.

First, this method works best if students and their input are taken seriously. Students have their own way of looking at the course material, based on their background, experience and ideas. Their way of looking at the course material is the starting point of the knowledge process. Therefore, it is conducive to adopt an attitude that encourages and rewards the student who tries to explain his or her perspective. This can be done by giving support and encouraging active participation (Kusurkar, Croiset & Ten Cate, 2011, 979). For this, it is best to use words like such as 'can', 'may' or 'could' instead of 'must', 'need' and 'should' (Kusurkar, Croiset & Ten Cate, 2011, 981) and to invite students to present their thoughts and ideas.

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When using this didactic method, it is important to ask before you tell (Gray & Madson, 2007, 83). The starting point of a seminar is the question or suggestion of a student. It can be helpful to keep the different levels of questions in mind. Bloom's taxonomy of skills can be used to categorise the different types of questions. Bloom distinguishes questions at the level of knowledge, comprehension, application, analysis, synthesis and evaluation. By alternating between the level of questions, students can be motivated to think critically. Above all, it is important to use open questions as these invite students to think freely.

Furthermore, it is important to be enthusiastic about students' contributions. This can take the form of encouraging them when they make a contribution or ask a question. Try to connect to the student by making sustained eye contact (Gray & Madson, 2007, 83). If a student shows absence of preparation by raising a question or making a contribution that makes no sense at all, the teacher can use this moment to reflect. By reflecting on the specific question or contribution the student will understand that the teacher realises that he or she is not prepared. In this way, students are confronted with boundaries and their own responsibility for the learning process (Kusurkar, Croiset & Ten Cate, 2011, 979). Additionally, other students are made to realise that being unprepared in class is not appreciated.

Subsequently, try to adopt a facilitating role as a teacher. Seminars are not so much about providing 'the correct answer' as about students gaining insight into theories and perspectives and the coherence of separate knowledge components (Moust & Schmidt, 1998a, 23). Students have their own worldview and the task of the teacher is not to change this worldview, but to enrich it. This enrichment takes the form of questioning a student's opinion and prior knowledge. By touching upon certain topics and providing different views, the teacher can help the student expand his or her horizons.

Last but not least, it is important to strive for a dialogue instead of a monologue. Especially dialogues among students are valuable. Students can learn a lot from one other. It is important that students realise that input of other students is just as valuable as the help of a teacher (Moust & Schmidt, 1998a, 22). Most of the time, students are just as fit to explain the course material and provide answers. The trick is to stimulate students to help others. Let students formulate the answer that is best supported by arguments and let them take the floor as much as possible. Furthermore, let them realise the synergy that arises when they work together on the course material.

In short, teachers who want to create a BBB Map with their students can keep the following guidelines in mind: take students and their input seriously, ask open questions, respond enthusiastically to questions and contributions, help students reflect on their input and stimulate students to help each other in their quest for knowledge.

## References

- Airasian, P. W., Cruikshank, K. A., Mayer, R. E., Pintrich, P. R., Raths, J & Wittrock, M. C. (2001). *A taxonomy for learning, teaching, and assessing: A revision of Bloom's taxonomy of educational objectives*. New York, NY: Longman.
- Ambrose, S. A., Bridges, M. W., Dipietro, M., Lovett, M. C. & Norman, M. K. (2010). *How learning works, 7 research-based principles for smart teaching*. San Francisco, CA: Jossey-Bass.
- Arendt, H. (2006). *Between past and future. Eight exercises in political thought*. New York, NY: Penguin Books.
- Ausubel, D. P. (1963). *The psychology of meaningful verbal learning*. New York, NY: Grune and Stratton.
- Barkley, E. F. (2018). Terms of engagement: Understanding and promoting student engagement in today's college classroom. In K. Matsushita (Ed.). *Deep active learning* (pp. 35-57). Singapore: Springer Nature.
- Biggs, J. B. & Tang, C. (2011). *Teaching for quality learning at university* (4th ed.). New York, NY: Open University Press.
- Bloom, B. (1984). *Taxonomy of educational objectives. Handbook I: cognitive domain*. New York, NY: Longman.
- Buzan, T. (2018). *Mind Map Mastery. The complete guide to learning and using the most powerful thinking tool in the universe*. London, UK: Watkins.
- Chi, M. T. H., De Leeuw, N., Chui, M., & Lavancher, C. (1994). Eliciting self-explanations improves understanding. *Cognitive Science*, 18, 439-477.
- Davies, M. (2011). Concept mapping, mind mapping and argument mapping: what are the differences and do they matter? *Higher Education*, 62, 279-301.
- Fiorella, L. & Mayer, R. E. (2015). *Learning as a generative activity. Eight learning strategies that promote understanding*. Cambridge, UK: Cambridge University Press.
- Hart, H.L.A. (1961). *The concept of law*. Oxford, UK: Oxford University Press.
- Gray, T. & Madson, L. (2007). Ten easy ways to engage your students. *College Teaching*, 35(2), 83-87.
- Kusurkar, R. A., Croiset G., & Ten Cate, O. T. J. (2011). Twelve tips to stimulate intrinsic motivation in students through autonomy-supportive classroom teaching derived from self-determination theory. *Medical Teacher*, 33, 978-982.
- Moust, J. & Schmidt, H. (1998a). De rol van tutor in probleemgestuurd onderwijs (1) Begeleidingsvormen en taken. *Velon Tijdschrift voor lerarenopleiders*, 19(3), 21-29.
- Moust, J. & Schmidt, H. (1998b). De rol van tutor in probleemgestuurd onderwijs (2) Empirische bevindingen en rolbeschrijving. *Velon Tijdschrift voor lerarenopleiders*, 19(4), 24-30.
- Novak, J. D. & Cañas, A. J. (2006). The origins of concept maps and the continuing evolution of the tool. *Information Visualization Journal*, 5(3), 175-184.
- Novak, J. D. & Cañas, A. J. (2007). Theoretical origins of concept maps, how to construct them, and uses in education. *Reflecting Education*, 3(1), 29-42.
- O'Donnell, A. M., Dansereau, D. F. & Hall, R. H. (2002). Knowledge maps as scaffolds for cognitive processing. *Educational Psychology Review*, 14(1), 71-86.
- Soeteman, A. (2016). *Over recht gesproken*. Nijmegen: Ars Aequi.
- Twardy, C. (2004). Argument maps improve critical thinking. *Teaching Philosophy*, 27, 95-116.