Questionnaire

Dear Participants,

The project “Bringing Authenticity into the Course Room – Coherent Teaching and Learning Materials for Teacher Education in Inquiry-Based Learning” aims to enrich teaching and learning materials for teachers (whether they are still in training or already practicing teachers) with, for example, virtual reality (VR), augmented reality (AR), interactive videos (H5P), animations, and real-world materials (e.g. experiment reports produced by students). This will serve to improve (pre- and in-service) teacher education consistently across all phases.

Are you a student teacher, prospective teacher, practicing teacher of science subjects or a teacher trainer and/or scientist invited to take part in the survey? Then we would like to ask you about your personal career, your teaching activities and your preferences with regard to digital training opportunities in the following online questionnaire. It will take about 20 minutes to complete.

We would like to ask you to answer the questions honestly and intuitively. There is no right or wrong answer. All answers are valuable for the course of the project and will be incorporated into the development of teaching and learning materials for teacher education in the field of inquiry-based learning (IBL).

On the following page we inform you about the handling of your personal data in accordance with data protection law and ask for your consent to participate in our study and to the use of your data for the stated purposes.

Please read the following explanations carefully.

Thank you for your cooperation and your trust in our work.

Yours sincerely

Your TeLeMat-IBL team

(contact person: baur@ph-heidelberg.de)

The following online questionnaire contains general questions about your demographic data, questions about your position in the 1st/2nd phase of teacher education and questions about your preferences regarding digital training opportunities.

The survey is completely anonymous, which means that it is not possible for us to trace the information you provide back to you personally. Participation in the survey is voluntary. Due to the anonymous data collection, it is not possible to withdraw data after participation.

All data collected will be treated as strictly confidential and will only be used for scientific purposes. Apart from possible subsequent scientific use, the data will not be passed on to third parties in anonymous form.

You can find more detailed information on the data protection-compliant handling of your data here: https://cloud.rz.uni-kiel.de/index.php/s/dNkFKiskeWmPWk6

Declaration of consent

I have received and read the information on the above-mentioned study. I am aware that my participation in the study is completely voluntary and that I will not suffer any disadvantages if I refuse to give my consent.

If you agree with our plan and the described use of your answers, please confirm this below with "yes". If you do not agree and therefore do not wish to participate, you can now close the browser window.

Thank you very much for your cooperation and your trust in our work!

I hereby give my consent for my answers to be used as described above.

o yes

Now we kindly ask you to answer the following questions. Your response will inform the design of teaching and learning material for teacher education in the field of Inquiry-based learning (IBL).

(A) Questions about personal data

(1) Indicate the phase of teacher training you are currently in. If you are in different phases you can make more than one cross.

I am a bachelor teacher student	
I am a master teacher student	
I am a phd teacher student	
I am an in-service teacher	
I am a researcher	
I am a teacher trainer	
Other, namely:	

(2) Indicate your gender

Female	
Male	
Diverse	
prefer not to report	

(3) Indicate your age

(4) Indicate the subjects you teach (if you are a pre-service teacher, please provide only your study subjects)

	Subjects in your study	Subjects that are currently taught
Biology		
Chemistry		
Physics		
Natural sciences		

Native Language		
Foreign Language		
Mathematics		
Art		
History		
Computer Science		
Politics		
Economics		
Geography		
Music		
Religious education		
Physical education		
Ethics		
Sports		
Other, namely:		

(5) Years of teaching experience

(6) Indicate your study semester. Please add the Bachelor's and Master's semesters.

(7) Indicate the kind of school in which you teach or which is the focus of your study or of your research

Primary School	
Lower Secondary School	
Higher Secondary School	
Vocational School	

Others:

(B) Questions about selected content in teacher education

With the following questions we would like to learn about your assessment of certain contents of teacher education on Inquiry-based learning (IBL).

(8) Concerning **IBL**, what should be addressed in a teacher training session?

IBL definition: Inquiry-based learning (IBL) is a learning approach that is in line with contemporary trends about how teaching in science can be performed and is positioned in the educational standards of several countries. IBL is characterized by the following elements: (1) inquiry starts with a problem/question; (2) students plan an investigation; (3) students do investigations to collect data; (4) students construct new knowledge through the inquiry that is meaningful to themselves; (5) students communicate and justify their explanations.

	strongly agree	agree	neutral	disagree	strongly disagree
(A) Benefits of IBL lessons					
(B) Challenges of designing/implementing IBL lessons					
(C) Examples of IBL lessons					

(D) From your point of view, what should teachers know and be able to do concerning when designing and implementing IBL lessons? *Make **a list of 3 statements** and **place them in order** from the most important (1) to the least important (3):*

Order ***(1=most important; 3=least important)***	***Statement***
1	
2	
3	

(9) Indicate any specific needs you might have with regard to the content, the processes, and the teaching approach (didactics) that relate to **IBL**.

(10) Concerning **Experimentation in IBL**, what should be addressed in a teacher training session?

Experimentation definition: Experimentation is the process of doing an experiment. Experiments are characterized by a causal research question, the formulation of hypotheses, planning and conducting the experiment under controlled conditions (test and control trials, control of variables strategy) and interpretation of the data collected. In IBL lessons, students often plan and conduct experiments themselves.

	strongly agree	agree	neutral	disagree	strongly disagree
(A) Benefits of experimentation in IBL lessons					
(B) Challenges of experimentation in IBL lessons					
(C) Examples of experimentation in IBL					

(D) From your point of view, what should teachers know and be able to do concerning experimentation in IBL lessons? *Make a **list of 3 statements** and **place them in order** from the most important (1) to the least important (3):*

Order ***(1=most important; 3=least important)***	***Statement***
1	
2	
3	

(11) Indicate any specific needs you might have with regard to the content, the processes, and the teaching approach (didactics) that relate to **experimentation in IBL**.

(12) Concerning **assessment in IBL**, what should be addressed in a teacher training session?

Assessment definition: Assessment in IBL pertains to the different ways a teacher follows to collect evidence from students' performance that indicate their level of mastering aspects of IBL. Assessment can be used to evaluate performance (summative assessment) or to promote performance (formative assessment). A combination of both is also possible. If assessment is

performed by the teacher, different methods are available: Observations, conversations, tasks, analysis of texts or work samples. Assessment can also be carried out by other students and self-assessment is also a valuable method.

	strongly agree	agree	neutral	disagree	strongly disagree
(A) Benefits of assessment in IBL lessons					
(B) Challenges of assessment in IBL lessons					
(C) Examples of assessment in IBL lessons					

(D) From your point of view, what should teachers know and be able to do concerning assessment in IBL lessons? *Make a **list of 3 statements** and **place them in order** from the most important (1) to the least important (3):*

Order ***(1=most important; 3=least important)***	***Statement***
1	
2	
3	

(13) Indicate any specific needs you might have with regard to the content, the processes, and the teaching approach (didactics) that relate to **assessment in IBL**.

(14) Concerning **differentiation in IBL**, what should be addressed in a teacher training session?

Differentiation definition: Students are different in many characteristics, such as prior knowledge, motivation, interests, and special needs. It is essential for good teaching to address these individual characteristics. The consideration of individual student characteristics is known as differentiation.

	strongly agree	agree	neutral	disagree	strongly disagree
(A) Benefits of differentiation in IBL lessons					
(B) Challenges of differentiation in IBL lessons					
(C) Examples of differentiation in IBL lessons					

(E) From your point of view, what should teachers know and be able to do concerning differentiation in IBL lessons? *Make a **list of 3 statements** and **place them in order** from the most important (1) to the least important (3):*

Order ***(1=most important; 3=least important)***	***Statement***
1	
2	
3	

(15) Indicate any specific needs you might have with regard to the content, the processes, and the teaching approach (didactics) that relate to **differentiation in IBL**.

(C) Questions about the design of learning tasks and media used in a teacher training session

With the following questions we would like to find out something about media and task preferences.

(16) Please indicate your preferences towards different kinds of learning tasks for yourself for learning

	strongly agree	agree	neutral	disagree	strongly disagree
(A) I prefer learning tasks with clear and well-defined content objectives.					
(B) I prefer learning tasks with clear task instructions and defined steps.					
(C) I prefer learning tasks that are open-ended and allow for exploring different perspectives.					

(17) Which kind of task in teacher education do you think are most helpful for professional requirements of a teacher training session? *Make a list of statements and place them in order from the most important (1) to the least important (3):*

Order ***(1=most important; 3=least important)***	***Statement***
1	
2	
3	

(18) Which media do you think is appropriate for understanding … (multiple crossing is possible)

	Audio	Real-world materials (e.g. experiment reports produced by students)	Texts	Discussions	Virtual reality (VR)	Augmented reality (AR)	Animations	Video
…assessment in IBL lessons								
… differentiation in IBL lessons								
… development of lessons centered on IBL								
…experimentation in IBL lessons								

(19) In your opinion, what elements (for example: subtitles, summary boxes, highlighted words) make the following media conducive to learning? Put at least one element each media.

Video	
Virtual reality (VR)	
Augmented reality (AR)	
Animation	
Real-world materials (e.g. experiment reports produced by students)	
Text	
Audio	

(20) Which task response formats do you prefer in performing tasks in a teacher training session?

	strongly agree	agree	neutral	disagree	strongly disagree
(A) Responses in a written format					
(B) Responses in a video format					
(C) Responses in an audio format					
(D) Responses in an image format					

(21) How often do you use the following **online learning media for your learning**?

	often	sometimes	Never	I do not know this type of media
Online video				
Online Courses				
Moocs				
Other **online learning media** you use (annotate often or sometimes):				

(22) What media do you use in your teaching practice?

		often	sometimes	never	I do not know this type of media
Video	Youtube				
	Videotutorials or Explainer Videos				
	Interactive videos				
	VR-Videos				
	360 degree video				
Interactive learning content	Interactive graphics				
	Interactive Video				
	Web Based Training				
	Online Quizzes				
	Interactive Scenarios				
Audio files					
Online text flies					

(23) What are your selection criteria for self-learning media?

	strongly agree	agree	neutral	disagree	strongly disagree
It is easy to follow					
It depends from the content					
It is brief					
It is easy to use					

It is easy to edit for your needs					

(24) Indicate how important the following features of digital modules within teacher education are to you.

	strongly agree	agree	neutral	disagree	strongly disagree
The module has a clear content focus.					
The module includes task/ opportunities for active learning (self-active learning).					
The module offers the opportunity to create individual work packages (select a set of tasks individually to follow individual objectives).					
The content of the module is directly applicable to my own classroom teaching.					
The module offers additional support beyond the direct tasks of the module.					

(25) Which kind of support do you need during participating in a teacher education seminar/workshop?

	strongly agree	agree	neutral	disagree	strongly disagree
Theoretical input					
Scaffolds *Scaffolds are temporary aids which are to empower the learners to handle tasks, which they could not process on their own.*					
Feedback					
Other support:					