



Inquiry-Based Learning as a Teaching Profile at Institutions of Higher Learning – The Example of the University of Bremen

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“Inquiry-based learning” is set to be promoted as a trendy concept. Numerous institutions of higher learning are involved in projects relating to inquiry-based learning and declare it a distinguishing feature of their teaching. This applies in particular to research-intensive universities. What does inquiry-based learning mean for higher education development? Is inquiry-based learning suited to serve as the strategic orientation of the entire institution? And how can this be implemented beyond a guiding principle and mere announcements at an institute of higher learning? How can the greatest possible number of actors be involved in these processes? And what should be taken into consideration in so doing? The following article addresses these questions and refers by way of example to activities and experiences in the profile development for inquiry-based learning at the University of Bremen.

33.1 Inquiry-Based Learning and Higher Education Culture(s): Reference to Teaching-Learning Research Traditions

Inquiry-based learning can neither be prescribed nor directly controlled by the university administration. In essence, it is essentially based on the Humboldtian educational ideal of the unity of research and teaching, relative to which institutions of higher learning position

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themselves differently. The University of Bremen, which was founded as a reform university in 1971 and selected as a “University of Excellence” (*Exzellenzuniversität*) in 2012, emphasizes this unity (Huber et al. 2013). The teaching profile of inquiry-based learning has a significant history in the project-based study here, what is known as the “Bremen model,” as a teaching profile of the founding period (Schelhowe 2013). The course of study was initially organized for all subjects in the form of projects with interdisciplinary and socially relevant topics. Lectures and seminars were designed to support these projects. The aim was to promote a research-oriented, independent attitude in students. To date, this tradition of project-based studies has continued in various subjects and has been kept alive by individual instructors despite large-scale (“mass”) studies (Robben 2013).

Distinct experiences in interdisciplinary collaboration reinforce the research-oriented focus of instruction at the University of Bremen, and the internal culture of consensus enhances its implementation. What is characteristic of the teaching profile at the University of Bremen is thus the focus on research-based study from the beginning, the curricular anchoring of a comprehensive General Studies portion, as well as the supportive integration of e-learning portions in the teaching programs (Universität Bremen 2015b, translated).

These objectives are taken up, discussed and formulated in the process that has been initiated to develop and hone a guiding principle for teaching at the university. The guiding principle was developed by the Academic Senate’s Teaching Commission, which was established for this purpose, reviewed and amended by all departments and deanships, and finally adopted by the Academic Senate, the supreme governing body of the university’s self-government. This process, in which the involvement of students is of central importance, is based on numerous measures for the development and promotion of teaching.

If inquiry-based learning is anchored in the guiding principle, this raises questions not only about the characteristic features in the subject culture that must be taken into consideration, but about a common concept of inquiry-based learning as well. In the cross-university exchange, for example at the 2015 “Projekt nexus” meeting of the German Rectors’ Conference, “Inquiry-based learning: subject-specific discrepancies and examination formats” (“Forschendes Lernen: fachspezifische Differenzen und Prüfungsformate”), the disunity in terms of concepts and applications of inquiry-based learning became clear. In his keynote address at this conference, for example, Ludwig Huber recommended drawing a distinction between inquiry-based learning in the narrowest sense, research-oriented and research-based teaching and learning.

The University of Bremen cooperates with Ludwig Huber and other experts in didactics with respect to inquiry-based learning, in particular with Peter Tremp and Tobina Brinkmann, who advised us on the understanding of the concept and its implementation. According to Ludwig Huber (2013, p. 248), the phases of inquiry-based learning are to be thought of as recursive loops. They consist of the introduction and identifying a question, developing information, acquiring methodological knowledge, developing a research design, conducting research, developing and presenting the results, and reflection. Going through a holistic research process structured in this way from start to finish is not possible

in every module and not possible to the same degree in every course. There are ways to show how inquiry-based learning can be implemented, not only as a methodical, didactic principle in individual courses, but as an overall strategy of a scholarly attitude of instructors and students in the breadth of course offerings, however.

The “Zurich framework” concept (Hildbrand and Tremp 2012) lends itself to this, as it is oriented towards study activities in the curriculum and systematically links teaching and research. It takes the objectives of a course of academic studies as its starting point and focuses on the study activities. This model lends itself to structuring and simplifying the complex challenges that are implicated with inquiry-based learning (for more about the Zurich framework, see Mieg, in this volume).

33.2 Inquiry-Based Learning and Higher Education Development: Promote the Vanguard and Expand Inquiry-Based Learning

The measures of the administration of the University of Bremen with which inquiry-based learning is initiated, promoted and disseminated will be sketched out and discussed below. The “Semester Summit,” a biannual discussion meeting between university board and students where the topics are current issues impacting studies and teaching, was turned into a work group dealing with inquiry-based learning at the University of Bremen, in order to come up with “recommendations” for the departments.

An important element for the overall university estimation of teaching and for the improvement of its quality is “Teaching Day” (“Dies Academicus”), which is held annually. On this day, students and instructors work together in the morning on improvements in teaching and studies (see Ghaffarizad et al. 2015), and participate in an interdisciplinary program in the afternoon. In the evening, a prize for excellence in teaching (“Preis für gute Lehre”) is awarded. This prize acknowledges instructors whose examples from their day-to-day teaching practice are worth imitating as best practice.

In preparing the application for the second round of the federal and state governments’ 2012 “Excellence Initiative” for the promotion of science and research at German institutions of higher learning, which refers to outstanding research, it was clear to the university administration that teaching and research belong together at the University of Bremen and that this must also be explicitly stated in the application (Schelhowe 2013, p. 11). When Heidi Schelhowe made inquiry-based learning her main focus in this phase during her candidacy for the position of Vice President Academic, it received a surprisingly warm reception from many areas of the university. It was possible to initiate a call for tenders for the promotion of inquiry-based learning projects using an internal university fund, which the state government provided the university so that it could prepare the Excellence application. Ten outstanding projects were selected with the objective of setting a standard for inquiry-based learning; the projects were assessed by experts, and participants trained, advised and evaluated in workshops.

New offerings for inquiry-based learning were increasingly integrated into the higher education didactic training courses in accordance with the profile development. Here, specific, subject-didactic courses are needed. The quality assurance and improvement measures that are implemented by the instructors also require additional resources. In order for inquiry-based learning to be carried out in a manner that reflects an awareness of and sensitivity to heterogeneity, and in order for student-centered teaching-learning research to be made possible, new connections were established between different areas of the institution. Inquiry-based learning was linked with the university's intersectional diversity processes (Kaufmann et al. 2015). At issue is the conscious handling of the diversity of the members and organizational units as a cross-sectional task with the objective of increasing opportunities, social inclusion and educational justice.

With funds from the "Teaching Quality Pact I," the joint federal-state program for improved study conditions and increased teaching quality in the Federal Ministry of Education and Research, it was possible to fund projects concerning inquiry-based learning and dealing with heterogeneity on a large scale from 2012 to 2016 under the title "ForstA – inquiry-based learning right from the start" ("ForstA – Forschend studieren von Anfang an – Heterogenität als Potential"), the intention being to permanently implement these projects. The Study Deans of the faculties and the faculty members were asked to develop related teaching concepts. As with the funding of the projects in the framework of the Excellence application, the objective was not just to promote the vanguard and to set standards. Rather, the program explicitly encroached on the subjects and departments so that *individual measures and steps* (e.g. in the methodology and didactics of so-called mass lectures as well) *were also promoted* and made visible, which has an impact on the overall inquiry-based learning profile. In the application and in its implementation, we therefore worked with a more strictly defined concept of "inquiry-based learning."

In terms of sensitization to the heterogeneity among students as a decisive aspect in improving studies and teaching, the university was involved with the "Quest" survey conducted among students in the major project "Diversity as opportunity" ("Vielfalt als Chance") at the Center for Higher Education Development (Centrum für Hochschulentwicklung, CHE), in parallel to promoting the quality agreement. The project is an anonymized survey on the diversity of students and their self-assessment of their success in their studies at institutions of higher learning (Kaufmann 2013, 2015). At the same time, the university participated in the "Different better!" ("Ungleich besser!") project of the Donors' Association for the Promotion of Humanities and Sciences in Germany (Stifterverband für die Deutsche Wissenschaft) and were subsequently audited for "Diversity University" (ibid.). Through engagement with nationwide diversity projects in conjunction with diversity research, didactic and structural approaches have been developed to raise awareness of inequality and how to deal with heterogeneity and diversity in inquiry-based learning (Kaufmann and Satilmis 2015; Satilmis, in this volume).

The starting point for the ForstA project was a SWOT analysis. The process identified critical phases in the course of studies upon which special emphasis is placed in the ForstA concept. This was oriented towards the “student lifecycle,” from orientation week to the graduation phase, and focused on four pillars:

1. “September Academy” as a bridge from school to university, by means of which students come into contact with material and methods that are relevant to their subject;
2. the reform of the introductory phase of the course of study, whereby subject-related research is accentuated and components and methods of inquiry-based learning are incorporated into major courses;
3. the profiling of general studies in the sense of heterogeneous, autonomous research-related study in order to acquire key competencies and
4. support during the graduation phase and transition into professional fields by promoting learning communities and writing workshops.

The acting Vice President Academic, Thomas Hoffmeister, also fosters the focus on inquiry-based learning. As part of the Bündnis für Hochschullehre (Alliance for Higher Education Instruction), “Lehre Hoch N” (“Teaching to the nth degree”), to which the Stifterverband für die Deutsche Wissenschaft (Donors’ Association for the Promotion of Humanities and Sciences in Germany) and other high-ranking foundations belong, he will be setting up a “Standing Conference for Excellence in Teaching” starting in 2016 (Götz 2015). The conference consists of 30 university members of all status groups – students, scholarly and non-scholarly contributors, and university instructors. The goal is to exchange information about quality criteria and opportunities for the further development of teaching within the university and in an interdisciplinary manner, to strengthen the unity of outstanding research and teaching, and to promote the widespread impact of innovative teaching projects.

33.3 Inquiry-Based Learning as a Degree Program Profile: Faculty-Cultural Concretization

The University of Bremen was again successful in the second competition, “Teaching Quality Pact” in 2015. “ForstA *integrated*” (“ForstA*integriert*”) started in 2017 and built on the activities of “ForstA.” It was intended to expand teaching excellence and to create an even stronger connection with research excellence. Going beyond projects to individual study phases, the focus is subsequently on the issue of coherent curricular processes in research-based study.

Vice President Thomas Hoffmeister explained the developmental perspective for teaching at the University of Bremen and the goal of “ForstA *integrated*” as follows: “We are building on experiences with inquiry-based learning in individual modules and projects; however, in the coming years, we would like to orient teaching in entire degree programs towards the concept at the University of Bremen” (Scholz 2015, translated). At the same time, the tried-and-tested program items from “ForstA” are being further developed. In contrast to the past, the program, “Uni-Start,” is intended to offer students support not just before or directly at the beginning of their studies, but also throughout the first semester, for example through tutors and mentors. “Uni-Start” is intended to facilitate the transition to university and prepare new students for demanding inquiry-based learning.

The project, “Inquiry-based learning as a degree program profile” (“Forschendes Lernen als Studiengangprofil,” FLASP), which was financed by the Higher Education Pact, was the pilot project for this concept, which, in contrast to the individual project promotion, oriented entire degree programs towards inquiry-based learning. To this end, from 2015 to 2017, three entire degree programs were examined and redesigned in terms of their curricular and modular design, and the didactic implementation. As in the case of promoting individual courses within the framework of the Excellence Initiative, this was intended to set standards and create excellent role models. The concepts for the bachelor’s degree programs in biology and cultural studies and for the master’s degree program in public health were selected (Universität Bremen 2015a). The goal of the FLASP project was to support the pilot disciplines with additional resources to develop their subject-specific access to inquiry-based learning and handling of heterogeneity with a high standard and high degree of visibility. The degree programs should be reviewed, planned and implemented with an eye towards promoting students’ research-oriented behavior in order to show other degree programs possible paths to profile development as best practices. Decisive for the development of the degree programs is the collaboration of instructors, students, and those instructors responsible for the module who, after modularization, have the task of bundling individual courses into meaningful units according to their description in the module plans.

Inspired by the “Zurich framework” (see above, Hildbrand and Tremp 2012), the modules of the degree programs should be coordinated with one another in terms of curriculum and didactics in such a way that the students run through the various phases of research during the course of studies: “Planning and implementation should be such that, as students progress, they increasingly develop competence in assuming research-oriented behavior that may take effect when they take up a professional activity, or that prepares them to embark on a master’s degree, doctorate or activity in research and teaching. A particular concern is reaching students across the breadth of their heterogeneous premises and interests” (Universität Bremen 2014, translated).

33.4 Unresolved Questions and Outlook: What Can Be Transferred from the Example?

The article makes it clear that every university must develop a teaching profile that accommodates its own teaching tradition and communication cultures. The University of Bremen can build on its tradition of project-based learning and is characterized by decentralized, low-hierarchical structures. What is true not only here, but presumably for all institutions of higher learning, however, is that inquiry-based learning can neither be set up from the outside nor easily implemented from above. It must evolve from teaching practice, which is to say, starting from the individual instructors and growing from their commitment. The University of Bremen is characterized by participatory approaches to teaching and academic studies. There are numerous opportunities for exchange in institutionally secured meetings on committees and through activities in working groups, workshops, further education, semester summit meetings or on the occasion of Teaching Day. The students' perspectives, their experiences as inquiry-based learners, are central to these processes. An important element in communicating about teaching, learning and researching is creating an "organ"—in our case, the "RESONANZ. Zeitschrift für Studium und Lehre" (Magazine concerning academic study and teaching), which, like the prize for excellence in teaching, contributes to establish a teaching and learning profile.

The "bottom-up" processes must be supported by binding statements by those bodies responsible for making decisions about the teaching profile at the faculty level, as well as at the university's administrative level. Instructors' commitment needs to be appreciated "from above," embedded in an overall strategy and structural anchoring. What a university administration can do with a specific strategy (and the resources promised and made available!) is to pool its forces and provide incentives to those who would face the challenges and provide assistance. It is important to set standards by means of what are termed "lighthouse projects" and to show what excellent teaching and inquiry-based learning could look like according to its narrow definition. At the same time, it also requires a low floor – easy access which allows all or at least many instructors to take steps in the direction of inquiry-based learning without a great deal of effort and without special conditions.

The University of Bremen is an example of the conscious, fruitful and absolutely necessary combination of inquiry-based learning and an orientation towards heterogeneity. Inquiry-based learning requires that diversity be consciously addressed. There are different prerequisites for institutions of higher learning that must be considered and included in the process of profile development. Some faculty or higher education cultures may not be consistent with inquiry-based learning. In that case, it would be wrong to jump on the bandwagon and follow the trend. There are many other valuable opportunities for profile development and quality improvement in teaching that address specific concerns and cultures, and that positively appeal to specific groups of instructors and students.

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