

Background - FideS-Project:

FideS (Forschungsorientierung in der Studieneingangsphase) is the Latin word for trust/confidence. In FideS, we are investigating projects in Germany that show confidence in the abilities of first year students to perform research. The project is funded by the Federal Ministry of Education and Research. Its consortium consists of the University of Hamburg, the University of Potsdam and the University of Technology Kaiserslautern. Our research aim is to (re)frame inquiry learning theoretically and empirically through case studies of 20 projects that develop inquiry learning in the study entry phase. We are especially interested in the differences between disciplines as well as the relation between e-learning and inquiry learning. Furthermore, we target insights into the effects of research on learning. Our last step will be the development of recommendations and instructional materials validated by experts.



OBJECTIVES OF INQUIRY LEARNING FOR FIRST-YEAR-STUDENTS - CASE STUDIES FROM GERMANY

THEORETICAL CONCEPTION

	Education through Research	Research-Teaching-Nexus	
Idealistic approach	<ul style="list-style-type: none"> The idealistic approach considers research as the core idea of university and emphasises its edifying potential. It is based on the idea that research is education in itself, because researchers are led by the pursuit of truth: <i>“striving for objectivity through science is at the same time a subjective formation of one’s character”</i> (p. 624). The roles of researchers and learners cannot be separated: students participate in the research process and become researchers. Inquiry learning in Germany is traditionally oriented towards this approach. The core concept was developed by the <i>Bundesassistentenkonferenz</i> (BAK; an association of research assistants) in the 1970ies. Following this concept, students perform the research process or at least mentally reconstruct it (BAK, 1970). The approach has been developed further over time by defining and differentiating different types of inquiry learning. 	<ul style="list-style-type: none"> The functional approach starts from the viewpoint of teaching and considers research as a means of learning. <i>„It is assumed that research can be functional for teaching, because it represents, in an exemplary way, learning processes“</i> (p. 620). The researcher has become an expert who facilitates the learning process of the novice. Inquiry learning fosters the deployment of competencies that are relevant for the job market and for society. Research competencies are useful for employability. Inquiry learning in this sense is based on a constructivistic understanding of knowledge and education. Learning is understood as knowledge construction. Research and learning remain distinct activities that should be related to each other for the purpose of learning. 	Functional approach
	<ul style="list-style-type: none"> » Internal / reflexive connection between research and learning » Based on the philosophy of education (<i>Bildung</i>) » Undergraduate research for its own purpose 	<ul style="list-style-type: none"> » External / functional connection between research and learning » Based on learning theories » Undergraduate research for the purpose of learning 	

approaches are not commensurable

Simons & Elen 2007

RESEARCH DESIGN

Method:	Case studies
Main principle:	Rich description of single cases (conclusion are done through narration in contrast to theoretical-generalised connection)
Research question:	Which aims do we find in existing first-year undergraduate research projects?
First step:	Identification of 20 projects aiming at inquiry learning for first year students
Second step:	In-depth interviews and document analysis
Third step:	Creation of rich description for typical cases

RESULTS

Flyvbjerg 2006

University	Zeppelin University Friedrichshafen	Hamburg University of Technology	University of Oldenburg	University of Applied Sciences Nürtingen-Geislingen	University
Project	Zeppelin Project - first year research project (mandatory)	Interdisciplinary Bachelor Project (voluntary)	Team Research - teacher/student collaboration (voluntary)	Regular courses in inquiry mode (depending on teacher)	Project
Students' discipline	Social and cultural sciences	Engineering	Teacher education	Economic and Environmental Sciences	Students' discipline
Study phase	1st year	1st semester	all years	all years	Study phase
Inquiry process	Students develop and conduct their own research in teams based on a generic topic (e.g. games, crisis or energy)	Students accomplish one of three tasks in interdisciplinary teams (e.g. to build an airship or an algae reactor)	Students elaborate research questions that derive from teacher's practice in schools	University Staff change their courses towards inquiry learning, i.e. students complete a research process in class	Inquiry process
Aims of inquiry learning	<ul style="list-style-type: none"> To facilitate the entry into the science system To mark the difference between school and academic education To empower the formation of a scientific attitude 	<ul style="list-style-type: none"> To provide an understanding of scientific practice within the respective discipline To form a rite of passage towards a disciplinary identity To foster an insight into other disciplines 	<ul style="list-style-type: none"> To alienate from common theories To act in a professional way To develop a critical eye on one's own actions 	<ul style="list-style-type: none"> To improve learning outcomes To develop competencies for the job market To create a link to the "outside world" 	Aims of inquiry learning
Idealistic approach			Functional approach		

CONCLUSIONS:

- » Co-existence of functional and ideological approaches in projects (often an idealistic foundation of the projects with a functional implementation)
- » Different views of stakeholders influenced by their position or own academic education (e.g. teachers / researchers favour the idealistic approach due to their own previous education)
- » Functional implementation due to funding schemes (funding agencies prefer evidence based schemes) / outcome orientated curriculum structure
- » Idealistic foundation as a reaction towards the Bologna Process / as an unique feature in the competition for students