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iLed
Innovating Learning Design in Higher Education

Upgrading the learning design concept & tool: Research protocol (draft)

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Study title

Evaluation of the Balanced Learning Design Planning concept and tool in different contexts

Study investigators

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Investigators:

Prof. Bart Rienties (OU), Prof. Mirza Žižak (SoM), Prof. Alexander Tillmann (Goethe), Prof. Hanni Muukkonen-van der Meer (Oulu)

Introduction

The innovative Balanced Learning Design Planning (BDP) learning design (LD) concept and tool are based on learning outcomes (LOs) and student workload, as foundations of student-centered learning. They aim to ensure the alignment of LOs at the study program and course level, and put an emphasis on constructive alignment between course LOs, TL activities and assessment, and ensuring assessment validity by assigning LOs with relative weights. They make use of learning analytics (LA) in enhancing LD planning, and support innovative pedagogies. (Divjak et al., 2022). The BDP LD concept and tool have so far been developed in line with the principles of design science, and piloted within several ongoing Erasmus+ projects (e.g. RAPIDE, eDESK, Teach4Edu4).

Evaluation of the first versions of the BDP concept and tool were performed by users from different European countries and their testing in the development of several, diverse courses, including in international context, in various projects, conferences (e.g., Edutech 2022, Online Educa Berlin 2022, CECIIS 2022, LAK22), e-courses (e.g. RAPIDE and eDESK project MOOCs) and workshops.

Within this WP, the design process will be taken further, and this WP will lead to having the BDP LD concept and tool evaluated on a larger scale, in different educational contexts (country, study field, mode of delivery, type of program, students' groups), and by different user groups (teachers, instructional designers, learning designers, technical experts, researchers, curriculum developers, educational decision-makers) from four European countries. Subsequently, using the feedback provided in the evaluation process, the BDP

concept and tool will be further upgraded, and the upgraded version will be made available for use to the wider interested public.

Background

Initial work on the BDP concept and tool has been done in line with the design science methodology, taking into account the Open University LD, as well as contemporary research. The first phase included a needs analysis, literature review, and exploration of existing LD concepts and tools. The second phase included the development and first upgrades of the BDP concept and tool. The third phase has so far included initial validation conducted by HE teachers, primarily within ongoing Erasmus+ projects. That process, shown in Figure 1, presented the piloting of the BDP concept and tool.

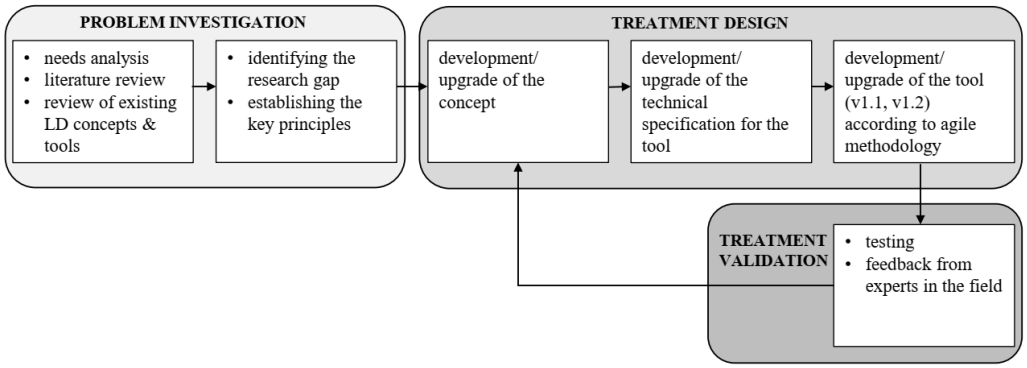

Figure 1. The BDP concept and tool design process.

Source: Divjak et al. (2022). *Balanced Learning Design Planning: Concept and Tool.*

Within WP2, we will conduct further evaluation and collect feedback from a wider range of users (teachers, instructional designers, technical experts, researchers, curriculum developers, educational decision-makers), considering the needs in different, international educational contexts, links with current European initiatives related to qualifications, as well as ensuring the alignment of course LOs with study program LOs. We consider courses (subjects, units, modules) have a smaller student workload (1-10 ECTS). They are constituent units of a study program and after completing the study program students are provided with a qualification. This will enable the development of a concept and a tool which may contribute to enhancement of learning and teaching by using LD at a wider, European level, and support the implementation of mobility initiatives (digital credentials).

Aims of the study

To support further implementation of learning outcomes (LOs) and student-centered curricula via development of innovative LO-based LD concept and tool, and their evaluation and verification in international HE contexts.

Objectives

To evaluate the piloted LD concept and tool, available in several European languages (German, Croatian, Finnish, English), in different contexts and by different groups of users, as the basis for further improvement.

Research questions

The study will focus on the following research questions:

RQ1: What are the perspectives and experiences of different user groups in diverse contexts with LD and particularly the BDP concept and tool?

RQ2: What are the essential needs and areas for further improvement of the BDP concept and tool, depending on these different user groups and diverse contexts?

Study design

The study will be led by the University of Zagreb, and co-led by the Open University. The study design starts with the preparation of the protocol and evaluation form (evaluation rubric) to be discussed and approved by partners at the coordination meeting. This is followed by engaging "evaluators" from different user groups at each of the partner institutions (at least 40 in total), who will be presented with the BDP concept and tool and RQs of the study within project workshops organized centrally by FOI (re-use of the Erasmus+ project RAPIDE MOOC).

In this project, we define evaluators as users of the BDP tool who have at least engaged with the BDP learning materials (videos and other learning material in the iLed onboarding e-course or RAPIDE e-course), and engaged with the BDP tool to prepare a course (based upon BDP analytics system). Additionally evaluators can be different users that have already used the BDP tool, and have been engaged with the BDP tool for at least two courses or 4 hours. Once the evaluators are familiarized with the concept and the tool, evaluation form is administered, and data collected and analyzed. The final report will be prepared by the Open University.

Overview of the activities:

R.1.1. Evaluation report on the LD concept and tool

A.1.1.1. Preparation of an evaluation form and protocol (lead: FOI, participating: SM)

A.1.1.2. Organization of a coordination meeting (together with the kick-off meeting) (lead: FOI, participating: all partners)

A.1.1.3. Engaging evaluators to cover all the foreseen user groups (lead: FOI, participating: all partners)

A.1.1.4.a Workshops for evaluators on the BDP concept and tool (lead: FOI, participating: all partners)

A.1.1.4.b Administering the evaluation form, collecting and analyzing data (lead: OU, participating: all partners)

A.1.1.5. Preparing the final evaluation report (lead: OU, participating: all partners)

Lead: University of Zagreb					**Activity lead**
Month	**12/22**	**1/23**	**2/23**	**3/23**	
Project month	**M3**	**M4**	**M5**	**M6**	
1.1.1. Preparation of an evaluation form and protocol					FOI
1.1.3. Engaging evaluators					FOI
1.1.4. Training evaluators, collecting and analyzing data					FOI/OU
1.1.5. Preparing the evaluation final report					OU

The timeframe can be extended for one month but the changes in the BDP tool need to be implemented until the project meeting in May 2023. In Frankfurt we need to plan time for the activity 1.2.2. Providing feedback to the draft of the improved LD concept

Detailed common informed consent template will be prepared by Oulu University and The Open University.

iLeD onboarding e-course for the training of evaluators was prepared by FOI to help partners to perform the activity 1.1.4. Training evaluators, collecting and analyzing data.

Study setting

The study will be conducted in an international context, at least five higher education institutions (project partners). An earlier piloted online tool for learning design (learning-design.eu) will be used, as well as an online digital material for evaluators (videos, tutorials,

reading materials on how to use the tool). An evaluation form will be developed by the research team and administered in Moodle (iLed). All the data collected from the evaluators will be anonymized and no evaluators' personal data nor identifiers will be used for reporting or publishing on the central level. However, for our research purpose some socio-demographic information about evaluators will need to be collected (gender, age, discipline, years of teaching experience, employment - type of institution and position, education level) as well as their attitudes about learning design and which learning design(s) they have implemented in the BDP tool. Before analysing data will be re-coded to ensure anonymity.

It's important to keep in mind that the inclusion of demographic variables in the survey should be justified by the research question and should be relevant to the scale. It's also important to ensure that the survey is designed in a way that is respectful and non-discriminatory towards participants.

Study population

The study will include at least 40 evaluators from the following user groups: teachers, instructional designers, technical experts, researchers, curriculum developers, educational decision-makers.

Evaluators will be engaged at all the partner institutions, as follows:

Institution	**Teachers**	**Instructional designers, technical experts, researchers**	**Curriculum developers, educational decision-makers**
University of Zagreb - FOI - SoM	5 + 5	2	1
	5 + 5	1	1
Goethe University	8	2	1
University of Oulu	8	1	2
Open University	6	3	2
TOTAL	**32**	**9**	**7**

The total number presented in the table (n = 48) refers to the number of evaluators who will be recruited, with the final aim of collecting feedback from 40 evaluators.

From a publication perspective, ideally we would have more than 20 participants per institution and additional evaluators engaged directly from the BDP tool, so if institutions are able to collect more participants this would be feasible.

Eligibility criteria

The evaluators will:

- belong to one of the following user groups: teachers, instructional designers, technical experts, researchers, curriculum developers, educational decision-makers
- associated with one of the partner institutions or engaged substantially with the BDP tool on their own and willing to participate in the research
- have expertise in the area of teaching, educational leadership, instructional design, curriculum development, educational research, or technical support for teaching and learning
- have work experience of at least three years relevant for the mentioned area of expertise, and/or have participated in one of the RAPIDE e-courses, or developed at least one BDP learning design, or have participated in the iLED onboarding course.

For the reporting and/or research publication the evaluators will be described in terms of the said criteria, without mentioning any personal data.

Study outcomes

SO1.1 To evaluate the piloted LD concept and tool in different contexts and by different groups of users

R.1.1. Evaluation report on the LD concept and tool

I1.1.1 At least 40 evaluators from all user groups filled in the evaluation form

I1.1.2 Evaluation report published on the project website

R1.1. - quality of the result: Evaluators will be provided with an evaluation rubric (criteria and levels of achievement) and they will be able to reflect on the quality of the evaluation process itself; the overall feedback from evaluators related to the clarity of the evaluation process will be positive.

Research paper

Study procedures and forms

The study will be conducted as part of the overall development of the BDP concept and tool, which has been done in line with design science methodology. Particularly, this study presents a step in the treatment validation phase of the design science cycle (Divjak et al, 2022).

We are evaluating concept (of learning design) diffusion as well as technology acceptance (of the BDP tool).

UTAUT (The Unified Theory of Acceptance and Use of Technology)

The Unified Theory of Acceptance and Use of Technology (UTAUT) Scale is a standardized measure of the key constructs in the UTAUT model. The scale consists of a set of items that are designed to assess an individual's performance expectancy, effort expectancy, social influence, and facilitating conditions.

In (Venkatesh et al, 2003), the authors introduce the UTAUT model and the UTAUT Scale, and provide guidelines for its use. The scale is provided in the appendices of the article.

Performance expectancy tool

- I expect the BDP concept and tool (the BDP in further use) will help me improve my work performance.
- I believe that using the BDP will increase my productivity.
- I think that using the BDP will make my job easier.

Effort expectancy tool

- I believe that I will need to put forth a lot of effort to learn how to use the BDP.
- I think that using the BDP will be easy for me.
- I expect that I will need to spend a lot of time learning how to use the BDP.

Social influence: concept

- Others my colleagues/peers/leaders think that I should use a learning design, here enabling by the BDP.
- I think that most colleagues/peers will use a learning design, here enabling by the BDP.
- I believe that using a learning design, here enabling by the BDP is the norm for my peers.

Facilitating conditions: tool

- I think that the BDP is very easy to use.
- I believe that there is good documentation and help available for using the BDP.
- I expect that the BDP will be available to me when I need it.

Usefulness of learning design concept implemented in the learning design BDP tool:

- I believe that learning design based on weighted learning outcomes contributes to quality of my work.
- I believe that planning of teaching and learning activities based on learning outcomes contributes to quality of my work.
- I believe that planning of assessment based on learning outcomes contributes to quality of my work.
- I believe that analysis available in the BDP tool contributes to quality of my work.

Usefulness of specific features of the learning design Balanced Design Planning (BDP) tool

- I find planning of teaching and learning activities easy to use
- I find data presentation in the BDP analysis understandable and useful
- I find export possibilities useful for productivity of my work.

OPEN ENDED Questions

Which three functionalities of the BDP tool do you find the most or least useful?

Which functionality/ies do you really miss in the BDP tool that we should prioritize in the next 6 months of development?

What are your suggestions for further improvements of the BDP tool?

If you would imagine the average user, what do you think they will struggle most with?

These items are designed to be rated on a 5-point Likert scale, where 1 represents "strongly disagree" and 5 represents "strongly agree."

Data analysis

Data collected via the evaluation form (rubric) will be analyzed in the following ways:

- descriptive statistics (quantitative data)
- cluster analysis (quantitative data)
- content analysis (qualitative data)
- Secondary data analysis of current designs in BDP tool
- Survey amongst current users of BDP tool
- observation study/thinking aloud
- eye-tracking study

Data management and ethical considerations

The data will be collected online and stored in the cloud. All the data will be anonymized by the respective partner institution, and then made available, in an anonymized form, to all the partners, aggregated and analyzed.

Informed consent will be asked from all the evaluators, and their data managed accordingly.

Ethical approval will be asked from the Ethical committee at FOI and will include this research protocol with questionnaire. In the BDP tool informed consent form will be added similar in form of a Terms of service.

Outcomes and significance

The study will result in the Evaluation report on the LD concept and tool. The report will serve as the basis for further upgrade of the BDP concept and tool in a way that considers different educational contexts and user groups.

References

Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. MIS Quarterly, 13 (3): 319–340. doi:10.2307/249008, JSTOR 249008, S2CID 12476939

Divjak, B., Grabar, D., Svetec, B. & Vondra, P. (2022) Balanced Learning Design Planning: Concept and Tool. Journal of information and organizational sciences, 46 (2), 361-375 doi:10.31341/jios.46.2.6. Available at: https://jios.foi.hr/index.php/jios/article/view/1742

Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User acceptance of information technology: Toward a unified view. MIS Quarterly, 27(3), 425-478.

Appendix

1. Questionnaire - Evaluation of the BDP concept and tool
    - Consent
    - Participant Information Sheet
    - Privacy Notice

2. Terms of Service and Privacy Notice for BDP tool