



#digitalRBL?!

Vignette #21

Complete research cycle



KEYWORDS

DIGITALISATION



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GEFÖRDERT VOM

#21: #RBL_digital?!

Research-based learning in times of (physical distance and) digitalisation - Strategies for research-based learning online



The following text sequence or vignette describes a situation in the context of a teaching that aims at research-based learning. The situation described challenges you as a teacher and may require you to act directly. The aim of the vignette is to allow you to think about what you are doing in such a situation or how you could prevent it. But you may also consider the situation to be problem-free and more conducive to learning. Either way you can preventively familiarize yourself with possible challenges and reflect upon your own evaluations and impulses for action.

The situations described are taken from interview data with coordinators of research-based learning projects and have been sharpened for the purpose mentioned above. The most common challenges in teaching courses to promote research-based learning have been selected and converted into vignettes.



Research-based learning in times of (physical distance and) digitalisation - Strategies for research-based learning online

Another new term. Your university is calling for digital change to finally be actively stimulated and implemented in teaching. Your colleague also said that work could be made much easier with digital tools. In addition, you have moved, have a longer commuting distance than before and would therefore like to keep your time at the university as short as possible. But you would also like to continue to implement research-based learning. Now the question arises how you can support it digitally...

Keyword: Digitalisation



What are the advantages of supporting research-based learning digitally?

The support of research-based learning through digitalisation and thus increased e-learning has been one of the main focuses of FideS' research activities and is becoming increasingly important in times of global phenomena such as pandemics, globalisation and digitalisation. We assume, however, that: "E-learning is not exclusively [sic!] "virtual" teaching and learning but includes various methodological-didactical and organisational forms of ICT use within and in addition to classroom teaching" (Bachmann & Dittler 2004, p. 2 – translated by FideS-Team).

One result of FideS, however, was that there are not yet many links between research-based learning and digitalisation, but there are certainly points of contact: In many fields, research is taking place with increasing digital support (from online research to Skype conferences), and thus content references are obvious, but also aspects of simplifying organisation and (online-based) communication. Learning management systems and platforms offer not only an easier distribution of materials, feedback, suggestions and results, but also the possibility to promote the exchange among students outside of regular classroom sessions. "By using e-learning 2.0 tools in the context of research-based learning [...] the social, production and action-oriented potentials of research-based learning can be digitally applied" (Kergel 2015, p. 20 – translated by FideS-Team).

One shortcoming, however, is that there is still a lack of experience and software specially designed to support the process of research-based learning with digital media. In order to change this, we have developed a software within the FideS project that supports processes of research-based learning: FL Trail.

But even "everyday" digital instruments can already provide great support in everyday teaching and with research-based learning. At this point, we could of course point out many more advantages and potentials, but we would like to keep this vignette manageable and recommend the following further reading for all those who want to read more:

Bachmann, G., & Dittler, M. (2004). Integration von E-Learning in die Hochschule: Umsetzung einer gesamtuniversitären Strategie an der Universität Basel. E-Learning-Strategien und E-Learning-Kompetenzen an Hochschulen, Bielefeld, 47-60.

Dehne, J., Lucke, U., & Schiefner-Rohs, M. (2017). Digitale Medien und forschungsorientiertes Lehren und Lernen—empirische Einblicke in Projekte und Lehrkonzepte. In Bildungsräume. Proceedings der 25. Jahrestagung der Gesellschaft für Medien in der Wissenschaft, 5. bis 8. September 2017 in Chemnitz (pp. 71-83).

Kergel, D. (2015). Strategien zur Qualitätssicherung für ein forschendes Lernen mit digitalen Medien. Hamburger eLearning Magazin, 14, 18-21.



Reflective questions

The situation described above is a typical challenge that you could face if you implement research-based learning in your teaching. The following questions of reflection serve as impulses to look at such or similar situations from different perspectives and then to come to different decisions:

In which areas do you see the greatest potential for digitalisation?

What are your motives for digitising your course? (e.g. impulses from the environment, acute deficits, structural deficits, ...)

Where do you yourself work digitally in your research process and can analogies to the student research process be formed in your course?

What challenges could arise from the digitalization of your course?

How important do you consider the physical-personal contact with students and their communication with each other?

Which digital tools and analog instruments could students lack at home?

Do you know of any continuing educational opportunities for digital tools that might be of interest to you or helpful to students?



Actions

In the following, we present the approaches of universities whose coordinators of research-based learning offerings we interviewed during the research phase of FideS.

Note: In order to avoid data protection problems, it is advisable to obtain information in advance from the coordinators of your university and the specifications of the student associations. In this way, you can also move safely in the digital space and avoid ambiguous legal areas, especially with regard to examination regulations.

Enriching and integrating - How can (presence) teaching be complemented?

Ask for support from universities and other advice centres for digital matters

Do not try to solve all problems alone. Often there are staff units or computing centres at the universities that know exactly how to deal with such obstacles.

Benefit of the action: You can keep your head clear to implement your teaching as good as possible and do not have to deal with software problems or equipment maintenance.

Complement courses using Learning Management Systems (LMS)

You can use online platforms to pass on information, to exchange material, but also as a discussion forum and for communication (e.g. with peer group feedback etc.) Most universities have set up such a platform - but the full potential of the platforms is usually unknown to the teachers.

Benefit of the action: The learning platforms offer the provision of teaching and learning materials independent of location and time. You can also create rooms in which students can provide their results and give each other feedback, e.g. in a kind of virtual poster tour.

Examples and further information on LMS can be found at: <https://www.e-teaching.org/technik/distribution/learnmanagementsysteme>

Use case studies from archives

If you want to use case studies for teaching - for example for analysis or reflection - you can use case platforms (such as the Kassler Fallarchiv and "Apaek" of the University of Frankfurt (pedagogy), "Die retrospektive Fallanalyse" (medicine) and other repositories or, if applicable, archives of your university). Real scenarios could also be recorded by individuals, but data protection and the consent of those filmed must be guaranteed.

Benefit of the action: Even in times when there is no access to the practice, you have access to these cases. In addition, you can work on certain topics in a goal-oriented manner because you can make use of a corresponding case. This is not always possible in practice.

Enrich digital lectures

Research-based learning also requires one or two introductory and methodological lectures, which can also be digitalized. You can not only record your presentation slides and make them available on an online platform. There is also the possibility to include additional questions, tests or the like to support the students in their learning and to anchor the important contents more long-term so that they really come into play during the research process.

Benefit of the action: Students are actively encouraged to think along with others and better combine what they have learned. The stimulating questions also allow you to imitate the active phases of your classroom sessions.

Use authoring tools to create interactive content

With so-called authoring tools you can, for example, make recordings of your screen (screencasts) and enhance your own recorded teaching/learning content with multimedia content. In this way you can make your inputs for research-based learning, such as methodological exercises or tips for creating presentations, even more motivating.

Benefit of the action: Authoring tools can be used to create multimedia and interactive e-learning content. The content created in this way can be reused or adapted for the next courses as desired and, through their implementation, appeal to the students' interest more than usual presentation slides.

Examples and further information on authoring tools can be found at: https://www.e-teaching.org/technik/aufbereitung/cbt_wbt/autorenwerkzeuge und unter <https://www.uni-hamburg.de/elearning/werkzeuge/autorenwerkzeuge.html>

Record e-propaedeutics

For students who do not participate in the introductory courses or who still lack previous knowledge of the basics of research-based learning, e.g. basics of different survey methods or similar, you can create handouts as e-propaedeutics. In this way, students can access the instructions as video or audio on their own as required - and, if necessary, consult them several times. In addition, you increase the diversity of your offer and take into account the diversity of the students.

Benefit of the action: You save the time of picking up all students individually and can start with the implementation right away. Students who are not so well versed in the subject can continue their education independently.

Use communication software

The communication between students (among each other as well as with you), which is often so important for research-based learning, can also be realised digitally. For this purpose, you can use the various communication software options, e.g. Adobe Connect, Skype, the (video) chat functions of the LMS, and many more.

Benefit of the action: You can use virtual rooms for feedback rounds, presentation of results or for discussions, thus enabling exchange even without face-to-face meetings. Students can make contact if it is urgently needed. ATTENTION: When choosing communication software, please make sure that you comply with the data protection regulations of your university.

Examples and further information on communication software can be found at: <https://www.e-teaching.org/technik/kommunikation>

Set up a central information contact point

You can create a digital "helpdesk" where information is presented in a bundled form, for example in the form of explanatory videos or wikis. There your students will receive central information relevant to all aspects, e.g. on organisational aspects, poster design or methods. Audiovisual workshops and didactic media libraries in the sense of the "inverted classroom" are also useful. Please note that such material may already have been produced by others (as OER) and that you do not have to do everything yourself.

Benefit of the action: You can devote your full attention to supporting the process of research-based learning and student outcomes.

Use digitalisation for (inter)nationalisation

The non-necessity of presence does not stop within the radius of your university. You can start a cooperation across institutions and national borders. Exchanges with experts and students worldwide not only provide an insight into (research) practice, but also show what the digital spaces make possible.

Benefit of the action: The (inter)national exchange not only contributes to the motivation of your students, but also gives you an insight into the practice of the globalised world. Your work can also be made easier if you do not conduct the course alone, but together with other teachers or experts.

Use further education and qualification offers

Most universities offer further training on various tools. If you think that you can make even more out of your knowledge, then take advantage of the continuing education and qualification offers of your university or state.

Benefit of the action: This will not only strengthen your knowledge and skills in the digital handling of research-based learning, but may even provide you with methods or materials that will make planning even easier. Perhaps you will also find like-minded people at such events with whom you can plan and implement your teaching together.

Support periods of reflection

The reflection phases that may have been omitted should of course also be digitally replaced. Here, both questions developed by you as a teacher, which the students should answer, as well as reflection methods, such as the reflection guide to research-based learning oder das ALACT-Modell are useful:

(https://uol.de/fileadmin/user_upload/flif/Homepage_neu/Working_Paper/Riewerts_Rubel_Saunders_Wimmelmann_Gesamt.pdf)

(<http://wirtrainieren.de/werkzeugkoffer/media/Handout-zum-Reflexionskreislauf.pdf>)

Benefit of the action: Since reflection also takes place outside of fixed time frames such as face-to-face meetings, digital instructions can be used to ensure that it does not fall by the wayside. In addition, reflection guidelines developed by experts can be used, so that you may even be able to save yourself some work.

Virtual teaching - How can presence be adequately replaced?

General conditions

Distribute software/hardware for research activities to be conducted from home.

If your students need software or hardware for working with data in the course of their research activities, these would have to be provided for use at home. Often loaned equipment and licences are available - please contact your computing centre or contact person at the faculty.

Benefit of the action: Students can thus collect and evaluate data from home and are not forced to come to the university or go to the computing centre. They are thus able to pursue their research activities regardless of location.

Allow small groups to have their own space

Create separate rooms in online platforms for the small groups at your courses, where they can work undisturbed and without pressure. As a teacher you should intervene as little as possible (or even have no access at all), which is possible in many LMS.

Benefit of the action: Students can communicate without feeling pressure to deliver and without having to meet in person, and can work on documents in self-study phases in a secure room.

Feedback/Structuring/Communication:

Use structuring software

You can support the implementation of your course with communication and cooperation platforms that accompany the teaching. These are - in contrast to usual teaching and learning platforms - partly directly geared to the process of research-based learning and support you not only in providing materials but also in group formation or in coordinating student feedback among each other.

Benefit of the action: You can have software such as FLTrail help you with the group division, the structuring of the research process into sub-steps and their related reflection. It enables you to conduct seminars digitally by suggesting stages of the research process and thus enable students to work on them in a structured way. This allows you to view the progress of the process and structure it by deadlines, and (research) artefacts can also be exchanged and reviewed.

Examples of structuring software are:

FLTrail: <https://fltrail.cs.uni-potsdam.de/app/gemeinsamforschen/info/readMe-docent.jsp>

incom.org: <https://about.incom.org/>

Provide digital consultation hours

Set an appointment once a week on which you can be reached for a digital consultation in a specific digital room (e.g. Zoom, Adobe Connect, or the chat functions of the LMS...) Many of these communication platforms even have a kind of "waiting room function", so that students can take turns one after the other, just like in real life. Of course you can also use this measure to enrich your classroom teaching.

Benefit of the action: These consultation hours can be used to solve problems that prevent students from working, such as software problems. Technical instructions can also be provided, which are usually already available from the providers of the online platforms. In this way, you do not have to be present at the university, nor do the students occasionally turn to you with questions about technical problems.

Employ students as e-tutors

You can also use e-student tutors as team companions. They observe the process by regularly consulting with students and giving you feedback on group behaviour and the research process at regular intervals.

Benefit of the action: The e-student tutors take on the role of feedback providers. In this way, differences or even deficits become explicit and students can decide how to proceed. In addition, they can relieve you of work by dealing with digital implementation problems.

Examination:

Set up digital examination formats

You can encourage students to create an e-portfolio and use it as a research diary/field diary and at the same time as an examination artifact. Students can create an e-portfolio during the term (e.g. in the form of a blog), for which you initially define the structure: It can be used for documentation, planning and reflection purposes, for example, and contain many different media formats (podcasts, posters, videos, exposés, ...). Another approach could be to present the results in the form of audio guides or a digital map to make them accessible to a broader, non-specialist audience.

Benefit of the action: Students can use the structuring elements of such a digital examination format for the ongoing process and are constantly encouraged to reflect. Furthermore, this process-accompanying examination format better reflects research-based learning and produces results that can be relevant beyond the course.

Additional tips and tricks

Use open-access magazines as publication media

For the presentation and publication of the students' results you can also use student or open access magazines, such as "Forsch!" (<https://openjournal.uni-oldenburg.de/index.php/forsch/index>). Furthermore, it can be useful to simulate (before submission or in general) an online review process, as is common for publications in magazines.

Benefit of the action: First of all, the principle of research-based learning is followed, that student results should be published if possible. Furthermore, it can be very motivating for students to see their results published (instead of disappearing in a drawer) and they learn which aspects have to be considered when submitting their results. It should be noted that the results should not be standard term papers, as scientific papers are different and are more likely to be submitted.

Award prizes for good digital teaching (for coordinators)

In order to keep the motivation of your colleagues and students high and to encourage them to adopt digital teaching concepts, prizes can be awarded for particularly successful digital teaching concepts.

Benefit of the action: It is not only teaching that benefits if it is promoted more due to good implementation. It is precisely the diversity of digital teaching formats that inspires the implementation options at universities. This has positive effects for both teachers and students.

Invite “digital high-flyers” to participate

You can let students with high media competence take part in the design of your digital events and also respond to their wishes and suggestions for improvement, so that they are not underchallenged and at the same time everyone benefits.

Benefit of the action: On the one hand, you save labour, on the other hand, students are thereby involved in the digitalised design of their university's teaching, which can increase motivation. In addition, the students experience that their contribution is actually useful and is seen.

Use existing material

Use already existing (info) materials, e.g. instructions by software developers, simulations on YouTube, wikis from colleagues at your (or other) university(ies) or let students help you create such aids. There are already many things available as OER, you usually don't have to reinvent the wheel completely. In addition, OER or CC-licensed materials can often only be used in part, so that you can put together your own suitable documents.

Benefit of the action: You can save time and effort in providing help for the students and also for yourself by researching in advance. This gives you more time to support the students in the process and in evaluating the products.