

Striking a new Balance?

Courses, Project Work, and Problem-based Learning

Mads Peter Klindt * | Aalborg University, Denmark

Abstract

This article examines how two content courses in the first and second semesters of a master's program were redesigned to promote problem-based learning (PBL). In both cases, the syllabi were revised to emphasize problem-orientation, group work, and exemplarity. The impetus for these changes was a study reform initiated by the department management, which reduced the weight of project work in each semester from 15 to 10 ECTS credits. The article provides an account of the study board's deliberations and analyzes student evaluations of the redesigned courses. Finally, in light of the current pressures on student-driven project work, the article discusses the potential for reinforcing the PBL model through course-level innovations.

Keywords: University pedagogy; Curriculum reform; Content courses; Problem-based learning; Political science education.

* Corresponding author:
Mads Peter Klindt, Email: mpk@dps.aau.dk

Introduction

How can study boards and university teachers strengthen the foundations of problem-based learning (PBL) in the face of financial constraints and increasing pressure to scale down student-driven project work? This article explores that question through the lens of pedagogical changes implemented in two content courses within Aalborg University's master's program in political science.

The university's political science programs – both bachelor's and master's – have undergone several reforms. This was also the case in 2022 when the department management sought to pave way for the approval of a formal title change – from *Politics and Administration* (*Politik og Administration*) to *Political Science* (*Statskundskab*). The latter was considered a stronger and more widely recognized brand. As such, the title change was expected to result in more and better-qualified applicants, thereby benefiting both the programs and the department's financial situation¹.

However, to obtain the new title, the Aalborg programs had to align more closely with the political science programs offered at the universities of Copenhagen, Aarhus, and Southern Denmark. In a joint consultation response to the Ministry of Higher Education and Science, the three universities stated that:

The three existing Political Science programs use a classical, university-based pedagogical and didactic approach (...) whereas Politics and Administration at AAU is based on a more focused, project-oriented structure (...) A change in title and name should therefore also entail a shift in the educational approach (SDU et al., 2022, own translation).

Accordingly, the management required that the study board substantially revise the curriculum and reduce the extent of project work. For the master's program, the head of department specifically demanded that the first and second semesters follow a 10-10-10 ECTS structure instead of the previous 5-10-15 distribution.

The study board welcomed the ambition to obtain a new program title, but its members were critical of the proposed ECTS redistribution. They feared that significant reductions to the project module would seriously undermine the conditions for PBL. In the new program, students would be able to spend only five weeks per semester on project work, compared to eight weeks in the old.

¹ From 2019 to 2022, enrollment in the bachelor's program steadily declined from 104 to 56 students. During the same period, the master's program maintained a more stable intake of approximately 50 students per year.

	Old program	New program
1 st semester	Methods course (5)	Methods course (10)
	Content course (10)	Content course (10)
	Project work (15)	Project work (10)
2 nd semester	Employability course (5)	Topical seminar (10)
	Content course (10)	Content course (10)
	Project work (15)	Project work (10)
3 rd semester	Electives or internship (30)	Electives or internship (30)
4 th semester	Master thesis (30)	Master thesis (30)

Table 1. Modules and ECTS distribution, old and new master's program.

Yet sometimes necessity is the mother of innovation. Unable to prevent the implementation of the new ECTS distribution, the study board members engaged in a deliberative process on how to 'take back PBL' by transforming the program's content courses. This led to substantial changes in both the syllabus and the pedagogical approach. The new program, including the revised courses, was implemented and came into effect in the autumn of 2022, although the title change wasn't approved until 2025.

The article proceeds as follows. The next section reviews how the two content courses and their exams were changed to accommodate PBL. This author served on the study board during the revision process, taught in one of the courses, and was the coordinator of the master's program from 2020 to 2024. Personal notes and meeting materials were used to reconstruct the process. The third section outlines key points from the students' qualitative evaluations of the two courses, based on the minutes from the eight assessment committee meetings held between the autumn of 2022 and the spring of 2024. The article then discusses whether course redesign can adequately compensate for the decline in student-driven project work and thus sustain the core principles of PBL. The final section provides a conclusion.

Transforming content courses in accordance with PBL

While project work is at the heart of Aalborg University's PBL model, content and methods courses are important too. The PBL statute of the university states that "courses support the project work [by introducing] a wide range of theories and methods which [the students] can use in their project work" (Aalborg University, 2015). Regarding didactics, courses typically follow a more classical approach. They are organized by the teachers, include a series of two-hour lectures, and are finalized with an individual written or oral exam (Aalborg University, 2024).

In broad terms, this was also the arrangement of the two 10 ECTS content courses in the Politics and Administration master's program (*public policymaking* and *multi-level governance*). The question was whether they could be made more PBL-like. The deliberation centered around three of the PBL principles, including 1) problem orientation, 2) group work, and 3) exemplarity.

Problem-orientation

The first idea was to make the courses more problem-oriented, including a new focus on problem-solving. Problem-solving has always been an integral part of Aalborg University's PBL approach in its engineering programs (Kjærdsam & Enemark, 1994; Kolmos 1996), but less so in the social sciences and humanities (SSH) programs.

In the SSH programs, problem-orientation has largely followed a hermeneutic methodology (Højbjerg, 2014), meaning that students first learn to identify a scientific problem and then to design an investigation aimed at understanding the nature and root causes of that problem (Adolphsen, 1997). From this backward-looking perspective, many SSH student projects are guided by a "why" question in their problem formulation, often addressing an anomaly or paradoxical situation (Holgaard et al., 2021, p. 39). The courses underpin this approach by introducing theories and methods that help students understand problems in retrospect.

However, a forward-looking problem-solving approach *is* feasible, also in SSH. Problem-solving essentially means developing a concrete solution to a known complex problem for which no method or solution is immediately obvious (Knöpfel et al., 2024). If a practical test of the solution is not possible, students could instead formulate a set of recommendations (Holgaard et al., 2021, p. 40). In the public policymaking course, problem-solving was embedded by teaching the students how to formulate and assess policies – a craft also known as *policy analysis* (Hjelholt & Tranekær, 2019). The course still included an overview of various theories, but this was integrated with a forward-looking perspective through a series of seminars, each focusing on a specific policy area. All the seminars concluded with an exercise in which students were tasked with developing a solution to a perceived political problem. For example: *How can the government accelerate the deployment of onshore wind turbines without facing increasing not-in-my-backyard (NIMBY) protests?*

A similar structure was planned for the multi-level governance course. Here, the forward-looking perspective focused specifically on teaching students the skill of writing ministerial memos addressing urgent matters in European Union politics.

Group work

The second idea was to introduce group work and transform the individual exams into group-based ones. In this way, group exams would account for two-thirds of each semester's 30 ECTS points (including the semester project and the content course). Moreover, the period during which students would be engaged in collective, group-based activity would be considerably extended, covering most of the semester. A group size of 4 or 5 people was considered ideal.

Collaboration in student-driven project groups has been a central component of Aalborg University's PBL approach since the mid-1970s (Hultengren, 1979). At that time, it was believed to add a dimension of emancipatory learning to the technical (theoretical) and practical (empirical) aspects of a university education. However, student groups are not necessarily confined to project work; they can serve as a didactic element in courses too. At universities such as Maastricht in the Netherlands and McMaster in Canada, study groups are used to facilitate learning across all blocks of the curriculum (De Graaff & Kolmos, 2003).

As discussed by Feilberg (2022; 2024), the group process holds many potentials, but also possible pitfalls. By engaging in group work, students learn how to cooperate, share knowledge, and provide feedback. They become aware of the psychological and relational conditions that influence collaborative failure and success. In this regard, organizing the lion's share of the semester – and not just the final five weeks – around group work was seen as a major advantage by the study board members, and not merely as a pushback against the department management's decisions.

Consequently, the group formation day had to be scheduled relatively early. Groups had to be formed in time to be operational for the content courses' exercises – that is, well ahead of the project work. One possible downside of this was that students might form groups without yet having a clear idea of what they wanted to write about in their projects. On the other hand, early group formation could compel them to think ahead, thereby cognitively establishing clearer links between the themes of the content course and potential project ideas. Generally, the study board members expected that the group work in the courses would have positive spillover effects on the semester projects.

Exemplarity

The last PBL element the study board members sought to bring into play in the content courses was exemplarity. According to Aalborg university's PBL statute:

Exemplarity implies that learning outcomes achieved during concrete project work are transferable to similar situations encountered by students in their professional careers (...) The exemplarity of the project ensures that (...) the students will acquire knowledge and competences which are applicable in a wider context than that of the project itself (Aalborg University, 2015).

In contrast to problem-orientation and group work, exemplarity is a newer element. It entered the university's formal discourse in 2015 and can be interpreted as a response to the employability agenda raised by the government vis-à-vis the higher education sector in the early 2010s (Klindt et al., 2021; Telléus, 2024).

The study board members reached the conclusion that exemplarity could just as well characterize the content courses. It would require that the theoretical content coming from textbook material and academic articles was contextualized by relevant empirical cases conveyed by an "external partner" (as suggested by Andersson & Clausen, 2022). Based on this, it was decided to make more use of guest lecturers.

Finally, the board members discussed the use of role-play exercises. Role-play exercises give students the opportunity to take on the role of an agent in a concrete organization or a given situation that mimics a complex real-world scenario. They can be performed individually, in groups, or involve the entire class. Higher education research suggests that role-plays encourage active student participation, stimulate collaborative learning (Bonwell & Eison, 1991), and significantly improve the outcomes of low-performing students (Barrera et al., 2021).

When designed appropriately, role-plays align well with the principles of problem-orientation, group work, and exemplarity too. Consequently, it was agreed that the written group-based exams would partly be organized as role-plays.

	Old program	New program
Syllabus	18-20 traditional lectures	5 seminars including lectures, guest lectures, excursions, and group exercises
Readings	Textbook chapters and journal articles	Textbook chapters, journal articles, and case material
Exam form	Individual written 48-hour exam	Group-based written 48-hour exam
Learning approach	Classical	Problem-based

Table 2. Content course pedagogy.

Student evaluations of the redesigned courses

Aalborg University's political science programs are evaluated primarily through qualitative feedback. Assessment meetings are held twice every semester. The first meeting evaluates the semester introduction, group formation day, and course instructions. The second meeting provides feedback on group work, supervision, and exams.

Public policymaking course

For the students who started the master's program in the autumn of 2022, as well as for the teachers, it was a new experience to complete a content course designed to emulate PBL. Nevertheless, most comments regarding the syllabus and the learning approach were positive.

In particular, the involvement of guest lecturers several times during the course was highly valued. For the students, this helped clarify how their academic competences could be applied in a professional context. The students also confirmed that working in groups during the course exercises was a positive experience (Minutes of the 1st meeting in the assessment committee, Politics & Administration, master's program, autumn of 2022).

The 2023 class was somewhat more critical. While they also appreciated the problem-oriented seminars and guest lectures, they noted that the group formation process had taken place very early, offering little foundation for discussing problem formulations to be used in their projects (Minutes of the 1st meeting in the assessment committee, Politics & Administration, master's program, autumn of 2023). That is, the decision to use identical groups for course assignments and project work was not unproblematic.

The 2023 class was also more critical of the exam format. Although the exam remained a group-based assignment, as in the previous year, it now had to be conducted in a way that allowed examiners to make individual assessments – a requirement emphasized by the university's legal department. As a result, students were required to specify which parts of the submission each group member had contributed to.

Several groups reported that this was complicated. One student on the assessment committee described the experience as "unpleasant." Another noted that the deeper purpose of a group-based exam is undermined when group members are forced to compartmentalize the assignment into individual areas of responsibility (Minutes of the 2nd meeting in the assessment committee, Politics & Administration, master's program, autumn of 2023). An idea that emerged from the assessment meeting was to revise the group assignment

format to include a predefined collective part followed by individual parts for each group member.

Multi-level governance course

The spring semester generally followed the same structure as used in the autumn. However, in the multi-level governance course, role-play exercises were used more systematically than in the public policymaking course. The groups acted as units within the Ministry of Foreign Affairs. In weekly assignments, they were tasked with briefing the minister on a specific issue or case and writing a short memo.

The students were very pleased with these exercises and responded positively to the process of gradually learning the skill of memo writing: "It's been a very instructive course where one gets closer to a professional competence one can actually use in a job situation" (Minutes of the 2nd meeting in the assessment committee, Politics & Administration, master's program, spring of 2024).

Another difference was that in the spring semester, the groups for the role-play exercises, including the course exam, were formed administratively. The teachers emphasized that not being able to choose one's group partners was a central feature of the role-play. They also wanted to ensure a fair distribution of workload, which meant that group sizes needed to be relatively consistent. The students appeared to accept these arguments as fair (Minutes of the 1st meeting in the assessment committee, Politics & Administration, master's program, spring of 2023).

Once the multi-level governance course was completed, the students were given the opportunity to form new groups for the project work. Some chose to remain in their existing groups, while others broke up and formed new ones. In the spring of 2023, this process went smoothly. In 2024, the process was only partly successful, and a few students ended up in one-person groups.

Discussion: can course innovations preserve the PBL model?

Aalborg University has been a pioneer in PBL since the mid-1970s. Its learning model, which combines teacher-driven courses with student-driven project work, is internationally renowned and spans across scientific realms (Kolmos et al., 2004). The university hosts a UNESCO Center for PBL² and has recently

² See <https://www.ucpbl.net/>

established an Institute for Advanced Studies in PBL³ that disseminates knowledge to a global audience.

However, there are troubles in paradise. In SSH, PBL is increasingly under pressure. Financial constraints are one issue. For more than a decade, national higher education policy has prioritized STEM fields at the expense of SSH. To make ends meet, deans and department heads have reduced the number of teaching hours allocated to supervision (Gregersen, 2024).

Another challenge is ideological. Some individuals within academia continue to view student-driven project work as inferior to more classical university pedagogy. When advocates of conventional models gain influence – often idealizing the programs and teaching methods of traditional elite institutions – faculty and study boards committed to comprehensive project work may find themselves facing growing resistance (Jensen, 2024).

Can revising courses be a way to sustain or reinforce PBL? As outlined in this article, the study board for the Politics and Administration program sought to do just that after 2021, when management imposed a streamlining of the curriculum. Two content courses were redesigned to incorporate problem-orientation, group work, and exemplarity. Most of these changes were feasible and well-received by students, although the written group exam format proved problematic.

The experiences offer some important insights for teachers in SSH programs at Aalborg and other PBL universities. While student-driven projects often take a backward-looking perspective, analyzing problems in retrospect, content courses can be used to introduce a forward-looking, problem-solving approach (Holgaard et al., 2021). Guest lecturers and role-play exercises proved to be effective facilitators of these learning elements, as also suggested by Andersson & Clausen (2022) and Bonwell & Eison (1991). Moreover, when group work is a central feature across two modules during a semester – not just in the project module – the group process extends over time, allowing for more sustained development of collaborative competencies (Feilberg, 2022).

Still, from a PBL perspective, the 10-10-10 ECTS distribution remains problematic. Five weeks is simply not enough time to complete a meaningful student-driven semester project. Ideally, project work involves identifying a scientific problem, constructing a theoretical framework, considering methodological approaches, collecting data, conducting analysis, and writing the final report. However, with the compressed timeline, several of these steps

³ See <https://www.iaspbl.aau.dk/>

are either shortened or skipped altogether. As a result, many student groups end up writing theory-oriented projects without collecting their own data.

Projects that do generate new empirical material often rely on familiar single-case designs and a few qualitative interviews. In the new program, it has become rare to see projects employing the more advanced designs taught in the methods course. Consequently, the connection between the methods course and project work has weakened. Students no longer clearly see how the methods they are taught can realistically be applied in their projects (a point also raised in one of the assessment meetings; Minutes of the 1st meeting in the assessment committee, Politics & Administration, master's program, spring of 2023).

Another issue with the shortened project period is that students become overly focused on staying within safe boundaries and avoiding mistakes. With only five weeks for project work, many feel that their problem formulation and methodological decisions must be perfect from the outset. As a result, the new program misses out on a valuable form of experiential learning – learning that comes from trial and error.

Conclusion

This article has explored how courses in Aalborg University's master's program in Politics and Administration were redesigned to uphold the principles of PBL. Faced with the challenge of a shortened project module, the study board sought to infuse PBL elements – problem orientation, group work, and exemplarity – into the program's content courses, thereby redistributing some of the learning objectives typically achieved through longer project work. Student evaluations suggest that the transformed courses succeeded in enhancing employability, practical relevance, and collaborative learning, although exam formats posed certain difficulties.

However, the new 10-10-10 ECTS distribution remains problematic. The shortened timeline for project work limits students' ability to engage deeply with methodological tools and reduces opportunities for experiential learning. While the content course innovations represent a valuable response, the findings ultimately underscore that robust project work is indispensable for maintaining the full educational value of PBL.

As such, these adjustments should not be seen as equivalent replacements for comprehensive project work. Rather, they are pragmatic responses to shifting managerial priorities. For Aalborg University – and other institutions committed to PBL – the broader challenge remains: how to safeguard a

pedagogical model that depends on time, resources, and institutional support in an increasingly efficiency-driven higher education landscape.

If PBL is to remain a defining feature of SSH education at Aalborg University and beyond, it will require continued advocacy from study boards, faculty, learning experts, and students alike – as well as a willingness to adapt without losing sight of the model's core components.

References

Aalborg University (2015). PBL: PROBLEM-BASED LEARNING. Accessed at: https://www.aaudxp-cms.aau.dk/media/mmmjbthi/pbl-aalborg-model_uk.pdf

Aalborg University (2024). STUDY ACTIVITY MODEL: Accessed at: <https://www.iaspbl.aau.dk/aau-teaching-staff/aau-study-activity-model-for-staff>

Adolphsen, J. (1997). Problemer i videnskab: En erkendelsesteoretisk begrundelse for problemorientering. 2nd edition. Aalborg Universitetsforlag.

Andersson, V. & Clausen, H.B. (2022) Improving Employability for Students through Co-Creation and External Collaboration: Experiences and Outcomes. *Journal of Problem Based Learning in Higher Education*, 10(1), 113–120. <https://doi.org/10.54337/ojs.jpblhe.v10i1.6851>

Barrera, F., Venegas-Muggli, J.I., & Nuñez, O. (2021). The impact of role-playing simulation on higher education students' academic results. *Innovations in Education and Teaching International*, 58(3), 305–315. <https://doi.org/10.1080/14703297.2020.1740101>

Bonwell, C. C., & Eison, J. A. (1991). *Active Learning: Creating Excitement in the Classroom*. ASHE-ERIC Higher Education Report, Washington DC: School of Education and Human Development, George Washington University.

De Graaff, E., & Kolmos, A. (2003). Characteristics of Problem-Based Learning. *The International Journal of Engineering Education*, 19(5), 657–662. <https://fatirul.wordpress.com/wp-content/uploads/2015/03/characteristic-pbl.pdf>

Feilberg, C. (2022). Problemorienteret projektarbejde, PBL og Aalborg-modellen. In Feilberg, C., Bo, I.G., & Romani, A.Q. (eds.) *Projektarbejdets dannelsespotentiale*. Aalborg Universitetsforlag, pp. 59–96.

Feilberg, C. (2024). The Potential of Process Orientation: Rereading Problem Orientation, Project Work and Report Writing by Eva Hultengren (1976). *Journal of Problem Based Learning in Higher Education*, 12(2), 16–25. <https://doi.org/10.54337/ojs.jpbh.v12i2.9134>

Gregersen, B. (2024). Lider Aalborg-modellen af iltsvind? In Ingemann, J.H., Madsen, M.O., & Ørndorff, S. (eds.) *Gåsen og guldægget: 50 år med AUC og studieformen*. Aalborg Universitetsforlag, pp. 216–223.

Hjelholt, A.M. & Tranekær, T. (2019). *Policy-analyse: Teori og praksis*. Hans Reitzels Forlag.

Holgaard, J.E., Ryberg, T., Stegeager, N., Stentoft, D., & Thomassen, A.O. (2021). *An Introduction to Problem-Based Learning in Higher Education*. Samfunds litteratur.

Hultengren, E.W. (1979) *Problemorientering, projektarbejde og rapportskrivning*. Serie om uddannelsesforskning nr. 1. Aalborg Universitetsforlag.

Højbjerg, H. (2014). Hermeneutik. In Fuglsang, L., Olsen, P.B., & Rasborg, K. (eds.) *Videnskabsteori i Samfundsvidenskaberne*. Frederiksberg: Samfunds litteratur, 3rd edition, pp. 289–324.

Jensen, J. (2024). Bevarelse af unikhed i en verden af konformitet. In Ingemann, J.H., Madsen, M.O., & Ørndorff, S. (eds.) *Gåsen og guldægget: 50 år med AUC og studieformen*. Aalborg Universitetsforlag, pp. 198–202.

Kjærdsam, F., & Enemark, S. (1994). *The Aalborg Experiment Project Innovation in University Education*. Aalborg Universitetsforlag.

Klindt, M.P., Friis-Nielsen, C., & Ørum, A.B. (2021). Nye veje for universiteternes employability-indsats. *Samfundsøkonomen*, (3), 51–61. <https://doi.org/10.7146/samfundsøkonomen.v2021i3.129105>

Knöpfel, M., Kalz, M., & Meyer, P. (2024). General Problem-solving Skills Can be Enhanced by Short-time Use of Problem-Based Learning. *Journal of Problem Based Learning in Higher Education*, 12(1), 72–91. <https://doi.org/10.54337/ojs.jpbh.v12i1.7871>

Kolmos, A. (1996). Reflections on Project Work and Problem-based Learning. *European Journal of Engineering Education*, 21(2), 141 –148. <https://doi.org/10.1080/03043799608923397>

Kolmos, A., Fink, F. K., & Krogh, L. (2004). The Aalborg model: problem-based and project-organized learning. In Kolmos, A., Fink, F.K., & Krogh, L. (eds.) *The Aalborg model: Progress, Diversity and Challenges*. Aalborg Universitetsforlag, pp. 9–18.

SDU, KU & AU (2022). Høringsvar i forbindelse med Aalborg Universitets ønske om titelændring af bachelor- og kandidatuddannelsen i politik og administration til statskundskab, fra Institut for Statskundskab, Syddansk Universitet, Institut for Statskundskab, Københavns Universitet, Institut for Statskundskab, Århus Universitet. [Consultation response regarding Aalborg University's request to change the title of the bachelor's and master's programs in Politics and Administration to

Political Science, from the Department of Political Science, University of Southern Denmark; the Department of Political Science, University of Copenhagen; and the Department of Political Science, Aarhus University.] Unpublished document.

Telléus, P.K. (2024). "Where the bands are". In Ingemann, J.H., Madsen, M.O., & Ørndorff, S. (eds.) *Gåsen og guldægget: 50 år med AUC og studieformen*. Aalborg Universitetsforlag, pp. 209–215.