

PBL and the Postmodern Condition - Knowledge Production in University Education

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ABSTRACT

In this article we discuss the contemporary conditions for running the Aalborg Problem Based Learning-model (PBL). We try to pinpoint key characteristics of these conditions emphasising Lyotard's conception of knowledge production referred to as the move towards a postmodern condition for knowledge. Through discussions of this alleged condition for university curricula development we investigate its connections to the PBL-model. Some of the explored conditions highlight strong potentials for the PBL-model as an educational setting.

INTRODUCTION

A defining aspect of Aalborg University is its emphasis on the Problem Based Learning-model (PBL) as a pedagogical tool for learning activities across all of its faculties. However, the PBL-model stems from the 1970's and it is increasingly important to investigate whether its original theoretical grounding is still relevant as new agendas emerge in relation to the ongoing development of university education. These new agendas – some of political origin and others stemming from changes in the production of knowledge at the university and in society in general – call for a discussion of the potentials in and the challenges to the PBL-

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model. Is PBL a worthwhile institutional model for university curricula or is it just an interesting but rather outdated educational model that belonged to the idealistic days in the aftermath of 1968?

In 1974 Aalborg University came into being and from the outset posed a challenge to the traditional universities in Copenhagen, Århus and Odense. Two years previously, in 1972, Roskilde University Centre had been established based on many of the same intentions and ideas as those developed in Aalborg.

As a fundamental pedagogical tool these two new universities used Problem Based Learning as a backbone of the curriculum. This idea of taking the outset in real life problems rested on the argument that the societal development demanded a new and more complex set of qualifications in the workforce, as it was suggested by Illeris in his ground breaking book on problem orientationⁱ and participant direction in 1974 (Illeris, 1974). From his analysis of the educational system and its function in a society where technology and automatization would play an increasing role, Illeris concluded that society needed a holistic learning model which could lead to the development of the following three categories of qualifications: skills, adaptability (acceptance of the norms and values of the existing society) and creativity (independence, interpersonal skills, and critical sense). The need for general qualifications and the interaction with practiceⁱⁱ which is integrated in the model called for a transgression of the traditional subject boundaries in order to promote the students' perception of coherence and connection. Interdisciplinarity thus became a pivotal point in the original model of problem oriented learning. In addition to the problem oriented learning approach, educations were organised in groups of students studying and researching their chosen problem together, writing up the project report together, and finally presenting and evaluating the product together. The model thus had a strong focus on developing the interpersonal skills necessary for cooperation and in that perspective competition among students was considered inappropriate and even counterproductive.

This was – briefly – the original inspiration for what has been termed the PBL-model at Aalborg Universityⁱⁱⁱ. The PBL-method is today carried out in a number of slightly different variants at Aalborg University, but Illeris can be said to have described the original idea of the PBL model.

In this article we will discuss how the conditions for working with the PBL-model as an integrated part of the university curricula can be conceptualised and interpreted. As described it was developed in a certain period of political changes but this atmosphere of political change has disappeared a long time ago and the questions as to why the PBL-model is a valued part of university educations and why it is a proper model to implement in universities cannot only hinge on its development in the past.

Many studies have discussed the benefits of the PBL-model in relation to specific issues like the changed role of educators, the student led projects, the impact of group work etc. in order to highlight the characteristics of the PBL-model. Here, however, our aim is to focus on the changes in the way knowledge production at universities has been perceived in the modern era as opposed to the postmodern era - a term we will follow Lyotard in using when referring to the contemporary status and conditions for producing knowledge. By following this special interest our initial problem statement could be phrased in the following way:

How can we understand the relation between PBL and the conditions for knowledge production within a postmodern framework?

Our approach to answer this question hinges on our ability to pinpoint important aspects of the conditions for running university education. To support our considerations on this issue we choose – as mentioned – to pay closer attention to Lyotard’s conception of a postmodern condition for knowledge production and we attempt to highlight what this condition could entail for the way we conceive of the PBL-model. Lyotard thereby functions as an inspirational source for reflecting upon the educational principles of the PBL-model.

Many other perspectives could be relevant for discussions on the conditions for university educations. Lyotard’s approach brings a strong historical and philosophical dimension into our conceptualisation of the conditions for running university educations and in our view it supplements other more recent approaches. We have found inspiration in Lyotard’s narrative approach and its development out of an explicitly Wittgensteinian language game perspective to be a special approach in producing thoughts about the conditions for legitimizing university educations. We find this approach to be both historically important and an indispensable resource and reference point to bring forward for understanding PBL in the debates on universities today.

Following our investigation of Lyotard’s vocabulary we will describe some key features of the PBL-model at Aalborg University in order to define the PBL educational principles in more detail. Based on these insights we will discuss the problem formulation.

In following this approach in an answer to the problem statement we do not aim to establish a coherence between the chosen perspectives and theories and the PBL-model as it works in practice at Aalborg University. Instead we aim to develop and construct a conceptualisation of the condition for running a PBL-model that can enlighten our perception of its foundation as an educational model.

Also, we are not engaging a project of arguing in favour of or rejecting the PBL-model as a future model for university education. Rather, we aim to draw attention to the basic conditions that drives the PBL-model in university educations. By doing so we hope to spark discussions

on the PBL-model and create a space for reflecting upon the model today more than 40 years after its origin.

A REPORT ON KNOWLEDGE

The knowledge society of today demands specific types of skills. “Innovation” and “innovative skills” are buzz words and individuals with the ability to work effectively in teams and creatively in a complex reality are highly sought after. The same is the case with individuals having skills in entrepreneurship and who are able to open up new niches for economic growth. This means that university educations’ interaction with society has changed significantly and the global economy has a strong impact on the way research and education is conducted. In light of these developments we have found it interesting and necessary to search for theoretical approaches that attempt to describe and conceive of the outlined relationship between university educations and the surrounding society.

Some theoretical perspectives on this situation suggest that the organisation and structures of knowledge in so-called highly developed societies are moving in new directions and as a result the university considered as an organiser of knowledge has faced serious challenges not only with regard to its knowledge production but also in relation to the structuring of educational programmes. As far back as in 1979 Jean-François Lyotard termed the dramatic changes undergoing the status of knowledge in highly developed societies “the postmodern condition”. Here we refer to his essay from 1979 *The Postmodern Condition: A Report on Knowledge*, which brought him fame outside France and made him a renowned philosopher around the globe. Part of his analysis dealt with the shift from a classical Humboldtian organisation of knowledge and university educations to a new era where “new moves” and performance criteria would be key ideas for understanding the concept of knowledge and its impact on university educations. We pay special attention to Lyotard’s analysis in relation to university educations like many other authors before us (see for example Peters, 1995; Brügger, 2001). We are especially interested in what Lyotard’s idea about a postmodern condition for university educations entails for our understanding of running the PBL-model today.

In *The Postmodern Condition*, which was requested by and presented to the Conseil des Universités of the government of Quebec, Lyotard describes a move away from the modern era. The modern worldview is transforming into a postmodern framework of understanding and perceiving the world and this is intimately linked to the status of knowledge. The development towards postmodernity is described as a transition in the attitude towards certain meta-narratives about knowledge. In modernity these meta-narratives were used to legitimise doing science and producing knowledge in a particular way, whereas postmodernity is defined as a way of thinking where these meta-narratives are rejected or ‘tranquillated’ as

Lyotard likes to depict their diffusion (Lyotard, 1992, p. 18). Here we shall not in detail follow Lyotard's line of reasoning for arguing that the status of knowledge in highly developed societies is undergoing radical change but merely adopt his general insights on the issue^{iv}.

According to Lyotard we have witnessed a gradual historical change from science in modernity being first and foremost legitimised by two grand narratives either emphasising the encyclopaedic nature of knowledge (emphasising the search for truth through science) or the emancipative nature of knowledge (emphasising the search for justice through science) to being legitimized locally through its performativity. The narrative of performativity can easily be connected to a number of small narratives in different ways and works as an effective narrative in singling out those research projects, which are immediately useful from a societal or economic perspective. The consequence of the rejection of 'grand narratives' has not been the total rejection of encyclopaedic and emancipative legitimation strategies for research projects and sciences in general. But these strategies can no longer be taken for granted, and they are reduced to little narratives that function in sub-domains and – of great importance to our task at hand – are not strong enough to function as organising principles for the research at a university or for supporting the foundation for a university education.

In Lyotard's postmodern framework, scientific activities are being subordinated the technical criteria of efficiency and performativity. Scientific development is therefore governed by research results' ability to perform and Lyotard underlines that research that does not explicitly aim at bettering the system's overall performance will not survive.

“Research sectors that are unable to argue that they contribute even indirectly to the optimization of the system's performance are abandoned by the flow of capital and doomed to senescence. The criterion of performance is explicitly invoked by the authorities to justify their refusal to subsidize certain research centres.” (Lyotard, 1979, p. 47)

In other words a specific discourse on legitimating science has taken control and it is a discourse, which cherishes efficiency. This new quest for efficiency negates the encyclopaedic tendency towards the 'science for its own sake' dictum, as the technological criterion entangles any scientific work in a practical setting (in a company, in a grassroots organisation, in a university context, in a political decision making process etc.). And the quest for efficiency equally negates the idea that science emancipates the whole of humanity from social or natural suppression, as the arguments that are forceful in legitimating one research project over others concern what is efficient for the (economic) system's performance and not what is just.

What does the performativity criterion entail for the changes we face in thinking about university educations? Lyotard had only a preliminary glimpse of these issues back in 1979 but his conclusions seem to us to be highly relevant for the dominating issues of today's educational debates. We will present four issues – inspired by Lyotard – that could be thought of as inescapable parts of a postmodern condition for university educations.

Issue 1: The fields of study become increasingly interdisciplinary.

Some of the changes that Lyotard observes in university education deal with the decline of the Humboldtian idea about a university with a well organised encyclopaedic ordering of the sciences. In contrast to the classical ordering of things in a Humboldtian university new fields of research are continually invented and explored and parallel to this development new educations spring in yet unseen numbers often threatening the classical educations by attracting students to the new educational options. As an example many new interdisciplinary educations have been developed at Aalborg University within the last decade; Techno-anthropology, Product and Design Psychology, Learning and Innovative Change, to name a few, and on top of these one could mention the already “normalised” new moves in the landscape of science on a world wide scale in the form of Nanoscience, Biotechnology, Health technology, and Robotics that are all the product of interdisciplinary studies.

Under these conditions the ability to connect spheres of data previously disconnected by the traditional disciplinary organisation of the Humboldtian University becomes a key issue in university education. Lyotard asserts that it will be part of the educational effort to

“...include training in all of the procedures that can increase one's ability to connect the fields jealously guarded from one another by the traditional organization of knowledge. [...] In Humboldt's model of the University, each science has its own place in a system crowned by speculation.” (Lyotard, 1979, p. 52)

In Lyotard's conception of the relation between the sciences it no longer serves any purpose to make students in interdisciplinary study programmes familiar with a basic core of knowledge in the classical sciences. The idea that the stable knowledge of the classical disciplines should be more basic than other fields of knowledge hinges on an encyclopaedic Humboldtian narrative of science. As a consequence, we can state a second issue of the postmodern condition for university education curricula.

Issue 2: The idea of being informed about a tradition of knowledge (transferral of information) loses terrain to the idea of nurturing the capability of producing knowledge (development of research capabilities).

What seems natural in the postmodern state of science is, in Lyotard's view, the capacity to actualize an efficient strategy in a particular context – i.e. to solve a problem efficiently.

“It should be noted, however, that didactics does not simply consist in the transmission of information; and competence, even when defined as a performance skill, does not simply reduce to having a good memory for data or having easy access to a computer. It is a commonplace that what is of the utmost importance is the capacity to actualize the relevant data for solving a problem “here and now,” and to organize that data into an efficient strategy.” (Lyotard, 1979, p. 51)

Lyotard here points to several aspects of Issue 2. Because of the dominance of the technological criterion of performativity there is the need for making students able to solve specific problems efficiently in contrast to first and foremost letting them receive general information. Focusing on solving problems inherently brings with it certain directions for the educational content. The content is directed towards the contextualisation of a problem, that is, it is connected closely to a real existing practical setting. The problem is a “real life”-problem which means that it is a problem for somebody to have produced for them a strategy for making decisions etc.

The above considerations already contain a third issue of the postmodern condition with direct implications for the university education, namely the idea that information is becoming increasingly attainable. There is more than enough data and information under the postmodern condition. Lyotard speaks of this situation as ‘perfect information’ as opposed to a situation where you (for example the teacher) have the upper hand in the game by having access to more information than the other players (for example the students). Instead, Lyotard proposes that what students need to have nurtured is imagination!

Issue 3: Imagination becomes a key competence in the perfect information situation.

Lyotard comments on “the perfect information game” in the following paragraph from a point in history where he has no clear idea about the Internet or the massive development in our everyday access to information, research articles, big data etc.

“But in games of perfection, the best performativity cannot consist in obtaining additional information in this way. It comes rather from arranging the data in a new way, which is what constitutes a “move” properly speaking. [...] It is possible to conceive the world of postmodern knowledge as governed by a game of perfect

information, in the sense that data is in principle accessible to any expert: there is no scientific secret. [...] what extra performativity depends on in the final analysis is "imagination," which allows one either to make a new move or change the rules of the game." (Lyotard, 1979, p. 52)

Lyotard points to the need for fostering "imagination" in students as an important part of the curriculum. If students learn how to be imaginative they stand a chance of succeeding in handling the interdisciplinary solution strategies to contextualised practical problems. They do need information as part of their curricula but it will not necessarily add to their performativity. Instead, their capability in localising and addressing the right information and bringing it into the particular setting of a unique problem is what matters and this process demands imagination.

This naturally has implications for the role of the agents in university studies – the teachers and the students.

Issue 4: The roles of the agents in university educations change

Under these settings teachers cannot first and foremost be engines for transferring information but rather for teaching students, through the teacher's own experience with doing research, how one can imagine different efficient strategies for solving a specific and contextualised problem. Under the postmodern condition the role of the teacher changes just as dramatically as the disciplinary organisation. In the perfect information situation, the authority of the individual scholar will be challenged by the superior imagination of interdisciplinary teams. In Lyotard's conception the move towards teamwork is a consequence of the effectiveness of working in teams but also of the changes in the status of knowledge:

"The emphasis placed on teamwork is related to the predominance of the performativity criterion in knowledge. When it comes to speaking the truth or prescribing justice, numbers are meaningless. They only make a difference if justice and truth are thought of in terms of the probability of success. In general, teamwork does in fact improve performance, if it is done under certain conditions detailed long ago by social scientists." (Lyotard, 1979, pp. 52-3)

"But one thing that seems certain is that [...] the process of delegitimation and the predominance of the performance criterion are sounding the knell of the age of the Professor: a professor is no more competent than memory bank networks in transmitting established knowledge, no more competent than interdisciplinary teams in imagining new moves or new games." (Lyotard, 1979, p. 53)

The role of the educator cannot consist in only distributing information about a tradition of what is considered bullet proof knowledge within a given discipline. This was the original task of “the professor”. Lyotard’s conclusion is that the best performance in knowledge production is achieved through teamwork. He indirectly discusses what it means to be fostering imaginative thinking in university education making students capable of making interdisciplinary connections between fields of study and learning how to manage and solve specific contextual problems in teams that no one has ever posed before.

Lyotard’s ideas are broad and general and to some extent even prophetic in nature as they were created more than 30 years ago. However, it seems clear that he has pinpointed several issues that are essential to the conditions for contemporary university education. Some of these conditions are the demand for knowledge that can lead to immediate performance in an efficient manner; the fact that there is a perfect information game situation; that the Humboldtian structuring of knowledge and university is withering etc. These basic conditions for all knowledge production, according to Lyotard, raises a range of issues for university educations as we have outlined above: 1) the importance of being able to handle interdisciplinary studies; 2) the importance of teaching the ability to actualize relevant data for solving problems here and now and propose efficient strategies in relation to these problems; 3) the importance of nurturing the imagination of students; and 4) the importance of reinterpreting the role of the agents in university educations.

Drawing from Lyotard’s analysis on the status of knowledge in highly developed societies these are in our view four key characteristics of the changed condition for thinking about university educations that are dominant today.

THE PBL-MODEL AND THE CONDITION

We set out to discuss the conditions for running a PBL-model in university educations. So far we have followed and interpreted Lyotard’s conceptualisation of a postmodern condition for knowledge production and developed some key characteristics of this condition for university educations. Many other conceptualisations of the conditions for university educations could of course be found and developed relating to other authors and theories but as explained above we find that Lyotard’s approach is both historically and conceptually interesting as a complement to contemporary outlines of conditions for university educations.

In the following we will attempt to relate the characteristics developed in Section 2 to the PBL-model in higher education. We do this by way of a specific example of a PBL-model in present use, namely by outlining the key principles of the PBL-model in the form it has developed into at Aalborg University as expressed by the university’s official guiding principles. Following this outline, we will discuss how we can relate the developed

vocabulary to more recent approaches and where this leaves the PBL-model in the light of the postmodern condition.

In the 2015 university information material about the principles of Problem Based Learning (AAU, 2015) the basic principles of the model is outlined. As a general introduction the idea is presented that the work with an authentic problem is the ideal learning situation for students.

“The Aalborg model assumes that students learn best when applying theory and research based knowledge in their work with an authentic problem. At the same time, the model supports students in the development of their communication and cooperation competences, and in acquiring the skills required when taking an analytical and result-oriented approach.”

Adding to this, the idea is presented that problems worked on should be relevant from a position outside the university.

“‘Authenticity’ implies that the problem is of relevance outside of academia. ‘Scientifically based’ implies that the problem is comprehensible and may be analysed and solved, taking an interdisciplinary approach.”

In this way it is also highlighted that the problems to be worked on by students are interdisciplinary as a result of their origin in the authentic setting or context. In addition to these fundamental perspectives about the problems to be worked on other basic principles in the PBL-model are listed as follows:

- Project organisation creates the framework of problem-based learning
- Courses support the project work
- The problem-based project work of the groups must be exemplary
- Cooperation is a driving force in problem-based project work

Going into the last basic principle, the group work is identified as the main centre for the development and negotiation of the project.

“A group of students work closely together in managing and completing a project over an extended period of time, taking a problem as the point of departure for their work. The students’ mutual support is essential for the successful completion of the project. The group work includes aspects such as knowledge sharing, collective decision-making, academic discussions, action coordination and mutual critical feedback. Student groups also engage in close cooperation with their supervisor(s) and with external partners, e.g. businesses or other project groups.”

Let us now consider these principles in relation to the characteristics of the postmodern condition developed above. As is obvious from the outline of the general PBL principles used at Aalborg University the postmodern condition points towards several aspects of problem based learning.

On the basis of the above expositions let us highlight some of the connections between on the one hand the postmodern condition for knowledge production as described above and on the other hand the PBL-model as an educational setting.

Firstly, in relation to issues 2) the movement towards knowledge production and problem solving and 4) the importance of teams in relation to the performativity criterion, there is a strong connection relating to an educational model that can open a space for training students in solving authentic problems. This is in contrast to a university educational environment where the main function of teaching is the verbal presentation of information and knowledge through course activities where the teacher is the most active participant in the learning processes and where students individually study the tradition of and literature in the field. The PBL-model offers the possibility of training students academically in the skills associated with solving an open-ended problem that has no obvious solution and students will be able to do this with support from a university teacher (contributing first and foremost with her research skills) that acts as a supervisor for a group of students.

In this way the most relevant experiences of the teacher can benefit students, namely the teacher's skills as an imaginative researcher and not only as a memory bank of what is the traditional knowledge in the field of study recalling Lyotard's ideas. Hence, the PBL-model is tightly related to the postmodern condition in its insistence on furthering the problem solving competencies of students within a group of students working in collaboration on a particular problem and producing project reports through the close cooperation between students' project processes and the teacher's knowledge about doing research. In the PBL-model the role of the teacher is decisively transformed in the direction of a supervisor for supporting the project work and only partly as a lecturer.

Another issue of the described postmodern condition for knowledge production that is addressed through the PBL-model is the possibility of working with problems that are interdisciplinary in character, Issue 1. This is as pointed out directly addressed in the Aalborg University PBL guide lines and even considered one of the identifying characteristics of problem based learning as it was originally conceived of by for example Illeris (1974). Many real life problems that researchers must deal with do not fit the Humboldtian division of the sciences and therefore the PBL-model's ability to cope with this problem can be essential. In the guidelines for PBL at Aalborg University the importance of furthering interdisciplinary approaches is highlighted several places and can be considered as a clear connection point to characteristics of working under a postmodern condition for knowledge production.

The fourth point developed above from Lyotard's conception relates to the idea of 3) the importance of nurturing the imagination of students. This element is not directly highlighted in the PBL guide lines from Aalborg University and a connection can therefore only be intermediate on this issue. It is clear from the guide lines that students are encouraged to "create synergies between different cooperation cultures by collaborating with external partners and engage in interdisciplinary learning environments" but 'imagination' or even 'innovation' are not part of the description of the PBL-model.

DISCUSSIONS

It seems fair to conclude that the PBL-model can be interpreted as an answer to tackling the technological criterion and the perfect information situation as they have been described by Lyotard as characteristics of the postmodern condition for running university educations. By focusing on interdisciplinarity, problem solving, efficient and imaginative solution strategies as well as the organisation of studies in project groups in dialogue with supervisors and external partners the PBL-model matches the outlined postmodern condition for university educations.

As an answer to the problem statement of this article it is quite easy to conclude that the conceptualisation provided by the Lyotardian framework about a postmodern condition for knowledge production and its impact on university educations positions the PBL-model as an obvious choice for an educational setup. In the final discussion of the paper we will reflect on where this leaves the PBL model and how other perspectives supplement and expands on Lyotard's framework.

If we turn to more recent statements on the demands on education and knowledge production, Hargreaves provides a detailed description of the complexity of society's need for knowledge and skills, and refrains several of the Lyotard inspired aspects developed above.

"...the ability to integrate formal and informal learning, declarative knowledge (or *knowing that*) and procedural knowledge or (*know-how*); the ability to access, select and evaluate knowledge in an information soaked world; the ability to develop and apply several forms of intelligence as suggested by Howard Gardner and others; the ability to work and learn effectively and in teams; the ability to create, transpose and transfer knowledge; the ability to cope with ambiguous situations, unpredictable problems and unforeseeable circumstances;... (Hargreaves 2000)"

Going back to Lyotard, these abilities clearly relate to the demand in the described postmodern condition of adapting to the technological criterion of performativity – of being able to work and create on unpredictable problems in a world of too much information.

It points towards the need for students to be working on problems that are real world problems but here the postmodern condition highlights a demand for projects to be worthwhile even in an economical sense. The ability to work efficiently under the technological criterion includes being immediately able to answer to legitimisation questions like; Why is this research/student project necessary?; What can it be used for?; Will it pay off?

The postmodern condition is therefore also related to ‘knowledge production in a market perspective’ (Bøgelund & Kolmos, 2013). Recent research in knowledge production in higher education has identified three perspectives on knowledge production co-existing in a PBL context: 1) an Academic perspective, i.e. knowledge as true, well founded conviction and knowledge production as important, 2) a Market perspective, i.e. the application of knowledge as important, 3) a Society changing perspective, i.e. knowledge as a source of empowerment and change; value-based, contextual knowledge exchange as important (Ibid). Lyotard’s analysis is clearly revisited in these categories and the postmodern condition underlines the growing primacy and turn towards the market perspective.

Lyotard discusses the postmodern condition with some pessimism on the count of this but it is clear that no matter how one feels about the transformation of knowledge as such towards being less occupied with truth and human emancipation but rather with efficiency and performativity, it does not change the fact that the PBL-model can be an excellent educational model for furthering performativity in students. In fact, even when considering the PBL-model in the perspective of Barnett’s claims for an epistemology of uncertainty to govern the knowledge production at the university in an age of supercomplexity (Barnett, 2000), we find that the PBL-model to a large extent will be able to deliver. The demands are

- “1) The capacity for revolutionary reframing;
- 2) The capacity for critical interrogation of all claimants for knowledge and understanding;
- 3) The capacity for enabling individuals to feel at ease in an uncertain world;
- 4) The capacity for developing powers of critical action.” (Ibid: 420)

Lyotard would have rejoiced these capacities in the sense that he advocated strongly for what he referred to as paralogical thinking in *A Report on Knowledge*. His fear was a centralised control system of research for (believed) economic growth and his hope was to make research and university educations thrive in a process of paralogical developments – against the systematic or normal – ways of producing knowledge. PBL in our perception has the potential to not only be the economically efficient model under a postmodern condition but also has the

potential of producing paralogical approaches in university education with its student driven multiplicity of knowledge productions for potentially each project that is started.

An interesting paradox at this stage is, however, that despite the obvious connections between performative knowledge, marketization and the PBL-model it is still thought of by many as an experimenting and progressive university education model and thereby challenging the traditional university educations. From the conceptualisation we have developed here it could almost seem like a mainstream educational model that directly meets all the wishes of politicians and industry for providing a university that is more integrated in the knowledge economy. So why not go all in on PBL?

There are many more conditions for the PBL-model at stake than those referred to in this article and they have to be accounted for as well, to give a fuller picture of the status of the PBL-model's future in university education. That, however, is a task for further studies and we have here only suggested that the postmodern condition for knowledge production can make a good starting point for producing this fuller picture.

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ⁱ A distinction can be made between 'problem oriented' and 'problem based' learning – in this article we use the two concepts synonymously. For a discussion of the difference between PBL and problem oriented learning see Aarup Jensen and Bækkelund Jensen, 2004.

ⁱⁱ Such as industry and trade, i.e. the students' future workplaces.

ⁱⁱⁱ For a more detailed presentation and discussion of the Aalborg PBL-model see (Kolmos et. al., 2004).

^{iv} For a more thorough account of Lyotard's report on the status knowledge see (Christensen and Hansen, 2009).