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EXECUTIVE SUMMARY EDVIEW POSITION PAPER

THE FULL POTENTIAL OF PBL PHILOSOPHY: DIVERSIFYING EDUCATION AT UM

Project EDview

EDview reflected on education at UM: Where do we stand? How do students and staff experience UM's PBL strategy? Are we well equipped for the future? EDview aimed to establish a shared view on UM education for the future (presented in EDview's Position Paper), and concrete suggestions for action following from this view (presented in EDview's Overview of Do's, Don'ts and Don't Knows). In several data collection phases, EDview held interviews and focus groups, reviewed literature, conducted a survey open to all UM students and staff, and held feedback sessions with a wide selection of stakeholders.

The current state of PBL at UM: satisfaction with theory

The EDview results show that many students and staff stand behind UM's choice for PBL. The EDview Survey, completed by 1,743 students and staff from all faculties, showed high satisfaction scores of respondents' experiences with education at UM in general and the educational method being PBL. This resonated with EDview's qualitative data, which further explained that the high satisfaction scores mainly refer to the "idea" and theory of PBL, but to a lesser extent to its practice. It was found that PBL fits well with state-of-the-art educational theories, which promote constructive, collaborative, contextual and self-directed learning to enhance deep learning, motivation for learning, and 21st century and lifelong learning skills.

The current state of PBL at UM: dissatisfaction with practice

EDview Survey respondents were least satisfied about how PBL is carried out in practice, and interview participants felt that UM had not fully succeeded in delivering on the promise of PBL. Participants for example experienced challenges related to the seven steps format, staff capacity, alignment with assessment, tutorial group size, applying PBL in different disciplines, and a mismatch between how PBL is communicated and what students and staff encounter in practice.

The current state of PBL at UM: a trend towards flexibility

It was apparent that when we currently talk about PBL at UM, we often mean the seven-steps-like tutorial structure. Simultaneously, a trend can be observed of defining and approaching PBL in a broader way, with PBL variations and alternatives being applied in several programs across faculties. A majority of the EDview Survey respondents would like UM to be more creative and flexible about how to implement PBL in the future.

Where to go from here

Considering the above, we can distill a view on UM education for the future, specifically the role of PBL. For the future, we do not take any PBL *format or structure* as a starting point. We take 'only' the UM *philosophy* of PBL (constructive, collaborative, contextual and self-directed learning) and the course/program objectives as starting points. We design education based on one key question: *Following the UM philosophy of PBL, how can I design education in a way that best achieves the learning objectives?* This implies a diversification of UM education, in order to achieve the full potential of PBL philosophy.

How to get there

EDview's message is not new: previous projects and documents described similar issues, and current UM education is already diverse. However, why do we still talk about PBL as a synonym of the seven steps tutorial structure, and why do some teachers feel they can only innovate 'under the radar'? EDview put together a comprehensive overview of Do's, Don'ts and Don't Knows that range from teaching and designing education to marketing and communication, leadership and human resources - suggesting the actions and attitudes needed if we commit to the UM view on education described above. Importantly, the UM philosophy of PBL is not static; we should approach it as a dynamic, shared framework that drives continuous debate and dialogue about educational quality and improvement. In an organization that wishes to cultivate a vibrant educational culture, this conversation must never stop.

INTRODUCTION

The position paper *The full potential of PBL philosophy: Diversifying education at UM* that resulted from project EDview formed the starting point of the following overview of do's, don'ts and don't knows. In its own way, the overview is a presentation of the EDview results that provides answers to the more specific questions around the view presented in the position paper. Due to the all-encompassing nature of this view, the list naturally also includes do's and don'ts on aspects of educational design, coordination and teaching beyond PBL, but about quality education in general. The do's, don'ts and don't knows are presented in five interrelated areas that were distinguished in the EDview data:

1) Designing education, which includes the design of curricula, courses, learning activities and assessment;
2) Coordinating education, which includes course as well as program coordination;
3) Teaching, which refers to teachers' interaction with students on the level of the classroom / the learning activities;
4) Explaining education, which includes marketing and communication, and student and staff training in PBL;
5) Enabling education; which includes organization, leadership, human resources, finances, and facilities.

The do's, don'ts and don't knows describe the actions and attitudes needed in these areas if we commit to the UM view on education as presented in EDview's position paper. Some of the do's may seem obvious, and many of them may already be happening. However, EDview data shows that some of them, regardless of how obvious they seem, are not always the case in our current state of education. This overview intends to deliver a comprehensive collection of what we stand for, including both the obvious and the not-so-obvious things that we should do, things that we should no longer do, and things we should investigate further before we decide if or how we should do them. Some of the points coincide with the recently established quality agreements (*Quality Agreements 2019 - 2024*), while other points may serve as suggestions for further realization or elaboration of the quality agreements.

The overview aims for an ideal picture – it is thus clear that some of the do's may never be fully achieved, that we may never get rid of some of the don'ts, and that we may never find a completely satisfying answer to some of the don't knows. This doesn't mean we should not try. Instead, as argued in the position paper, if we want to stay true to our commitment to cultivate a vibrant educational culture, it is our responsibility. In that regard it is also clear that the EDview results need follow up. Some of the do's and don'ts are rather broad and leave a lot of room for further specification and clarification. This was done both on purpose, to leave room for the appropriate agents to shape this in ways they see fit, as well as because the EDview project did not go into details for each topic. This overview, therefore, should be seen as a document that provides a direction for more detailed action that should follow. For some topics that requires follow-up on a central UM level, for others on faculty, program or course level.

At the start of each chapter, a table lists the do's, don'ts and don't knows, each of which is explained in more detail in the remainder of the chapter. Where relevant, the descriptions are supported by illustrative quotes from EDview participants, and references to the literature that can be used for further reading. The interrelations between the do's, don'ts and don't knows are highlighted by references to related do's, don'ts and don't knows across the chapters.

CHAPTER 1: DESIGNING EDUCATION

Do's

1. Do use the intended learning outcomes as a starting point for designing education.
2. Do use the UM philosophy of PBL as a guide for designing learning activities: contextual, constructive, collaborative, and self-directed learning.
3. Do design learning activities and assessment in a way that makes it possible to achieve the course or program objectives.
4. Do align all courses in a curriculum.
5. Do involve multiple disciplines in the design of education.
6. Do involve students in the design of education.
7. Do consider that you are designing education for a new generation.
8. Do facilitate personal learning paths for students.

Don'ts

1. Don't interpret a broader approach to PBL as "anything goes".
2. Don't let assessment kill your educational design, but make it part of your educational design.
3. Don't focus on grades: they are the poorest form of feedback.
4. Don't underestimate the detrimental effects of increased group size on students' learning.
5. Don't view internationalization as an "extra flavor" of educational design: it is a basic ingredient.

Don't knows

1. How can we personalize education and assessment while being faced with continuously growing numbers of students?
2. What does an ideal integration of research and education look like?
3. How should we optimally integrate technology in education?

Do's:

1. **Do use the intended learning outcomes as a starting point for designing education.**
   From theoretical and practical perspectives alike, EDview participants noted that the first step in educational design is defining the intended learning outcomes, i.e. the objectives or competencies we wish students to meet when they have completed the course or program. For educational design to be

effective and successful, it is essential to know what you are designing for. EDview participants noted that it is difficult to "take a shot without a goal in sight".

Different tools exist for formulating learning objectives, such as Bloom's taxonomy of educational objectives (Krathwohl, 2002), the SMART criteria, or the SARA method (Aerden, 2015). Participants mentioned that they consulted up to date literature and "people from the field" – for example in the form of international advisory committees - for input on the content of these objectives, i.e. which competencies and tasks are relevant to the profession, currently and in the future. For some domains this was decided on a national level - curriculum blueprints were for example provided by national professional associations. Next to "domain-specific" knowledge and skills, EDview participants stressed the importance of integrating "generic" skills in these objectives as well, such as technological, research or communication skills relevant to the particular profession. This also includes skills and competencies related to internationalization, which should be integrated with domain-specific learning outcomes (see *Don't 5*). EDview survey respondents were generally satisfied about the "soft skills" that students acquire at UM, such as critical thinking and communication (total mean 4.0, scale 1-5). The objectives and competencies set the direction and boundaries for the design process, which then continues with translating these objectives into relevant learning activities.

2. **Do use the UM philosophy of PBL as a guide for designing learning activities: contextual, constructive, collaborative, and self-directed learning.**

   This second point interacts with the first, because if we follow UM's philosophy of PBL, all UM programs intend to deliver graduates equipped with lifelong learning skills, analytical skills, and communication skills. Hence, the UM philosophy of PBL, as described in EDview's position paper, should be reflected in the intended learning outcomes.

   Next, it serves as a guide when translating these objectives into concrete learning activities. A crucial aspect is that problems or tasks from professional and academic practice serve as a starting point for learning, and that learning activities are situated as part of this "whole-task" approach (Merrill, 2007; van Merriënboer & Kester, 2008). The whole-task approach helps to give meaning to the learning experience and enhance motivation, to take the complexity of professional and academic problems into account, and to facilitate transfer of knowledge to new contexts. Rather than separating knowledge and skills - for example by teaching separate courses on certain technological skills, intercultural communication skills, research skills, etc – these should not be viewed as separate, but as part of the "whole task" that forms the basis of educational design. This means that there can still be learning activities specifically focused on certain knowledge or skills, but that these should always be derived from or connected with the overarching task at hand. To achieve transfer of knowledge and skills to other contexts and to adequately guide students in becoming self-directed learners, it is important to gradually build up these tasks from simple to more complex, to provide appropriate supporting resources, and to offer different variations of the task (van Merriënboer & Kester, 2008). Other aspects to keep in mind following the UM philosophy of PBL are actively linking new knowledge to students' existing knowledge; stimulating discussion and elaboration among peers; and facilitating

students' planning, monitoring and evaluation of the learning process (Dolmans, De Grave, Wolfhagen, & van der Vleuten, 2005).

The EDview data – and literature, for example (Mayer & Alexander, 2011) - contains multiple examples of how this can be done differently in different fields, such as through a research-based learning approach that is often used in the Maastricht Science Program and the Faculty of Psychology (Bastiaens, van Tilburg, & van Merriënboer, 2017). Simulations of court cases at the Faculty of Law are another example, as well as learning based on patient contacts in the Medical program, solving business cases in small groups in the International Business program, and project-based learning in the program of Data Science and Knowledge Engineering. The problem or task can also be more conceptual rather than practical, which can for example be witnessed in several courses at University College Maastricht and the Faculty of Arts and Social Sciences.

EDview identified a need among teachers and designers of education for more practical tools and examples of translating the theoretical principles into practice (see also Ch. 4: *Explaining Education: Do 2*). As a start, the project *Creative PBL Practices at Maastricht University*, carried out by the Taskforce Instructional Design and E-Learning (Department of Educational Development and Research, FHML), has collected best practices across the six UM faculties of creative ways of applying the PBL principles of constructive, collaborative, contextual and self-directed learning. In short knowledge clips, the teachers and course coordinators who designed and used these approaches explain their approach, how it worked in practice, its challenges and benefits, and how it incorporates the four learning principles. Their approaches explicitly tackle some of the common challenges experienced in PBL at UM, such as large tutorial groups, students' exam-focus, and having to cover a lot of content. These videos will be available end of 2018. For more information please contact the Taskforce at: id_elearning@maastrichtuniversity.nl.

3. **Do design learning activities and assessment in a way that makes it possible to achieve the course or program objectives.**

In other words, education should be "constructively aligned", meaning that the learning activities, assessment and intended learning outcomes are in alignment, in order to make learning meaningful to the student and to facilitate constructive learning (Tang & Biggs, 2011). This crucial principle of educational design seems obvious and its importance was noted, in a variety of phrasings, by many EDview participants. Yet, it is surprising how often we do not seem to succeed in this aspect. The misalignment between on the one hand the intended learning outcomes and PBL learning activities that emphasize critical thinking and the application of knowledge, and on the other hand the assessment that often tests facts of knowledge was repeatedly mentioned by EDview participants as the cause of many problems (see also *Don't 2*).

A recent EDLAB project brought together constructive alignment experts from all UM faculties who worked together to offer practical advice about the translation of the theoretical principles of constructive alignment into practice at UM. The result is a practical website (also available as a

handbook (EDLAB, 2016) that offers advice on course, program and institutional level: https://constructivealignment.maastrichtuniversity.nl/. The EDview data make clear that we have some more work to do in this area. While EDview survey respondents rated the coherence between the learning goals, the instructional methods, and the assessment not particularly high or low compared with other items (total mean 3.8, scale 1-5), the qualitative data showed that a number of EDview participants interpreted "constructive alignment" as "alignment of content between different courses in a program" (i.e. having no overlap). While important (see also *Do 4*), the concept entails more than alignment of content and rather stresses the importance of alignment of intended learning outcomes, learning activities and assessment on both course and program level (read more at *Don't 2*).

4. Do align all courses in a curriculum.

This point links with *Do 3* on constructive alignment. It aims to facilitate constructive learning, i.e. enabling students to see the links between the different parts of the curriculum, which contributes to students' building and expanding their knowledge networks. EDview participants emphasized that a program should be viewed – and therefore designed - holistically, where a logical build-up of course content and approaches is visible to students (see also Ch. 2: *Coordinating Education: Do's 3 & 6* and Ch. 3: *Teaching: Do 4*). Also in open curriculum programs such as the University Colleges and the Maastricht Science Program, EDview participants noted that thought was put into the sequence, level and admission requirements of courses, enabling students to follow certain "curriculum lines".

5. Do involve multiple disciplines in the design of education.

EDview participants noted a declining trend in interdisciplinary education at UM. In the EDview survey, the question to what extent the education in the UM program(s) respondents were involved in was overall sufficiently interdisciplinary scored a total mean of 4.0 (scale 1-5), which was not particularly high or low compared with other items. Participants argued that many UM programs are multidisciplinary (consisting of many single-disciplinary courses) rather than interdisciplinary (consisting of courses designed by multiple disciplines). A reason that was sometimes mentioned were requirements set by educational institutions or professional organizations where graduates would continue their study or career; the disciplines they had "covered" during their program had to be visible to these institutions. Developments to the contrary can also be identified at UM, however, such as the development of the new, interdisciplinary Bachelor program Global Studies.

EDview participants argued that ideally multiple disciplines join forces in the design of education, as this forms the ideal basis of designing and analyzing relevant real-life tasks and viewing these tasks from different perspectives, which stimulates constructive and contextual learning (Dolmans et al, 2005). An example of a practical handbook for university teachers on designing interdisciplinary education is De Greef, Post, Vink & Wenting (2017), which covers topics such as the formulation of interdisciplinary learning objectives, embedding interdisciplinarity in curriculum design, assessment and teaching, and engaging staff. To meet official requirements of graduates' future work and study

contexts, we might consider ways of making the disciplines more visible in these interdisciplinary themes.

6. Do involve students in the design of education.

EDview participants argued that students, as the ultimate stakeholders of education, have valuable input and feedback on educational design and need to be involved in the process. This message is also supported by literature on participatory design of learning environments (Konings, Seidel, & van Merrienboer, 2014). EDview participants noted that where students were involved in ways beyond the regular course evaluation procedures, for example in the form of small-scale feedback groups, this was experienced as very beneficial. Notwithstanding the value of students' involvement, EDview participants at the same time emphasized that student opinions should be treated with care. For example, a case was mentioned where an interdisciplinary task was transformed back into a single-disciplinary task when student evaluations rated the interdisciplinary task as too hard. Rather than transforming back to single-disciplinary, ways might be found to keep the task interdisciplinary, yet on the right level for students, and to explain the educational approach to students (see also *Do's 2 & 5,* and Ch. 2: *Coordinating Education: Do 6*).

7. Do consider that you are designing education for a new generation.

An aspect that came up multiple times in EDview interviews and focus groups was the difference between "what the world looks like" now compared with when UM was founded in the 1970s, especially related to the digital world and the possibilities to find information there. The increasing quality of online open access material raises the question of how we can optimally design education that uses this situation to its advantage. EDview participants generally believed that face-to-face education would not lose its value in the future, and that there would always be a need among students to discuss material with peers and teachers. In that regard, participants argued that contact hours would have to be made as meaningful as possible in relation to what was available outside class, by complementing, discussing, questioning or applying this information. For example, a teacher might not provide a lecture, but discuss with students their questions and thoughts about a high quality lecture from an external source that they viewed online before coming to class.

Related to this, participants noted that students have to be carefully supported in building "information literacy" (see Ch. 3: *Teaching: Do 5*). Other aspects that were mentioned with regard to the current and future generations and important to take into account in educational design, were an increased need for personalized education (see *Do 8*) and the role of new technologies in educational design (see *Don't know 3*).

8. Do facilitate personal learning paths for students.

EDview participants identified a general trend and need for more personalized learning paths for students, which was often based on perceptions that students from the current and future generations

are increasingly expected to distinguish themselves from others on the job market. This relates to UM's ambitions in the area of education differentiation, which aim to encourage and enable students to employ extra-curricular activities, as well as (co-)curricular activities in Global Citizenship Education (*Quality Agreements 2019 - 2024*). In the EDview data, several strategies for offering more choices to students in curriculum content were mentioned, such as electives and specializations, or open curricula such as the University Colleges and the Maastricht Science Program. The importance of counselling students and making them aware of consequences of their choices, e.g. in terms of opportunities and limitations for further education, was highlighted. Furthermore, participants stressed that such learning paths should be developed *with,* rather than only *for* students (see also *Do 6*), and that the role of staff mainly lies in facilitating, not pre-determining possible paths. In this regard, some participants described examples from outside UM of more radical forms of student-centered, self-directed learning environments, where students were enabled to develop their own learning objectives and trajectories from scratch.

Don'ts:

1. **Don't interpret a broader approach to PBL as "anything goes".**
   The UM view on education described in EDview's position paper implies diversification of educational approaches, yet it does not imply that anything goes. Teacher-centered approaches that do not take into account the principles of UM's PBL philosophy do not belong at UM. One educational approach that is often mentioned in this regard is the lecture, and in the context of tutorials, so-called "mini-lectures". If we follow UM's philosophy of PBL, a lecture is not a no-go, but it has to be clear how this lecture contributes to constructive, collaborative, contextual and self-directed learning. It has to be well placed in the student-centered curriculum, which counts for any other approach as well. EDview participants noted that we can currently find great examples of student-centered lectures in some programs, as opposed to examples of PBL tutorial sessions that have become teacher-centered and are far removed from UM's philosophy of PBL. The former we need to keep, the latter we need to change.

2. **Don't let assessment kill your educational design, but make it part of your educational design.**
   The misalignment between a PBL approach to education and current approaches to assessment was mentioned by many EDview participants as the main culprit for why PBL could not live up to its potential. The relatively large focus at UM on summative, standardized assessment where grades are often the only form of feedback, and students and teachers feel forced to "cover everything" was classified as problematic, because it "kills" critical, collaborative and constructive discussion, and self-directed learning. The literature furthermore shows that assessment practices in PBL environments that do not reward deep learning seem to have a negative impact on deep learning (Dolmans, Loyens, Marcq, & Gijbels, 2016). Assessment experts in EDview's focus groups, as well as teachers and coordinators from practice, argued that these issues might be overcome by moving from a framework of "assessment *of* learning" (which focuses exclusively on determining whether students have acquired sufficient knowledge and skills) to a framework of "assessment *for* learning" (which focuses not only

on judging, but also on steering and fostering students' learning to the maximum of their abilities (Schuwirth & van der Vleuten, 2011) and "assessment *as* learning" (which focuses on supporting students to become self-assessors).

This shift will indeed be further explored in the context of the recently established quality agreements; as will possibilities to introduce a greater variety of assessment forms (*Quality Agreements 2019 - 2024*). Importantly, assessment should be "fit-for-purpose", which means considering *what* we are assessing, *how*, and *why*, all of which influence the choice for a particular assessment approach (Brown, 2005). In other words, assessment should be "constructively aligned" with the intended learning outcomes and learning activities (see *Do 3*). In line with the UM philosophy of PBL, EDview participants argued that assessments tasks, in the same way as learning activities, should vary and reflect tasks from the professional or academic practice where graduates will be working (see *Do 2*). Participants emphasized that the design of assessment should be seen as something that is part of, rather than separated from educational design. In that sense, it was mentioned that remuneration for assessment design should be explicitly included in remuneration for educational design (see also Ch. 5: *Enabling Education: Do 3*).

3. Don't focus on grades: they are the poorest form of feedback.

Feedback was mentioned by EDview participants, including the educational experts, as the crucial ingredient for learning. The shift proposed in *Don't 2* would in many cases mean a greater emphasis on formative assessment - taking place *during* learning - rather than summative assessment - taking place *after* learning. In summative assessment, often the only feedback students receive is a grade, which was defined as "reductionist" and as "the poorest form of feedback" in the EDview data, as confirmed by literature (Shute, 2008). In formative assessment, with its intention to guide students' learning, feedback plays a crucial role. Feedback "needs to be detailed, comprehensive, meaningful to the individual, fair, challenging and supportive" (Brown, 2005). Many EDview staff participants were in favor of providing richer feedback to students, yet emphasized time pressures and remuneration issues (see Ch. 5: *Enabling Education: Do's 1 & 3*). The literature too acknowledges that providing proper feedback is "a tough task for busy academics. We must consider using the whole range of means available to us to make this possible, including computer-aided assessment and strategies for giving feedback efficiently such as assignment return sheets, assignment reports, in-class collective feedback and other means. (…) We can also use self-assessment, peer-assessment and group assessment, none of which should be regarded as a 'quick fix', because they take considerable briefing, training and rehearsal if they are to be effective, but can, when properly managed, save some staff time and they are extremely valuable in helping students interpret criteria" (Brown, 2005).

Notably, the educational experts in EDview's focus groups emphasized that students do not pick up feedback automatically: in the current learning culture, it was argued, feedback is often provided after the learning has taken place, and as such it is not picked up by students and used for future learning. An approach to assessment that may provide solutions and that was often discussed in the EDview data is "programmatic assessment", which "simultaneously optimizes assessment for learning and assessment for decision-making about learner progress" (van der Vleuten et al, 2012). This approach

takes the perspective of the program as a whole, rather than each specific course. It proposes that assessment activities in the program are mainly formative, focused on students' longitudinal development and accompanied by rich narrative feedback. Subsequently, high-stakes pass/fail decisions are made collaboratively by a group of experts based on the data from all assessment moments. Research shows that bias resulting from the inevitable subjectivity accompanying different assessment activities and expert judgement can be reduced by combining data from different moments and assessors (van der Vleuten et al, 2012). Staff participants in EDview confirmed that in an ideal situation, students are followed longitudinally, a variety of assessment methods is used to see "how the student is in a number of ways", and pressure is taken off of individual assessment moments. However, they emphasized that certain key conditions would have to be met before many programs could consider a shift toward such an assessment approach, particularly related to time and remuneration (see Ch. 5: *Enabling Education: Do's 1 & 3*).

4. Don't underestimate the detrimental effects of increased group size on students' learning.

Literature on PBL that discusses the ideal size of a tutorial group in which a seven steps structure is applied in its "classic" form (i.e. with all members sitting in a circle having a group discussion), shows that research results are not unanimous regarding group size, though "it is generally believed that a group of 6-8 students is optimal (Moust et al, 2005). It has been shown that increased group size negatively influences group dynamics and students' learning, with brainstorming and elaboration processes happening less fluently and deep, and with students having less space to discuss their individual ideas and questions, feeling more inhibited to contribute, and feeling more encouraged to "free-ride" (Moust et al, 2005). These issues were confirmed by EDview participants, who nominated the increasing tutorial group size as a major reason why learning in the current PBL environment could not be optimized. The quality agreements have focused on this point as well, and set as an ambition that "the group size of tutorial groups is 12-15 students in year 1 and 2 of the bachelor program by 2022" (*Quality Agreements 2019 - 2024*). Based on the literature and the EDview data, it is unclear whether this well-intended and challenging ambition is enough to fully optimize learning processes.

Additional measures may be considered, such as applying variations of the "classic" use of the seven steps structure when group size increases well beyond the ideal of 6-8. Such variations should focus on providing students with enough space to formulate and discuss their ideas and questions. The seven steps as a structure may still be useful, yet (part of) the whole-group discussion might for example be replaced with discussions in sub-groups, interactive presentations, role-plays, flipped classroom approaches, etc. The principles of constructive, collaborative, contextual and self-directed learning should be guiding in this process (see *Do 2*). The EDview data indeed shows that a number of such variations is being applied in different UM programs.

5. Don't view internationalization as an "extra flavor" of educational design: it is a basic ingredient.

EDview participants with expertise and experience in the internationalization of education emphasized that internationalization should be approached as something integral rather than an "add-on" to curriculum design. This means integrating objectives related to internationalization in the overall

course and curriculum objectives. The starting point for formulating such objectives should be the knowledge, skills and competencies needed for the future professions of students (see also *Do 1*), or in other words, to prepare students "for a future in which they can successfully function in a globalising society and labour market" (*Internationalisation Strategy for FHML Education 2.0*, 2015). Hence, internationalization goals will look different for each program and depend on the demands of the different fields where graduates will be working. Notably, participants mentioned that the same counts for all aspects of diversity, i.e. considering not only international diversity but cultural diversity more broadly, as well as other diversity aspects, such as socio-economic diversity.

EDview participants noticed that currently, internationalization was sometimes approached as an "add-on" or an "extra flavor" to the curriculum, for example in the form of study abroad opportunities, stand-alone intercultural communication training, or specific international assignments. It was also mentioned that literature was sometimes heavily focused on one or two continents rather than including resources from other regions too. Participants stressed that designing an international program means thinking more deliberately about what the objectives are and how these can be achieved and integrated in the curriculum. However, they also expressed that this process generally demands more time and effort from designers (and from coordinators and teachers) compared with "regular" design, coordination and teaching processes, for example with regard to finding appropriate literature, establishing international partner relations, and devoting time to discussing diverse viewpoints in class (see also Ch. 3: *Teaching: Do 6*). Related to this, participants noted that it is a challenge that we do not yet fully master in all programs to design education in such a way that the cultural and international diversity of students and staff becomes an asset and advantage to education. Considering the scarcity of available resources, it was argued that the internationalization of programs may currently be more a result of staff's enthusiasm than a structural embedding in design and innovation processes (see also Ch. 5: *Enabling Education: Do's 3 & 4*).

The integral view on internationalization described above has been recognized at UM. Objectives have for example been set to better integrate international goals and themes in existing programs (*Community at the CORE: Strategic programme 2017-2021*; *Self-evaluation report 2018. Certificate for Quality in Internationalisation*). This fits with internationalization being one of the four main themes of UM's vision of education (UM Vision on Education, 2018). In this vision, internationalization is framed as encompassing an internationally diverse student and staff population, offering international exchange opportunities to students and staff, maintaining international partnerships, considering different languages of instruction, as well as emphasizing the "international classroom" and international curriculum themes. Although the literature does not contain a straightforward definition of internationalization in higher education, efforts generally focus on both internationalization "at home" and "abroad", and at internationalization activities as well as outcomes (Knight, 2004), with UM fitting this trend. In line with what was described above and in *Do 1* about taking the intended learning outcomes as a starting point and as a justification for the "why" of internationalization, a clearer distinction between internationalization activities or tools and internationalization outcomes or goals (as means working towards an end) may be considered in the UM vision of education. This may also help addressing the concerns of some EDview participants that despite UM's emphasis on

internationalization in its vision and in areas such as recruitment, integrating internationalization in educational design and teaching may be lagging behind in some programs.

Don't knows:

1. **How can we personalize education and assessment while being faced with continuously growing numbers of students?**

   Several *Do's* and *Don'ts* in this chapter highlight the importance of small-scale, high quality education, with emphases on teacher guidance, feedback, personalization and fit-for-purpose assessment. How are we going to do that being faced with continuously growing numbers of students? This was a frequently discussed question in the EDview data, yet one with no satisfying answer so far. Some EDview participants suggested that to maintain quality, growing student numbers need to be matched with growing staff numbers. A start has been made with the Quality Agreements, which in an explicit response to the growing student numbers state that UM intends to hire more staff to be able to deliver more and high quality contact hours (*Quality Agreements 2019 - 2024*). Explorations of additional measures are needed if we intend to move in the direction described in this and the following chapters.

2. **What does an ideal integration of research and education look like?**

   Another frequently debated topic in the EDview data was the balance between academic and professional skills in UM bachelor and master programs. In its vision and strategic program, UM positions the integration of research and education as a main theme (*Community at the CORE: Strategic programme 2017-2021*; UM Vision on Education,2018), and research-based education has been taken up in a number of programs. In a recent EDLAB project, a UM handbook was developed on integrating research skills in PBL curricula and courses (EDLAB, 2017). However, some EDview participants, students and staff alike, struggled with this integration in practice: they for example felt that some research is too specific to include in certain educational programs, or that many students of certain programs do not pursue a career in academia after graduation and therefore feel that the program should emphasize professional skills more. Other participants, however, stressed the similarity and overlap between many research and professional skills, such as critical thinking, problem analysis and communication, and argued that learning in the context of a research project is highly beneficial.

   Some questions and issues that came up in this debate link to the core identity of a university: What is a university for? Is it a research institution? Is it an institution that delivers academics? Is it an institution that prepares students for their future careers outside academia? Is it all of this? Is it more than this? How do these elements relate to each other? What are the implications for education, in terms of content and skills training? Starting a wider debate on these questions within the UM community may be considered.

3. How should we optimally integrate technology in education?

The role of technology in education was discussed in two ways in the EDview data: 1) the technological skills and competencies that graduates should master, i.e. the *objectives* of learning, and 2) the technological tools that can be used to facilitate and support education, i.e. the *means* of learning. With regard to the former, EDview participants generally agreed that the needs of the future profession should determine the programs' intended learning outcomes or objectives regarding technology and that these should be integrated in the curriculum, in line with *Do 1*.

With regard to the second discussion, the picture is more blurred. Participants agreed that decisions to use technology for learning should be made on the basis of the added value of the technology for education rather than it just "being there". This added value could lie in different areas, such as better learning outcomes, higher efficiency, lower costs, wider access, or increased motivation. It was argued that technological tools, such as simulated learning environments, learning analytics, or online collaboration tools could be highly beneficial for learning. A consultation round among UM program directors in 2017 showed that they identify many scenarios for which digital tools seem promising, including digital assessment, feedback, grading and engaging learners in face-to-face and online education (*Report: Inventory on future plans of faculties*, 2017). However, EDview participants also noted that in some cases the use of technology could unnecessarily complicate education, lead to increased inequality or have other risks. Furthermore, for some state-of-the-art technologies, research on the effects on learning is still lacking, or, as was noticed, we are not aware of it. Another complicating factor that was often mentioned was the lack of knowledge and skills among staff to use state-of-the-art technologies (and lack of time to develop such skills), an issue that is apparent in higher education generally (VSNU, 2017). Even older technologies, such as smartboards that were purchased by many faculties, are not often put to use, due to inexperience on how to use these or a feeling that low-tech environments do the work too and even better, some would argue.

In line with Ch. 3: *Teaching: Do 8* and Ch. 5: *Enabling Education: Do 2* it was generally agreed that forcing technology on educators does not work and that decisions on which tools to use should be made bottom-up. Yet, there is a lack of knowledge on the possibilities, and consequently on the skills to implement these. The tremendous potential of new and unexplored technologies for education was often mentioned as an area that needs further investigation, specifically in the context of PBL environments (Verstegen et al, 2016), taking into account the complexities involved in staff training and potential risks and unintended consequences.

CHAPTER 2: COORDINATING EDUCATION

Do's

1. Do trust the teachers: provide autonomy and enhance ownership of education.
2. Do communicate extensively with teachers to calibrate messages for students and to facilitate peer learning.
3. Do communicate extensively on different organizational levels to ensure alignment within a program.
4. Do learn from other courses and programs.
5. Do use quality assurance infrastructure as an opportunity to start and maintain a conversation with all stakeholders, including students, on how education can be improved.
6. Do explain the why and how of the educational design to students.

Don'ts

1. Don't force methods onto course coordinators and teachers.
2. Don't use checklists for the UM philosophy of PBL.
3. Don't use student evaluations to justify a move away from UM's PBL philosophy.

Don't knows

1. How can we achieve that new course and program coordinators do not have to reinvent the wheel?

Do's

1. Do trust the teachers: provide autonomy and enhance ownership of education.

Trust was a ubiquitous concept in the EDview data. Teachers overwhelmingly felt they perform at their best when they feel trusted by coordinators and higher management, autonomous and free to approach their sessions as they see fit, as opposed to feeling controlled. The same counts for course coordinators, who emphasized the importance of ownership and feeling trusted by program management to approach their course as they see fit. Research indeed points to the positive effects of fostering ownership and empowerment among staff, in terms of student and staff satisfaction and improvements in processes of teaching and learning (Bendermacher, oude Egbrink, Wolfhagen, & Dolmans, 2017). At the same time, participants noted a potential tension between giving freedom and autonomy to teachers and coordinators, and aligning sessions and courses in a program (see *Do 2*).

EDview participants emphasized that creative and innovative ideas of individual teachers and coordinators have to be encouraged and supported. In line with EDview's position paper, these ideas obviously have to fit within the UM philosophy of PBL, and, as described in *Do's 2 & 3*, shared and discussed in staff meetings. The power of this bottom-up approach to innovation has been

demonstrated by the *Leading in Learning* project that ran at UM in 2010-2015 (Gijselaers & Bastiaens, 2012). Numerous initiatives from teachers and coordinators were financed and facilitated through this university-wide project, which explicitly aimed to anchor this bottom-up approach in a structural way in faculty culture and policies after the project had ended. The EDview data supports these starting points of *Leading in Learning*, as participants mentioned that there should always be room and support for innovation, and that teachers and coordinators were in the best position to come up with ideas.

Inevitably, time and money were issues that often came up in this regard (see Ch. 5: *Enabling Education, Do's 1 & 3*). This was underlined by the *Leading in Learning* project management as well (Gijselaers & Bastiaens, 2012), who moreover asked attention for crucial factors regarding anchoring innovation in faculty policies, such as support from leadership. Yet, the sustainability of the innovations remained difficult to manage. The fact that these factors were prominent in the EDview data as well indicates that there is more work to do in this area (see Ch. 5: *Enabling Education: Do's 1, 3 & 4*).

2. **Do communicate extensively with teachers to calibrate messages for students and to facilitate peer learning.**

Another ubiquitous concept in the EDview data, when it comes to course coordination, was communication. Extensive communication with teachers before and during a course was often mentioned as the only and ultimate way to achieve alignment of sessions within a course. While this has the potential to interfere with providing teachers with a sense of freedom and trust (see *Do 1*), EDview participants generally argued that these two issues are not in contradiction. They emphasized that it is crucial for all teachers in a course to be on the same page regarding the overall content and objectives of the course and the general messages to students, to facilitate constructive learning. Within these boundaries, however, there could be room to handle the details in different ways. The same counts for the program level, where the details of the specific courses could be left to the coordinators. Notably, from the student perspective, the calibration of teachers' messages to students was a major issue in the EDview data, and it was felt that calibration currently was not always optimal.

Ideally, teachers would share their approaches in teacher meetings before and during the course, where they would have to feel safe and trusted, and where they can learn from each other's approaches, successes and struggles. Through extensive communication in and beyond these meetings, shared ways with broad support might even be found. Importantly, it was noted that not all teachers feel a need to approach things in their own way, and that especially novice teachers may feel insecure about the approach and message to students. Also in these cases, extensive communication in teacher meetings, and special attention from course coordinators, was mentioned as a solution to take away insecurity. The importance of communication for program alignment, including balancing between freedom and consistency, has been emphasized in a previous UM project on PBL as well (Maurer, Reithler, & Brunotte, 2011).

Next to serving the purpose of alignment and calibration, these meetings might serve as a form of staff development, as was noted by both participants from practice and educational researchers. Current

insights from research on staff development indeed proclaim that community building, learning by doing, and providing space for feedback and reflection are some of the key features of effective staff development programs that positively influence teacher effectiveness (Steinert et al, 2016) (see also Ch. 4: *Explaining Education, Do 5*).

3. Do communicate extensively on different organizational levels to ensure alignment within a program.
   For program management alike, extensive communication with all stakeholders was mentioned as the key to successful alignment of courses within a program, and alignment of these courses with the overall program objectives – some of which are prescribed by external stakeholders such as professional associations on a national level. Program directors often found themselves in the "in between position" between course coordinators and teachers on the one hand, and faculty and university level management and external stakeholders on the other hand. Again, extensive communication on all these levels was mentioned as key (see also *Don't know 1*). Regarding the alignment of courses in a program (see Ch. 1: *Designing Education, Do 4*), as well as the training and development of staff, staff meetings that included the course coordinators and teachers were mentioned in a similar way as the teacher meetings described in *Do 2.*

4. Do learn from other courses and programs.
   As described in *Do's 2 & 3*, participating in a community of teachers, course coordinators, program directors and other staff was mentioned by EDview participants, both from a practical and a theoretical perspective and supported by the literature, as the preferred way to learn about all aspects of education. It was often noted that educational design and coordination should not happen in isolation, and that best practices should be shared for use across different programs and courses.

5. Do use quality assurance infrastructure as an opportunity to start and maintain a conversation with all stakeholders, including students, on how education can be improved.
   Rather than seeing quality assurance procedures as a controlling tool from central management, as it was perceived by some EDview participants, others mentioned it can instead be viewed as an opportunity to have a continuous conversation with involved teachers, coordinators, support staff and students about how the course or program could be improved. This generally means a shift away from a too-heavy focus on written evaluation reports, to using these reports as one of the sources of input for constructive meetings on improving the course or program. Quality assurance staff could facilitate these meetings and also serve as a conversation partner. Research indeed indicates that a human relations orientation, in which collaborative teaching/learning communities are cultivated (see also *Do's 2 & 3*), is conducive to quality culture development and can enhance teachers' empowerment, commitment and communication satisfaction (Bendermacher, oude Egbrink, Wolfhagen, Leppink, & Dolmans, 2017; Kleijnen, Dolmans, Willems, & van Hout, 2014).

6. **Do explain the why and how of the educational design to students.**
   Besides attention for communication with staff, communication with students is obviously a major aspect of course and program coordination. One aspect that was frequently mentioned concerned explaining the choices made in educational design to students, and communicating the expectations from students that follow from these design choices. Currently, as it turned out from the EDview data, the reason for "doing PBL" was far from clear to many student participants in EDview, and they often noted to be unaware of proper explanations of why certain methods and assessment were used in a course and program (see also Ch. 4: *Explaining Education: Do 1*). Considering that students' motivation, sense of responsibility and effectiveness increases when they understand why methods are chosen, how these are intended to work, and what is expected from them, it is crucial to pay attention to this when explaining the course or program to students.

   The UM philosophy of PBL should be taken as a starting point for this explanation, making students aware of how the selected methods are intended to facilitate constructive, collaborative, contextual and self-directed learning. This should include an explanation of how the assessment methods relate to this (see also Ch. 1: *Designing Education: Do's 2 & 3,* and Ch. 3: *Teaching: Do 2*). Taking a broader approach to PBL as described in EDview's position paper implies an increasing diversity of educational methods that students encounter during their program. Hence, it becomes even more important for each and every course to explain their ways and to situate it in relation to previous and future courses, and to the UM philosophy of PBL.

Don'ts:

1. **Don't force methods onto course coordinators and teachers.**
   As follows from *Do 1* on providing teachers and coordinators with trust, autonomy and support to approach their sessions and courses as they see fit, it is a no-go to make them use a method they do not support. As described in EDview's position paper, currently some teachers felt forced and controlled to use the seven steps structure or other procedures, whereas they felt other approaches might be a better fit. EDview participants generally noted that forcing never works, as it will lead to resistance and suboptimal implementation of the method. However, this *Don't* should not be interpreted as a license for teachers and coordinators to "do as you please": *Do's 2 & 3* clearly state that teachers and coordinators should continuously discuss their approaches, including how they fit in the course, program and UM philosophy of PBL. This necessarily entails that teachers and coordinators only use methods that are constructively aligned with the assessment methods and the intended learning outcomes of the course and program (see Ch. 1: *Designing Education: Do 3*). Moreover, staff who do not support methods within the UM philosophy of PBL may not have a place at UM (see Ch. 5: *Enabling Education, Don't 1*).

2. **Don't use checklists for the UM philosophy of PBL.**
   As mentioned in EDview's position paper, the broader approach to PBL as based on a philosophy rather than a procedure may lead to insecurity and confusion about what is and what is not PBL. One thing

that EDview participants mentioned as an undesirable solution to this issue was the creation of a "checklist culture" or "control culture", in which teachers and coordinators for example would be asked to rate their course on the items of constructive, collaborative, contextual and self-directed learning. Rather than making the adherence to the UM philosophy of PBL a checkbox exercise that could easily be manipulated, participants advocated for continuous and constructive dialogue as described in the above *Do's.*

3. **Don't use student evaluations to justify a move away from UM's PBL philosophy.**
   Several cases were described in the EDview interviews and focus groups where student evaluations "dictated" coordinators' decisions in redesigning or adapting a course. Whereas student involvement in course design is considered highly beneficial, as described in Ch. 1: *Designing Education: Do 6*, it was also mentioned that student opinions should be treated with care, and that they should never be used to justify a move away from UM's philosophy of PBL. See also Ch. 3: *Teaching: Don't 1:* never solve problems in student-centered education with teacher-centered solutions.

Don't knows:

1. **How can we achieve that new course and program coordinators do not have to reinvent the wheel?**
   EDview participants noted that besides the existing staff development courses for teachers, there might be a need for more training and support for course and program coordinators. Learning by doing, involving trial and error, was mentioned by these coordinators as their current strategy to develop coordination skills, which was also considered the most effective way to learn. Yet, an explicit training component and/or more (peer) support throughout the learning by doing process might be appreciated, as some felt they were reinventing the wheel, for example with regard to involving all stakeholders in the design and education process, and maneuvering between the different levels of stakeholders. More details about this need would have to be further explored, including how it relates to existing leadership training at UM.

CHAPTER 3: TEACHING

Do's

1. Do find your strength as a teacher.
2. Do manage students' expectations.
3. Do create a safe environment for students to share their ideas.
4. Do be aware of the objectives, content and educational approaches of the rest of the course and program.
5. Do guide students carefully to become self-directed learners.
6. Do use cultural diversity among students and teachers as an asset.
7. Do use and allow technology in the classroom in a way that fits your teaching style and the UM philosophy of PBL.
8. Do share your experiences, ideas and struggles with your peers.

Don'ts

1. Don't solve problems in student-centered education with teacher-centered solutions.
2. Don't see the evaluation of education as an end: it is a means.

Do's:

1. Do find your strength as a teacher.

Some teachers may excel in using novel technologies for education, while others may thrive in "low tech" classrooms using nothing but a whiteboard. EDview participants emphasized that teachers should be given the space to find out which teaching styles fit best with who they are - which relates to Ch. 2: *Coordinating Education: Do's 1, 2 & 4, and Don't 1* on providing teachers with trust and autonomy, and not forcing methods onto them. This means that teachers need to ask themselves what their strengths and weaknesses in teaching are, and cultivate their strengths into a successful teaching approach – while ideally also working on their weaknesses. Some may for example put emphasis on involving students in their research, or connecting theory with their experiences from practice; others on creating a safe learning atmosphere where students feel free to open up, or encouraging students to make connections with their prior knowledge and seeing the bigger picture of things. While all of these things together are important for constructive, collaborative, contextual and self-directed learning, and, as advocated in the *Do's* below, a "base level" is necessary for all teachers, teachers may put different emphases depending on their strengths.

EDview participants generally recognized a large diversity among teachers with regard to attitudes towards teaching and other educational tasks, ranging from rather uncommitted to highly passionate. They also noted, however, that education has likely something to offer for every teacher; it is just a

matter of finding that one aspect that makes education valuable to you, and turning this into your strength as a teacher. For those "naturally passionate" teachers, the value of their role seemed obvious. For those less committed, benefits may lie in educating their next generation of PhD students, being able to dive into a topic related to their research, working on their communication and public speaking skills, or having students do assignments, experiments or projects of use to them. EDview participants generally noted that the great teachers are those that not "just follow the manual", but that add their personal experiences, literature suggestions or passion for the topic. Overall, EDview survey respondents were satisfied about the quality of tutors and other teachers (total means 3.9 and 4.1, respectively, scale 1-5).

2. Do manage students' expectations.

   Expectation management was a recurring topic in the EDview data. Students felt that it works well for them when teachers are clear in what they expect from their students – even when students initially may not like some of these expectations. As also described in Ch. 2: *Coordinating Education: Do 6*, currently, it is often unclear to students what is expected of them when it comes to the educational approach. Teachers are well-positioned to manage students' expectations on a classroom level, which is all about making the implicit explicit. This should include making explicit the expectations we have from students related to constructive, collaborative, contextual and self-directed learning. For example, we expect students to construct their own knowledge networks by critical discussion that involves prior knowledge, to share certain responsibilities in a group, and to direct their own learning by for example choosing their topic and formulating their objectives. Importantly, the "why" of these expectations should not be forgotten (see also Ch. 1: *Designing Education: Do 2*).

3. Do create a safe environment for students to share their ideas.

   Another crucial aspect of the teacher's job, which many EDview student and staff participants stressed, is creating a safe environment where students feel open to share their thoughts, questions and ideas. In a student-centered educational approach where learning takes place in the form of collaborative, critical and constructive discussions, students necessarily have to participate, and it is the teacher's task to encourage this participation. Some successful strategies that were mentioned by EDview student and teacher participants include teachers taking on a vulnerable attitude themselves, stressing that no one knows everything and that we can learn from each other and make mistakes, giving reinforcing feedback to students, and spending time on the group getting to know each other. Such aspects are underlined by existing literature (Driessen & Overeem, 2013).

4. Do be aware of the objectives, content and educational approaches of the rest of the course and program.

   Rather than focusing only on their own sessions, a good teacher is aware of what happens in the course and the program as a whole, EDview participants argued. To enable constructive learning (see Ch. 1: *Designing Education: Do's 2 & 3)*, teachers should adapt their sessions to what students already know,

and link it to the other topics in the course. Also, an awareness of the educational approaches used in the rest of the course and program enables teachers to position and explain their approach in relation to these (see Ch. 1: *Designing Education: Do 4*), which may help making expectations from students explicit (see *Do 2*).

5. Do guide students carefully to become self-directed learners.

Students' self-directed learning needs a lot of directing from teachers, commented the educational experts in EDview's focus groups. Also in the literature it is emphasized that students need extensive help to become self-directed learners, with teachers helping students "gradually to master cognitive and regulative learning skills to become independent and lifelong learners. (…) The main teacher tasks in this conception are initiating and supporting the thinking activities that students employ in their learning" (Moust, van Berkel, & Schmidt, 2005). This involves making students aware of their knowledge networks, and how they can expand these networks by searching for and building new knowledge through critical discussion and reflection. EDview participants underlined that teacher support in these areas - such as providing direction in literature searches and reviews, specifically in light of the overload of available information in the digital world, and guidance in critical questioning during discussion - would have to be substantial at first and then gradually decrease.

It was noted that teachers currently often feel they lack the knowledge and practical skills to adequately guide this process. Being a central aspect of the UM philosophy of PBL, this may deserve more attention in staff development programs (see Ch. 4: *Explaining Education*). Obviously, students have their role to play in this area too. A recent EDLAB project looked into how self-regulated learning skills can be fostered among UM students, and developed trainings focused on awareness of, reflection on, and practicing of effective learning strategies (EDLAB, 2018).

6. Do use cultural diversity among students and teachers as an asset.

While generally satisfied with the cultural diversity among UM students and staff, as found in the EDview survey (total mean 4.0, scale 1-5), participants in EDview's interviews and focus groups, particularly international students, noticed that teachers are not always equipped to manage cultural diversity in the classroom. However, there was general agreement among students and teachers alike that cultural diversity is an asset to education, as it could result in richer discussions and broader knowledge networks. An extensive body of research indeed exists that demonstrates the effectiveness of culturally diverse teams compared with less diverse teams. For members of such teams, including teachers, some key aspects to keep in mind are an open attitude, being sensitive to differences, giving space to different opinions, suspending judgment, and listening, as mentioned by EDview participants as well as described in a framework for interculturally competent teaching in diverse classrooms (Deardorff, 2011). The need to foster such skills among UM staff has previously been recognized and objectives to address these issues have been set (*Community at the CORE: Strategic programme 2017-2021*; *Self-evaluation report 2018. Certificate for Quality in Internationalisation*).

7. **Do use and allow technology in the classroom in a way that fits your teaching style and the UM philosophy of PBL.**

   A recurrent theme in the EDview data was the use of technology in the classroom, including students' laptops and smartphones. Some had strong opinions on this, either wishing to ban or to allow technology. In general, however, participants felt that "laptops aren't the issue, but how you use them" (see also *Do 1*). If used in a way that does not inhibit critical and dynamic discussion, and ideally even facilitates and enriches this discussion, teachers welcomed students' technological tools. This also included for example software to collaborate online or to produce mind maps.

   Regarding teachers' use of technology, it was felt that teachers should be free to use whatever fits their teaching style, in line with *Do 1*, ranging from nothing at all to state of the art tools. However, as noted by many EDview participants, and also described in Ch. 1: *Designing Education: Don't know 3* , many UM teachers are not aware of up to date possibilities of using technology for education and learning, or do not feel comfortable or equipped to use these technologies. More attention for this in staff development programs and teacher communities where best practices are shared might be considered.

8. **Do share your experiences, ideas and struggles with your peers.**

   In a similar way as described in Ch. 2: *Coordinating Education: Do 2*, and in line with current insights on staff development, teachers are encouraged to connect with peers, at both formal and informal platforms, to learn from each other. Examples of initiatives to facilitate and encourage the development of such teacher communities are the UM Teach-Meet sessions hosted by EDLAB (https://edlab.nl/teachmeet/), and the FASoS Teaching & Learning Blog - an online platform for the exchange of ideas, best practices and opinions (http://fasos-research.nl/fasos-teachingblog/). A previous investigation of staff development needs at UM and two other universities indeed found that teachers are generally eager to improve their ways and feel that they can learn a lot from their peers (van de Wiel, de Ponti, & Schlusmans, 2018).

Don'ts:

1. **Don't solve problems in student-centered education with teacher-centered solutions.**

   As described in EDview's position paper, some participants witnessed teachers employing teacher-centered approaches in their classrooms rather than student-centered ones, possibly as a response to the known challenges of small scale student-centered education, such as the "ritual behavior" that students may develop (Dolmans, Wolfhagen, van der Vleuten, & Wijnen, 2001). Instead of reaching back to teacher-centered approaches, that teachers themselves may often be more familiar with, it is essential not to lose sight of the UM philosophy of PBL and the type of graduates we intend to deliver. Solutions to the challenges of student-centered education should always be found through student-centered interventions and holding on to this philosophy (Dolmans et al, 2001). Some issues in this

regard may be best addressed by teachers, such as stimulating discussion dynamics and providing the right amount of support, yet others have to be addressed through educational design, such as designing learning tasks with the right level of complexity.

2. **Don't see the evaluation of education as an end: it is a means.**

   EDview participants described that midterm and final evaluations of PBL tutorial group dynamics were often experienced as "obligatory hurdles" that had to be taken. Many times, they would argue, these evaluations had no real impact and were conducted simply because "they had to be done". Rather than seeing the evaluation of group dynamics, or of any aspect of the educational approach, as an "end", EDview participants noted the value of seeing it as a means. They described cases where group dynamics improved when the evaluation was guided well and had a clear purpose of improving the process. More important than evaluation rounds always happening at the same intervals is that evaluation happens for a reason, on moments that it is needed. This is in line with Ch. 2: *Coordinating Education: Do 5,* on seeing quality assurance procedures as an opportunity to start a conversation about improving education.

CHAPTER 4: EXPLAINING EDUCATION

MARKETING & COMMUNICATION, STUDENT & STAFF TRAINING

Do's

1. Do focus primarily on the why of the UM philosophy of PBL rather than the how.
2. Do provide multiple examples of the UM philosophy of PBL in practice.
3. Do send out the same message on all fronts.
4. Do link communication staff to educational practice, student and staff trainers, and educationalists.
5. Do teach what you preach: design student and staff training according to the UM philosophy of PBL.
6. Do give attention to students and staff coming from other universities: teach them and learn from them.
7. Do provide training and support not only to new staff but to all staff.

Don'ts

1. Don't rely only on formal training or only on learning by doing.
2. Don't position the UM philosophy of PBL as the only truth.

Don't knows

1. How can we best facilitate and maintain teacher communities, and include 'less education-minded staff' too?

Do's:

1. **Do focus primarily on the why of the UM philosophy of PBL rather than the how.**
   The EDview data as well as a current EDLAB project on student retention (van den Wijngaard, 2018) show that PBL introduction trainings for students largely focus on the procedures in the tutorial group (e.g. the seven steps), and do not fully succeed in getting the message across of "why we do PBL" and why these procedures are designed the way they are. The same counts for the "tutor trainings", which currently also largely focus on the tutorial structure. Moreover, a previous UM project on PBL reported misconceptions among students and staff about the rationale of PBL (Maurer et al, 2011). EDview participants who were involved as trainers in the tutor trainings mentioned that they did approach and explain PBL more broadly according to its theoretical principles, and that they then used a seven-steps-like procedure as an example of how these principles could be applied – partly because the principles were perceived by teachers as too abstract and hard to remember and apply. As a result, teachers who followed these trainings took away the seven steps rather than the theory behind it. In general, introduction trainings were rated relatively low in the EDview survey by both students and staff (total mean 3.7, scale 1-5). Also in marketing materials, the seven steps often take a prominent place as the "standard" way of doing PBL at UM, with alternatives being mentioned rather briefly and positioned as "deviant" from the standard (Mori, Skarpeid, & Wasenitz, 2017).

The current dominant way of communicating about PBL as the tutorial structure rather than a broader philosophy, which is perpetuated and reinforced by the content of PBL introductions to current and prospective students and teachers, was found to be a key reason why seven-steps-like structures are perceived as a standard from which teachers should not deviate, despite previous broader conceptualizations of PBL at UM (*Community at the CORE: Strategic programme 2017-2021*; Mori et al., 2017; *Self-Evaluation Report for the Institutional Audit 2018*). As a resolution, EDview participants argued that the core focus of PBL introduction trainings for students and teachers, as well as marketing materials for prospective students, should be on the overarching UM philosophy of PBL and its "why", i.e. the ideology and theory behind it, as described in EDview's position paper. As current practice is more diverse than the tutorial structure, and this diversity is likely to increase in the future, it is increasingly important to explain the overarching philosophy that keeps it all together, and not to take one approach as a standard. Only then will we be able to move beyond a restrictive focus on procedures, as explained in EDview's position paper, and do justice to what we stand for: the full potential of PBL philosophy. It would be important to provide this explanation in a language that is tailored to the target audience of students or teachers. This aligns with the UM quality agreements that aim to improve PBL and tutor trainings and establish a UM-wide frame of reference for these trainings (*Quality Agreements 2019 - 2024*). Furthermore, evidently, the "how" needs attention as well: read further at *Do 2*.

2. Do provide multiple examples of the UM philosophy of PBL in practice.

After learning about the overarching UM philosophy of PBL (see *Do 1*), there is evidently a need among current and prospective students to know what is expected of them in practice, and among teachers to know how to apply this philosophy in their teaching practice. Currently, the way PBL is introduced to students does not paint the diverse picture that they will encounter in practice, EDview student participants commented. Considering the diversification of approaches across courses, the ideal place for explaining these approaches to students, including practical expectations, is on course level, as mentioned in Ch. 2: *Coordinating Education: Do 6*. For prospective students, it would be important that marketing materials reflect the existing and desired diversity of approaches, and include a diverse pallet of formats and methods as examples of how the UM philosophy of PBL is translated into practice in different programs and courses – promoting not one typical way, yet emphasizing the shared philosophy.

Providing multiple examples of this translation is essential for staff trainings as well, as staff reported having a hard time imagining how different ways than a seven-steps-like structure could look like. EDview data, including the survey, shows that staff generally supported a broader interpretation of PBL, yet many felt they did not have the knowledge, tools, freedom or time to translate this view to the practice of their course. Regarding the first three aspects, changes in staff development strategies could help. By providing staff with more examples from practice (see also Ch. 1: *Designing Education: Do 2 and Don't know 1*) and thinking together of how different approaches may look like, staff indicated they may feel more empowered, equipped and free to invent a way that fits their context best.

Importantly, participants noted that examples of different approaches should come from teaching staff rather than policy makers, which is in line with views of staff development as peer learning (see *Do 5,* and Ch. 2: *Coordinating Education: Do 2,* and Ch. 3: *Teaching: Do 8*), and that it is crucial to leave decisions up to the teachers.

3. Do send out the same message on all fronts.

This might be an obvious statement, yet one that has consistently proven to be difficult to achieve in practice, as currently different interpretations and explanations of UM's educational approach circulate that may lead to mixed messages for students and teachers. While diversity on the level of practical approaches is to be celebrated, this needs to be situated in the overarching UM philosophy of PBL, and it needs to be clear how these two levels relate. This message, as presented in EDview's position paper, needs to be the same on all fronts, internally and externally, including introduction trainings for students and staff, promo team presentations, the UM website and other online and offline marketing materials, policy documents, course materials, information accompanying job descriptions, and other publications. As one participant noted, the UM philosophy of PBL "has to become part of our DNA", and effective communication plays a major role in this process. Related to this, it was mentioned that trainings on PBL need to reach the whole continuum of education, including designers, coordinators, teachers, students, managers and evaluators of education.

4. Do link communication staff to educational practice, trainers, and educationalists.

One strategy that may help achieve *Do 3* is fostering stronger relations between all staff who are involved in communicating about PBL, such as staff responsible for marketing and communication, trainers involved in student and teacher trainings on PBL, and educationalists who may help explain the philosophy behind PBL and translating this to language specifically targeted to students and teachers.

5. Do teach what you preach: design student and staff training according to the UM philosophy of PBL.

Introducing PBL to students or staff by means of a lecture type in which the learner's only role is to listen passively is not the way to go, explained an EDview participant. If we are serious about our educational philosophy, all education at UM, including student and staff development trainings, have to be designed according to this philosophy, it was noted. This means an emphasis on contextual learning, as well as constructive, collaborative and self-directed learning. In line with this, EDview student participants noticed that they often did not remember aspects from their formal trainings on PBL, and rather "learned by doing". They underlined, however, that there should be some formal component supporting this process, where the reasons for the approach are explained and expectations are made explicit. As mentioned earlier (see *Do 2* and Ch. 2: *Coordinating Education: D. 6*), this is ideally organized on course level, staying close to the context of students' learning.

Also for staff development programs it was mentioned earlier that learning in the context of staff communities (see Ch. 2: *Coordinating Education: Do 2,* and Ch. 3: *Teaching: Do 8*) is an effective way to learn, and is in line with a contextual, collaborative, constructive and self-directed approach. An often-mentioned suggestion was the facilitation of informal and interdisciplinary teacher communities - where experiences and best practices are shared, bottom-up initiatives are developed, and teachers learn from each other – which was argued to be even more important for staff development than formal training. Staff development trainers can then take the role of a coach rather than a teacher. The current UM University Teaching Qualification program indeed takes these principles as a starting point, as it uses teachers' experiences from practice as learning cases, and puts emphasis on reflection, self-regulation, feedback and collaboration (van de Wiel et al, 2017). In the process, it contributes to building communities of staff who can learn from each other. However, it was found by EDview participants involved in the organization of staff development that it is very difficult to find effective and sustainable ways of facilitating such communities, especially informal ones (see also *Don't know 1*).

6. Do give attention to students and staff coming from other universities: teach them and learn from them.

Many EDview participants brought up the issue of students transitioning from other universities to UM, notably for their Master or exchange program, and who were less familiar with the PBL approach at UM than students trained here. It was argued that these students deserve extra attention with regard to introducing them to PBL, which has indeed been established as one of the quality agreements to be executed in the coming years (*Quality Agreements 2019 - 2024*).

Regarding staff coming from other universities to work at UM, the EDview survey found significant differences between staff who trained at UM themselves and staff who trained elsewhere. Both groups differed in how satisfied they were about the UM educational approach being PBL, how PBL was carried out in practice, the introduction they received on PBL, and the extent to which UM education encourages students to self-direct their learning and is based on professionally relevant problems. The staff coming from other universities were significantly less satisfied on these items. Besides considering extra attention for this group in the form of improved staff training, we might also pay more attention to learning from this group: why are they less satisfied? Which experiences do they bring that may be relevant for UM? Which ideas do they have on how we can do things differently and better? Related to this, some EDview participants advocated for an open, outward-looking attitude to what goes on in the rest of the higher education world, and learning from other approaches internationally (see also *Don't 2*).

7. Do provide training and support not only to new staff but to all staff.

This issue came up several times in the EDview data: that we should pay attention to the development of all staff, not only newcomers. This has been taken up as a quality agreement as well, with resources being made available for all staff to devote time on their continuous professional development (CPD) (*Quality Agreements 2019 - 2024*). While generally regarded as something positive, it was mentioned

that this agreement alone does not guarantee that all staff will take their professional development in education seriously (see also *Don't know 1*). Carefully considering how to best present the CPD program – e.g. as an initiative resulting from our care about education rather than as something "teachers have to comply with and spend hours on" – was noted as important, as well as thinking further about what "counts" as CPD and if teachers should explain their choices. In that sense, it was largely felt that teachers should not be faced with more bureaucracy and paperwork to complete (see also Ch. 2: *Coordinating Education: Do 1:* Do trust the teachers).

Don'ts:

1. **Don't rely only on formal training or only on learning by doing.**
   The effectiveness of formal trainings in which learners are taken out of their work context has proven limited, argued the educational experts in EDview's focus groups. Training should take place at or be connected with the workplace (or for students: the study place), yet supported by training components that enable learners to link theory and practice, reflect on their process and performance, and formulate learning goals for the future (van de Wiel et al, 2017).

2. **Don't position the UM philosophy of PBL as the only truth.**
   When PBL was first coined in the late 1960s, it was one of the only alternatives, and a radical one, to traditional, lecture-based higher education, which might explain both the intense debate and the strong lobby it has known since then. Nowadays, as underlined by EDview participants as well as previous UM projects on PBL (Maurer et al, 2011), numerous variations of student-centered education exist, many of which share some of the underlying principles of PBL. It would be unwise to close our eyes to these approaches and to interpret the UM philosophy of PBL as the only way to high quality education. As mentioned in *Do 6*, in our interconnected world it is important to never stop learning from each other. EDview participants stressed that following the UM philosophy of PBL is a choice we make and one that we can defend, yet it is not the only option out there.

Don't knows:

1. **How can we best facilitate and maintain teacher communities, and include 'less education-minded staff' too?**
   While the formation of teacher communities is generally recognized as a best practice for staff development (see *Do 5*), the educational researchers in EDview's focus groups, as well as coordinators involved in staff development, reported that best practices on how to facilitate and maintain such communities are currently lacking. The most effective communities are those that are created bottom-up, so by definition these cannot be installed by management. It was also noted that such initiatives commonly involve "the usual suspects" of passionate and committed teachers, and that those less committed, who may benefit even more from participating in these communities, are largely absent.

One of the major aspects that was frequently brought up in the context of professional development and "going the extra mile" for education, was time – or in other words, money (see Ch. 5: *Enabling Education: Do 3*). It was felt that measures in this area are needed if we wish staff to commit more to education tasks. Yet, involving all staff in vibrant teacher communities needs further investigation as a whole.

CHAPTER 5: ENABLING EDUCATION

ORGANIZATION, LEADERSHIP, HUMAN RESOURCES, FINANCES, FACILITIES

Do's

1. Do cultivate an organizational culture that values and appreciates education.
2. Do cultivate a flexible organizational culture.
3. Do use the UM philosophy of PBL as a key value for resource allocation.
4. Do embed support for micro-level innovation in faculty culture and policies: complementing the EDLAB strategy.

Don'ts

1. Don't hire staff who don't support the UM philosophy of PBL.

Don't knows

1. Should we encourage careers exclusively in education and in research?
2. How can we achieve equal status for education and research?

Do's:

1. Do cultivate an organizational culture in which education is valued and appreciated.

A prominent discussion in the EDview data was about the status of education when compared with research. Many staff participants perceived education to have an inferior status, due to a relatively large focus on research publications for career advancement; the remuneration of education hours that do not cover the workload; the way we often talk about education as "taking time away from research" and "a chore we have to do"; and the perceived lack of appreciation and rewards for education tasks. These factors were also noted to contribute to a high teacher turnover, which was seen as negatively influencing education quality. These participants missed a positive educational culture where education is valued in terms of time, money, status and appreciation. They nominated this as a key reason why recommendations from previous projects focused on improving PBL, as listed in EDview's position paper, had not fully been followed up. Developments that were appreciated in this regard include efforts to facilitate teacher communities (see Ch. 3: *Teaching: Do 8*), symbolic rewards for high quality education, such as the teaching awards that exist at several faculties, and increased attention for careers in education, as for example evidenced by recently updated HR policies at FHML (*Educational Career Policy*, 2015; *The Role of Education in Career Policy at FHML*, 2018).

Cultivating a culture is evidently a task for all of its members, yet the responsibility of leadership in this aspect is arguably biggest. Research indeed indicates that leadership is one of two key factors that

shape a sustainable quality culture in higher education, the other being communication, as also described in Ch. 4: *Explaining Education* (Bendermacher et al, 2017). Leaders are "central drivers" of culture development through their ability to bind structural/managerial elements – including for example infrastructure and resource allocation - and cultural/psychological elements – such as a focus on ownership, empowerment, and human relationships to learn from each other (Bendermacher et al, 2017). Being engaged with education, and coming up with creative and innovative approaches to the UM philosophy of PBL may not happen automatically if not facilitated, encouraged and incentivized by leadership. EDview participants expressed a need for inspirational educational leaders who can act as role models and "walk the talk", participating in the teacher communities as described in Ch. 3: *Teaching: Do 8*.

Furthermore, to create balance in appreciation for research and education, educational leaders could provide counterweight to "research gurus" when it comes to shaping perceptions of education and decision-making about scarce resources, as one participant suggested. Ideally, education and research would be integrated in one and the same person. Additionally, this analysis points to a task for leadership to invent realistic remuneration systems and other incentives for education tasks, balance these with remuneration systems for research (see also *Don't know 2*), consider ways to decrease workload for teaching staff (see also *Do's 3 & 4*), and shift the current discourse.

2. Do cultivate a flexible organizational culture.

A prerequisite for the diversification of education as proposed in EDview's position paper is a flexible organization, because tools and needs for different courses may vary widely and change continuously. Education planning procedures and support for IT tools for education were mentioned as examples of areas where more flexibility would be appreciated. For the latter, it was advocated that IT support services should closely monitor the tools and systems that students and teachers use or need in practice, and consequently support this diverse and continuously changing pallet. Also, flexibility and adaptability should be considered in the design of facilities, such as buildings and their interior - as also found by a think tank investigation of needs for learning environments at UM (UCM Think Tank, 2010) - to allow students and staff to adapt learning spaces to their needs.

Additionally, research underlines the need for a flexible organizational culture in the context of effective quality management in higher education (Kleijnen et al, 2014). Working towards a flexible organization would involve attention for organizational procedures, and, arguably even more important, for mindset. EDview participants suggested that we need to cultivate a culture of change, where there is space and support rather than resistance to develop new ideas. Some participants characterized UM as a stimulating environment already possessing this quality: they perceived hierarchy not to be an issue, they felt leadership is open and supportive to new, sometimes radical ideas, and they noticed that a lot is possible at UM. One aspect regarding change culture that was often mentioned was "paperwork": it would be key to cultivate a culture of change without increasing the administrative and bureaucratic burden.

3. **Do use the UM philosophy of PBL as a key value for resource allocation.**

Resources for education were an often-discussed topic in the EDview data, particularly with regard to their scarcity. Some participants, however, suggested that sufficient resources exist, but that it is their allocation that is problematic. They expressed that if the UM educational strategy prioritizes small-scale, collaborative and contextual learning, this is what should be prioritized in resource allocation as well, meaning sufficient resources for design and facilitation of small group learning, including assessment (see Ch. 1: *Designing Education: Don't 2*). In this regard, one participant argued that a substantial amount of resources could be saved and reallocated if we change our approaches towards assessment, i.e. less frequent assessments.

The importance of investing resources in teaching staff and other educational roles was underlined in multiple ways in the EDview data. The teacher was overwhelmingly mentioned as the key aspect of high quality education, which is supported by an extensive body of literature. However, teachers mentioned lack of time and having to balance many different tasks and responsibilities as a main reason why innovations and improvements could not always be addressed as they wished. The high workload for teachers is generally recognized - as for example evidenced by the establishment of the UM taskforce Workload - and may contribute to this group being least satisfied about education, as found in the EDview survey. Compared with students and support staff, academic staff was significantly less satisfied about three key issues: their experiences with education at UM in general, the UM educational method being PBL, and how PBL was carried out in practice (Academic staff means 3.9, 3.8 and 3.2, respectively, scale 1-5). Notably, teachers may see areas of improvement yet feel they have no time to address these. A previous UM project on PBL identified "a rising need for 'space', time for reflection, opportunities to experiment and fail in order to grow as academics. At the same time there is an increasing pressure to graduate on time, to meet deadlines and less tolerance for delay" (Maurer et al, 2011). Considering their key role, having teachers on board with the UM view on education is crucial, and leadership is tasked with finding ways to keep them engaged, of which resource allocation is one aspect (see also *Do 4*).

4. **Do embed support for micro-level innovation in faculty culture and policies: complementing the EDLAB strategy.**

This relates to the previous *Do* on resource allocation. UM's central strategy for education innovation, as executed by EDLAB, requires that four of the six UM faculties are involved in the development and pilot phase of an innovation, and that eventually the innovation is applicable or available for use in all UM faculties. This was considered by some EDview participants as suboptimal to stimulate bottom-up innovation at course or program level, because of the different needs and contexts of these programs. As described earlier (see Ch. 2: *Coordinating Education, Do 1*), support for innovation at course and program level is ideally anchored in faculty culture and policies, for example by being a standard part of remuneration for educational design and development, which was advocated by the *Leading in Learning* project management as well (Gijselaers & Bastiaens, 2012). However, this continues to be a challenge as explained in more detail in *Do's 1 & 3*. As a result, it currently seems unclear to many staff

if and where they can ask for support for innovations that are not suitable for EDLAB's approach. Hence, perceptions exist of UM not being supportive of these micro-level ideas. As described in EDview's position paper, this is not the message we want to spread.

While financial, logistic and educational support for creative and innovative micro-level initiatives is ideally embedded in the faculties, EDLAB may consider playing a more explicit and structural role in educational support for micro-level initiatives, for example in the form of educational consultancy, facilitation and making connections. This may also help with the issue of teachers often lacking the knowledge and skills to apply the theoretical principles of UM's philosophy of PBL, as described in Ch. 4: *Explaining Education: Do 2*, as well as to empower teachers and to put innovation further on the map.

Don'ts:

1. **Don't hire staff who don't support the UM philosophy of PBL.**
   This *Don't* was brought up frequently in the EDview data. Some participants felt that recruitment and hiring procedures and values currently do not always pay sufficient attention to education, for example in the case of research positions, which evidently involve some degree of teaching as well. The remark was made that we are a "teaching-heavy" university, and that hiring (and appraisal) should reflect this. More specifically, the UM philosophy of PBL should take a central place in this context.

Don't knows:

1. **Should we encourage careers exclusively in education or research?**
   Mixed thoughts existed in the EDview data about this question. For example, the position of Teaching Assistants was discussed, who solely perform educational tasks. While highly valuing the Assistants' work and generally appreciating educational career paths, some EDview participants felt that experience in research is necessary for some teaching roles, such as thesis supervisor. Similarly, issues were mentioned with regard to positions exclusively focused on research, as they always involve some teaching, which might be problematic as described in *Don't 1*. A need was felt for a clear UM vision on such positions.

2. **How can we achieve equal status for education and research?**
   Rethinking and balancing remuneration systems, career policies and discourse of education and research, as advised in *Do's 1 & 3* with the purpose of achieving equal status for education and research, is evidently easier said than done. From the EDview data it remained unclear what such remuneration systems or policies should ideally look like. Additionally, external factors such as university rankings and societal perceptions of academia influence this issue too and complicate straightforward solutions.

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