

Blended Learning; Choices and Strategy

Guidelines for effective interaction in learning practices

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Introduction

The content in this document is the result of a two-year project on blended learning in the initial teacher training programme of INHOLLAND University for Professional Education. Research and design of innovative learning practices was conducted by the INHOLLAND Centre for eLearning. This document offers a conversational framework for further discussion on (re-)design of learning practices based on blended learning and should not be regarded as a scientific article. Underlying research reports and articles on the subject are available through the Centre for e-learning.

What is blended learning?

Within higher education in the Netherlands, 'blended learning' has been the standard since 2005, despite the fact that everyone means something different by it. The INHOLLAND Centre for eLearning and the INHOLLAND School of Education Rotterdam adhere to the following definition, which is used as a starting point ever more often:

Blended learning¹ is a mix of eLearning and other forms of learning, involving choices in the distribution of learning content, forms of communication and didactical strategies, in relation to types of learning processes, or combinations of these.

By eLearning we mean 'the use of multimedia technologies and the internet to enhance learning processes and the quality of learning'.

Why blended learning?

Several perspectives can be mentioned, each showing a different (self-) interest to apply blended learning.

One of these is the **management** of education. Various official documents, from INHOLLAND University, for instance², show that education will change drastically over the next few years: increasing self-direction by students, a learning environment that is facilitating, students making individual choices, resulting in individually oriented learning paths, a flexible infrastructure in

¹ **Fransen, J.** (2006) *Een nieuwe werkdefinitie van blended learning (A New Working Definition of Blended Learning)*. Dutch Open University: Journal 'OnderwijsInnovatie', year 8, issue 2, pages 26-29.

² INHOLLAND University - Backbone I and II; Educational concept and didactical strategy. Internal policy documents.

education, adaptation to students' study preferences and patterns, and activating didactics. A basic principle in all this is that education will have to become more flexible over the next few years, maintaining the same or higher level of quality. The implementation of ICT/eLearning and Blended Learning will play an important role in this.

For **teachers** there is an entirely different reason to embark on blended learning. Teachers like to provide good, attractive and, especially, effective education. For them, blended learning is a path that requires making the right choices time and time again in order to finally find the right blend for each education situation. There is no such thing as 'the ideal blend': Each learning situation or learning environment requires a particular blend, tailor-made for that specific situation.

It's not so easy to determine how **students** feel about this. In practice it turns out that many are not as flexible and self-directing as we would like them to be. It *is* clear, however, that they demand high-quality and - if at all possible - attractive learning situations. To them, the use of multimedia is evident.

And then there are the developers/providers of **learning materials and learning environments**. There is a lot of good and usable material available, but how do you know what's out there and how do you make the right choices? Here too, it should be decided for each specific situation which learning environment or material is most suited. It would be wrong to use a certain environment only because it happens to be available and seems useful. Didactical choices should always come first and the technology should never play a leading role!

Making choices

For us it's important to always take the learning and education situations as our starting point. After all, this is where blended learning should be realized. All kinds of questions or choices play an important role in this:

- **Choices in time:** When can the learning practice be started or completed? When can assignments be completed? What kind of interaction could take place? How flexible is the education, regarding learning path or moments of taking exams?
- **Choices concerning content:** What topics do you select? In what order do you go through the curriculum? Do you start with theory or practice? What materials would you like to use?
- **Choices concerning admission requirements for each part of the curriculum:** Are these fixed or flexible?
- **Choices of instruction and sources:** Is everything either face-to-face or online, or can students choose? Can it be done individually or in groups only? What sources may we use? How is guidance implemented?
- **Choices concerning offering education and logistics:** When and how will there be deliberation? With what tools (video contact, face-to-face)? How to find help?
- **Choices concerning assessment:** How do you check that the students actually learn what you intended? How do you evaluate the knowledge gained?

(Im) possibilities³

In order to realize blended learning, we will have to think carefully of the possibilities and impossibilities in advance. First the specifics of each situation should be mapped in detail.

It's not very useful for fulltime students, for instance, to meet by means of video conference software if they already see each other at school; furthermore, schools should take into account that some students require much more structure/guidance than others. All this is reflected in the way the learning process is given shape. We should also consider whether an instruction (a PowerPoint-presentation with video, for instance) should always be available to a student when he or she needs it, or not.

Thinking about choices

We realize our education depending on the characteristics of the student (or group of students) and his or her wishes and capabilities, and the agreements we make regarding the amount of flexibility possible. The choices we have to make can be connected to a number of aspects:

1. Goals – Activities – Assessment. What is the goal? How do we get there? How do we know if the goal has been reached?
2. Type of learning process. What type of learning process is it and what does that entail?
3. What aspects of the learning process play a part?
4. What about the interaction between learning and teaching?
5. What are the characteristics of the learners?
6. How do you develop and distribute learning content?
7. How do you select the media to be used?
8. What kind of communication is necessary?
9. What competencies are required of the eTrainer/eTutor?
10. How do you develop the right blend?

In this document we will further address the aspects above to provide guidelines for composing the most suitable blend in a specific situation. This document will discuss the aspects mentioned above.

It should be clear that we will not describe a linear process, in which the total education based on blended learning can be given shape by answering a number of rather simple questions. Some processes take place sequentially, others simultaneously, and the aspects mentioned above are not all of the same level. Yet they are building blocks that can be used to shape education based on blended learning.

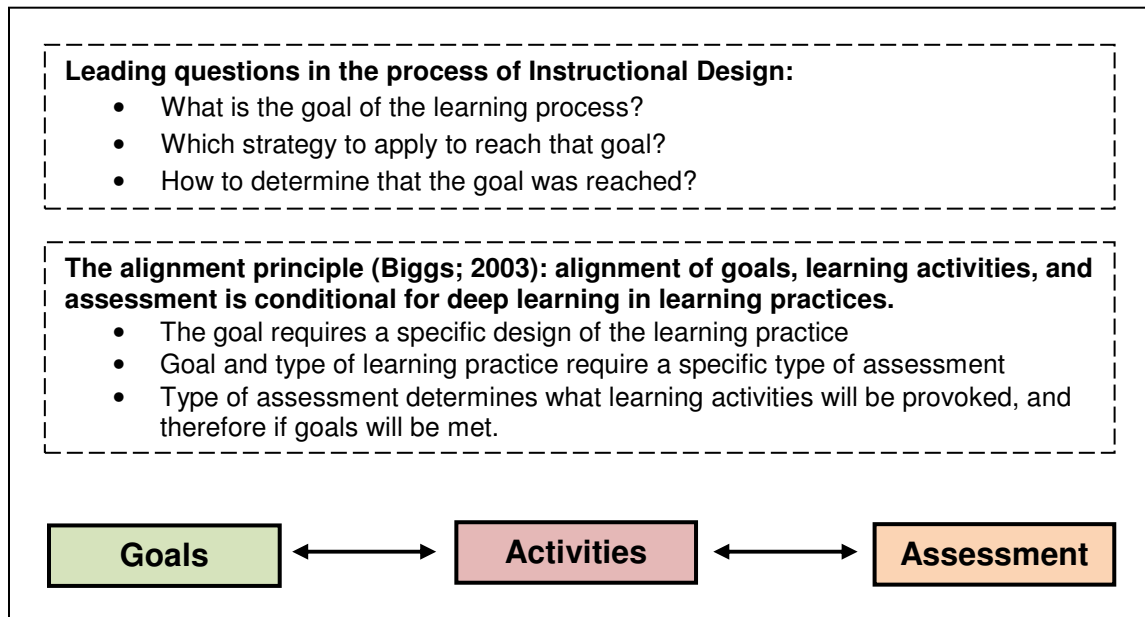
The basic principle in all of this is that an optimal learning process implies optimal interaction between all parties involved; between teacher and student(s), but also amongst students themselves.

³ From 2005 to 2007, the New Blends project group of the INHOLLAND School of Education Rotterdam worked on a project focused on blended learning. All material developed over the past two years has been published on a special website: www.pabo-INHOLLAND.nl/newblends. That includes interesting examples of strategies that work well or not at all when blended learning is implemented within a curriculum.

1. Goals – Activities - Assessment

Designing education (instructional design) is all about aligning three things to one another: goals, learning activities and assessment: What is the goal, how do we reach it and how do we know if the goal had been reached? These three items should be well aligned to one another (figure 1).

Figure 1. Leading questions within instructional design and the alignment principle (Biggs, 2003).



The first question requires analysis for one can only formulate goals when one knows the starting situation and the target group. The second question is answered by choosing a specific strategy, in other words, a way to attain the goal. The third question can be answered by assessment, in order to determine if one has chosen the right goal and the right learning activities (strategy).

These three subparts must be very well aligned to one another, for a learning process to be effective. This is called Constructive Alignment (Biggs, 2003). If those three elements are not aligned well, there will be no effective learning path and the desired result will not be achieved. Goals demand a specific type of learning process. Knowledge is not the same as skills, and the development of a certain attitude requires yet another approach to learning and designing the learning process. Any given learning process requires its own suitable type of assessment. Acquired skills cannot be proven in a written test, for instance, and knowledge reproduction does not provide insight in the attitude and vision someone has developed. The choice for a particular form of testing has a big influence on learning behaviour, and with that, on the learning process.

Examples

When you ask a student to do a traditional test, aimed at knowledge reproduction, he will show superficial learning, aimed at storing the necessary content in his memory, without any deeper understanding of this content. When you test insight and choose the appropriate form of testing for that, the learner will show a different kind of learning behaviour, and probably approach the content in a different way in order to gain more insight and see connections between the various parts.

An enthusiastic teacher started a forum in a learning practice where students could respond to theses and each others contributions. A few students (the same every time) posted some replies, but most did not. The teacher was disappointed, as he had heard enthusiastic stories about the possibilities of forums within an electronic learning environment. The module included a written test that was passed by 75% of the students. In this case, the failure of the forum involved a lack of alignment between the way of testing and the learning process. The assessment - a written test aimed at reproduction of knowledge - invokes a corresponding type of learning behaviour. Peer-feedback by means of forums will only be successful when the goals of the instructional unit or learning practice explicitly include peer-feedback. Only then will students be motivated to collaborate or reflect on each others contributions; they can also be held accountable for it.

2. Types of learning processes

Secondly, we will have to think about the choices concerning the type of learning process.

Does the situation require the student to study documents on his or her own, provided by means of an electronic learning environment (distribution)? Or does the learning process also involve students learning from feedback amongst themselves (interaction)? Or does it not only require (electronic) sources to be studied and interaction, but also online collaboration on common tasks (collaboration)?

It is important to realize that choices following from the fact that there is a specific type of learning process are of a higher level than the choice for a particular medium, for instance. It is obvious that the type of learning process entails choices (figure 2).

Example

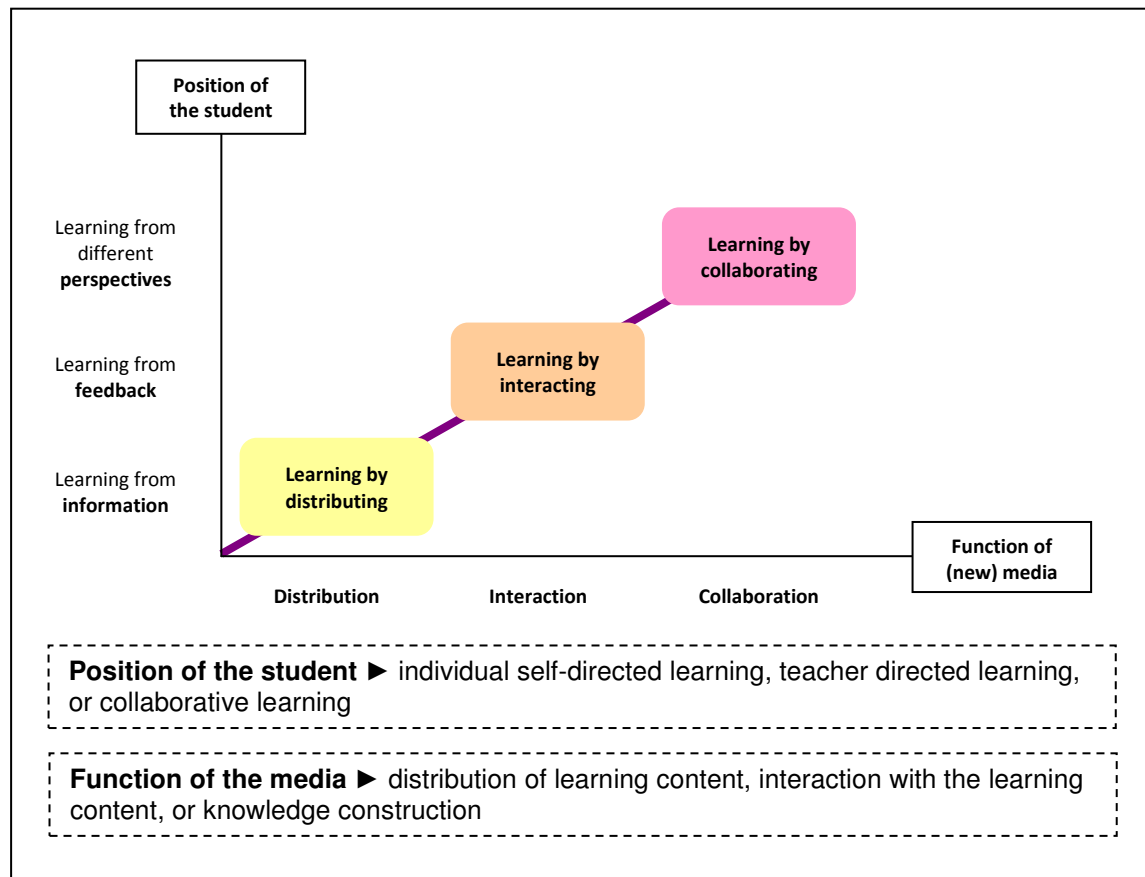
When designing instruction (for a learning practice or instructional unit, for instance) it should be perfectly clear, apart from the goals, what type of learning process is aimed for. Does it only involve distribution of learning content to support self-study for instance, or does the learning process also require communication/interaction? Additionally, does it require responses and/or feedback to each others contributions (interaction?), or does it also require learners collaborating online? When the process involves acquiring basic knowledge of a certain topic, this fact will determine the choices you should make when selecting a suitable didactical strategy. Self-study supported by a designed (static) self-study environment with an F2F introductory lecture, for instance.

The answers to the questions above will determine the choice for the way the learning process is given shape.

If one of the goals is formulated as below, you will have the best chances of alignment between goals and learning process. This will also invoke a desired, adequate learning behaviour.

Maximum 10 Pts		absent	unsatisf.	weak	satisf.	good
	The student has shown in his work the feedback received from peers and his own adaptations based on feedback received.					

Figure 2. Types of learning, related to the position of the student and function of the (new) media (Reinmann-Rothmaier, 2003).



It is clear that the role of the teacher varies between the different types of learning processes (see also figure 14: Competencies of the eTutor/eTrainer).

3. Aspects learning process and characteristics learning practice

When designing a learning process, apart from the questions mentioned earlier, the following aspects will also require attention. Here too, choices will have to be made (see figure 3b):

- Concerning the **learning content**: Will it be offered centralized (in one place, whether they are developed and managed centrally or not) or spread out (over various media in different places, whether they are developed and managed centrally or not);
- Concerning **communication**: Synchronous (simultaneous, enabling direct response and reaction) or asynchronous (time lapse between action and response, so no direct interaction) (see: 8. Types of communication);
- Concerning the **learning process**: Will the students work individually or will there be collaboration with others in a learning practice (see 2. Choice of learning process):
- Concerning the **learning strategy**: Is there a fixed path along which the learning content is dealt with in a certain order (static) or is there room for interaction with the learning content and are content, and method not predetermined within the learning practice (interactive). One is not better than the other. It depends on the goals. But the choice and its motivation are important.

Examples

The storage of prescribed content, such as readers, can best be managed according to this principle: 'One document is stored in one place and maintained by one person'. Inexpensive and easily manageable. A suitable CMS ensures that all material is always (24/7) accessible by everyone. This is not always the case in practice, which is obvious from many stories from students about 'wandering and ever changing readers in different locations and from different teachers'. A teacher said: 'BlackBoard is a learning environment, not a warehouse. Let's get rid of all those files!' In most cases a 'simple' Content Management System (CMS) is a better option. The Education Plaza of the INHOLLAND School of Education Rotterdam is a good example of this: All readers, videos, templates, manuals, feedback forms and other instruments have been personalized (fulltime students / part-time students / distance students) and stored on the Education Plaza (see figure 3). The virtual learning environment (VLE) Black Board is being used the way it was intended: as a learning environment for interaction and collaboration.

Standard articles are best stored in a CMS, but when students need to use highly current content with a short life cycle, you better store it in environments like You Tube, Wiki and the internet. The sources to be used are provided separately: The CMS offers all regular articles and materials, supplemented by books. More 'current' sources are offered separately, and may vary because of their fluctuating relevance to current affairs. This is also related to the issue of 'control, in other words: Is production and distribution of the content the responsibility of the institute and is the institute in control of the distribution. But naturally this can also be done by the student. We could give examples involving rapidly changing information and knowledge, where the student could play a part in production and distribution. You could think of a report of experiences in practice and a request for comments from supervisors and/or fellow students in a blog. This could also be done by means of a podcast or video. In that case the student is in control, regarding production as well as the distribution. That is not the type of knowledge you should spread through a CMS (Content Management System), but through an environment controlled by the student, because of its personal and temporary nature.

Figure 3. Example of Content Management System of the INHOLLAND School of Education.

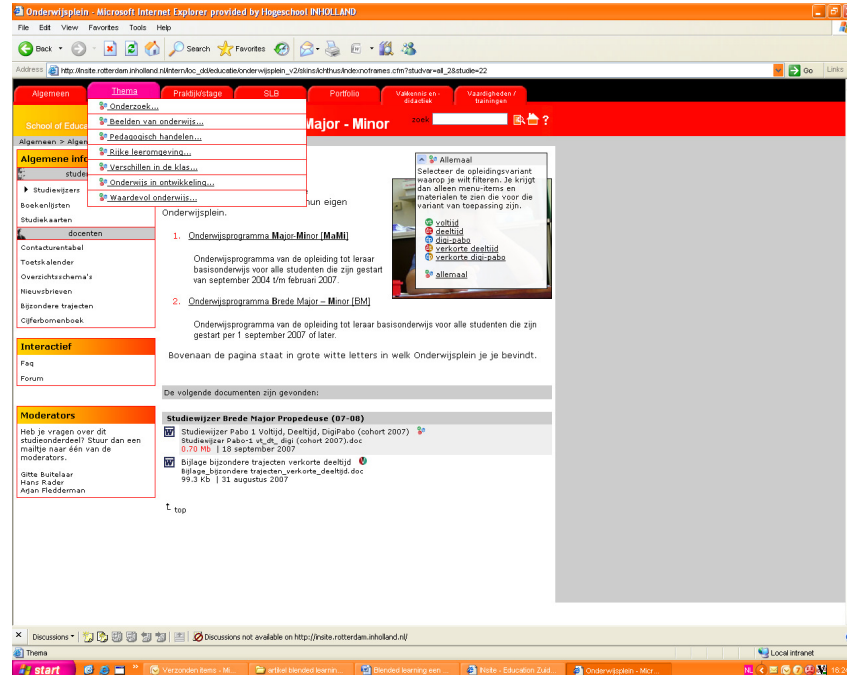
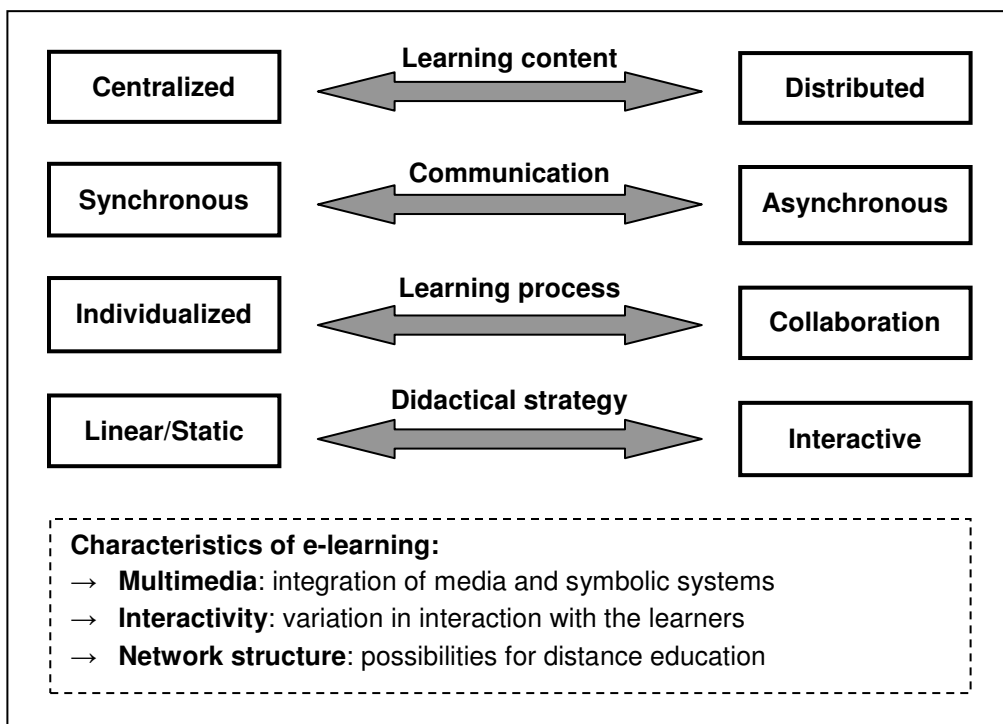


Figure 4. Aspects of learning processes (Gierke, Schlieszeit, & Windschieg, 2003) and four key characteristics of e-learning (Reinmann-Rothmaier, 2003).



4. Interaction between learning and teaching

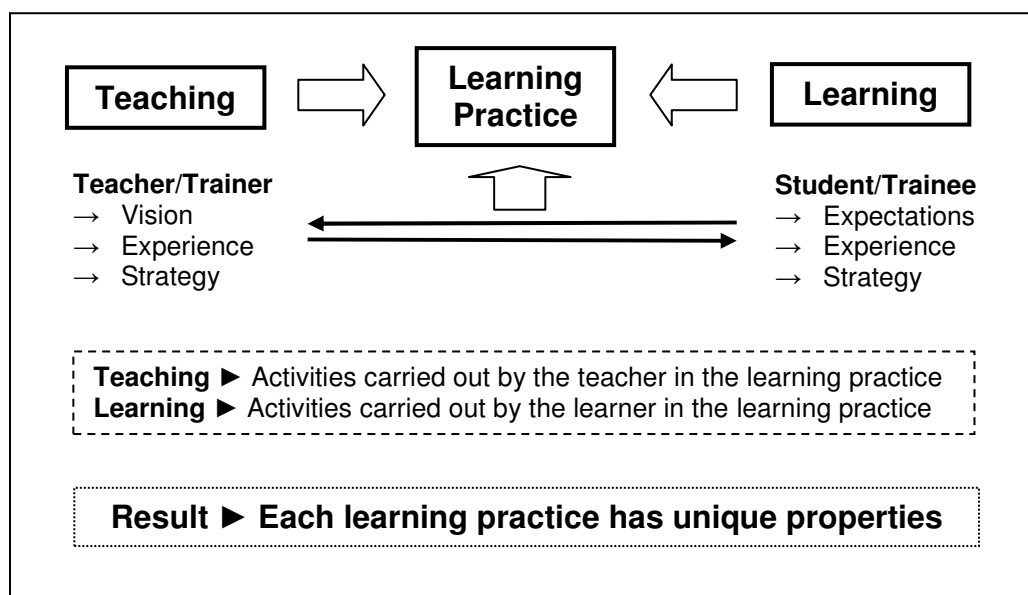
In practice, blended learning is often blended teaching, when a teacher uses multimedia in his lectures, for instance. The relationship between learning and teaching is a complex one, but it does determine the nature of a learning practice (see figure 5). A short explanation of both concepts:

- **Learning:** Activities of the learner, influenced by previous experiences with education, his expectations of the learning practice, and the way he experiences the learning practice (difficulty and chances of success), and the learning strategy he chooses (learning style in relation to the specific situation);
- **Teaching:** Activities of the teacher/trainer, influenced by his vision of education, previous experiences with education (as a student in the past, and now as a teacher), and the approach he chooses in a given learning practice.

Example

In practice, the concept of blended learning is an umbrella concept for blended learning and blended teaching. The misunderstanding arises when a PowerPoint presentation is used in a lecture and this is called blended learning, no matter how meaningful and inspiring it may be. An inspiring and activating lecture by an enthusiastic teacher is obviously the best foundation for learning, but the next choice is much harder: How do you give shape to the student's learning after this? By another four lectures, obligatory or not, or by activities that are perfectly aligned to the goals that have been formulated?

Figure 5. Aspects of learning practices: the result of an interaction between learning and teaching.



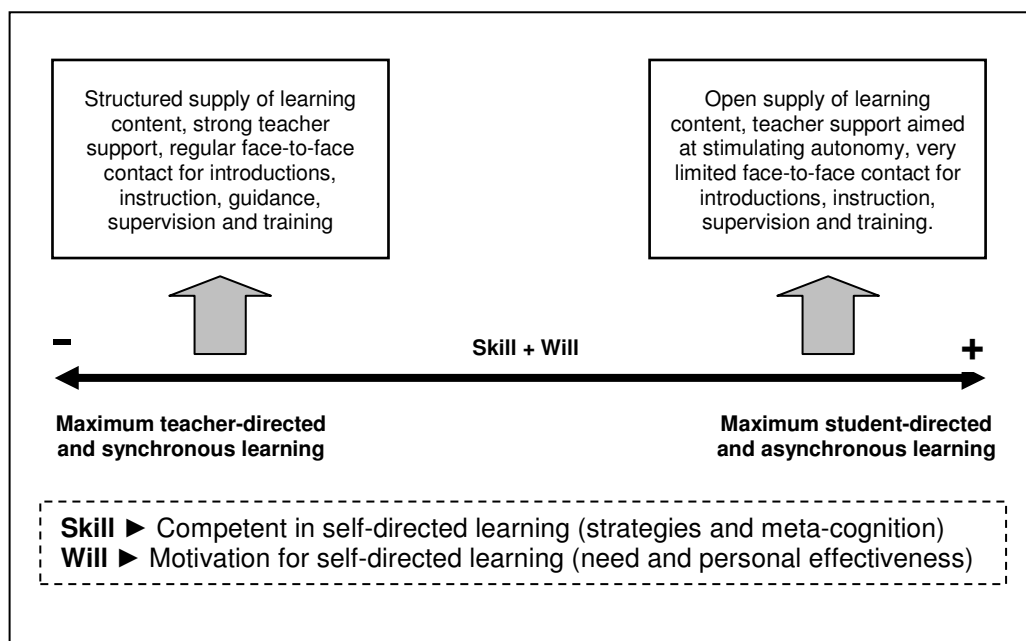
5. Characteristics of the learners

When designing a learning practice, it is obviously of great importance to look at the students' characteristics. The characteristics of the students may be divided into skill (the capacity for self-direction) and will (aspects of motivation⁴) (see figure 6).

Example

With young students, needing much guidance and support at the start of their education, obviously different choices will be made than with older and highly motivated fulltime students or part-time students, with much self-discipline and experience of life. In practice, self-direction often appears to be synonymous with 'let the student discover everything by himself'. Experience from practice has shown that distance learning often requires a tighter form of guidance and support concerning the learning process, which doesn't mean tighter direction concerning the content, by the way. Each plays his part: A teacher has to facilitate and coordinate the learning process to make adequate learning possible. To achieve this, he will take into account both the student and the situation (F2F, online, or a combination of these).

Figure 6. Characteristics of learners: competence and motivation for self-directed learning (skill and will).



⁴ More detailed information on this subject can be found on the website of the INHOLLAND Centre for eLearning (Fransen, J. (2005). *Studentsturing in de context van eLearning (Self-directed learning within the context of eLearning)*. Hogeschool INHOLLAND – Centre for eLearning: Publications 2005.

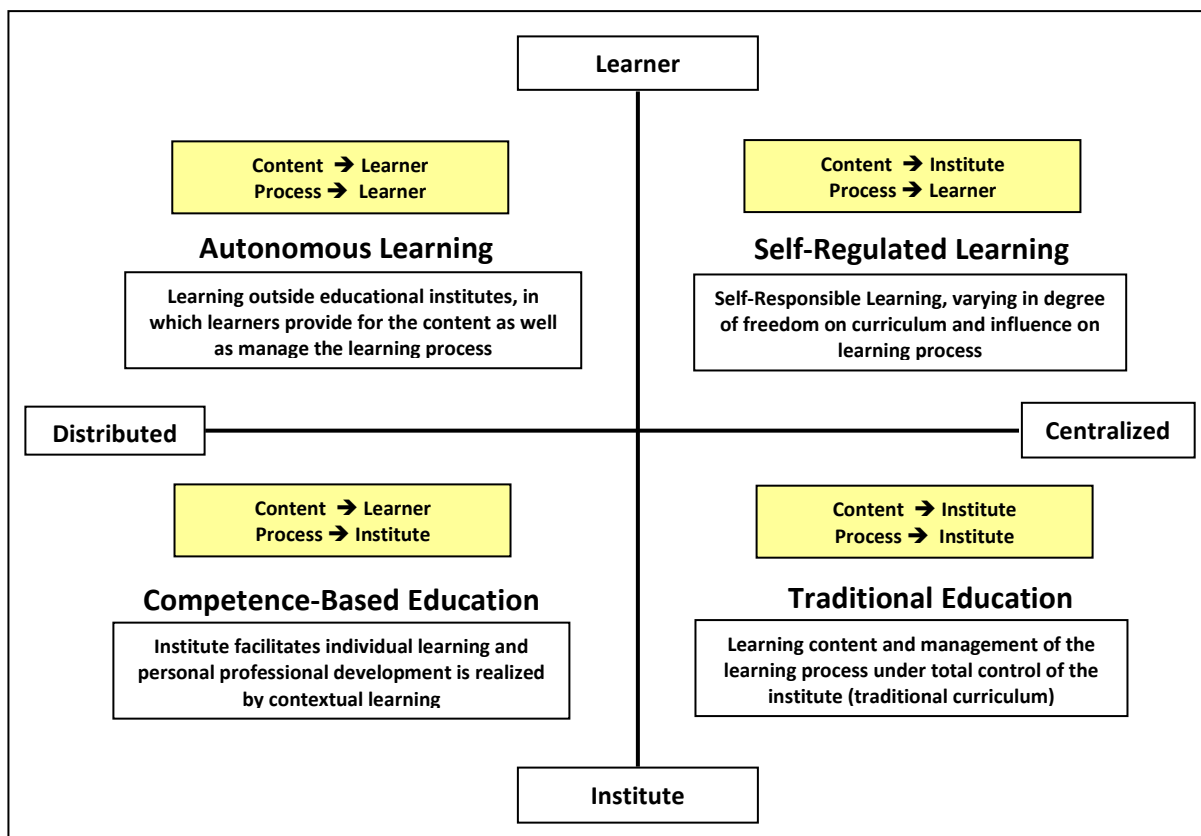
6. Distribution of learning content

With the distribution of learning content we make a distinction between centralized and spread out distribution (see the aspects of eLearning mentioned above) and the position taken by the student with respect to the design and management of content (locus of control). This way we can distinguish four kinds of learning practices, depending on who is in control, regarding the content and process:

- Control of both by the institute: traditional supply based education or an offering of standardized training courses;
- Control of both by the student: autonomous learning, in other words a type of learning where students also play a part in the design and guidance, such as informal learning processes in learning communities or organizations;
- Shared control: self-directed or self-regulated learning (process control by the student);
- Competence-based education (influence on the content by the student related to the development of his individual profile).

Again, choices have to be made: Each choice determines how the learning practice is given shape (figure 7).

Figure 7. Learning content and learning process: locus of control and types of learning practices.



Example

A standard course online (in lower right of the figure) demands a different design of the learning environment than research in a group where the electronic learning environment is used to collaborate (in the lower left of the figure). Learning practices designed in one quadrant are not necessarily better than that in another; but it is important here, too, to make a well-considered decision. When the goal is acquiring explicit knowledge, a Music class for teachers in training, for instance, a fully designed self-study environment with minimal F2F contact may be a very suitable option: All material, such as readers, video and audio samples can then be accessed through the electronic learning environment, with a separate segment for FAQ (frequently asked questions), supported by video samples to explain situations in practice (see figure 8). Additionally, response lectures could be used, depending on the group of students. Or additional practical classes to practice skills, as that is obviously important with a subject like music. The FAQ, and of course other forms of interaction with the teacher in the electronic learning environment, could perhaps be used as a substitute for response lectures (which are often poorly attended, and where questions from individual students are not always equally relevant for other students).

Figure 8: Example of self-study environment with FAQ.

7. Choice of media

The choice of media is a very important one: What standard books do we want to offer, do we have CD-ROMs, PowerPoint-presentations or videos of term openings to be viewed later or to serve as the start of the term when an F2F meeting is not suitable or possible, or when someone has missed the opening meeting? See figure 9.

Figure 9. Choice for media in a learning practice according to the goal to be met; some examples.

Goal	Category	Media
Introducing; Explaining	Presentation	Lecture; Text; Video, Television
Researching; Exploring	Interaction	Media Centre; CD; DVD, Web
Discussing; Debating	Communication	Seminar; Discussion Forum
Experimenting; Producing	Production	Workshop; Simulation; Product

Characteristics of the learning content ► life cycle and implementation difficulty

- Explicit knowledge with long-term applicability: Book or CD-ROM
- Implicit knowledge with short-term applicability: WiKi, Blog or CoP

Complexity of the learning content ► necessity of additional support (scaffolding)

- General highly-structured information: make it available in learning environment
- Context-specific complex information: face-to-face transmission is preferred

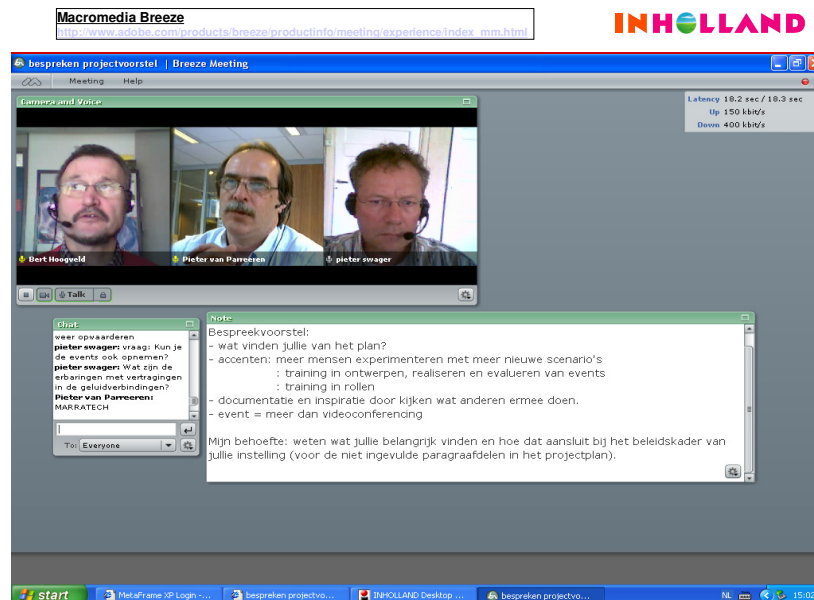
Example

Do we discuss F2F or on a discussion board on BlackBoard? Is there a rich learning environment (in a virtual learning environment) where the self-study books can be found, along with the course manuals, PowerPoint-presentations, additional material, practice exams, and answers to frequently asked questions? You could also consider purposely using images (demonstration/introduction/motivation) or sound (music/recording of lecture) when designing a learning practice.

8. Types of communication

Do we meet F2F every Monday morning, or remotely, via Breeze? Breeze is a user-friendly and easy video communication programme that enables you to have meetings or chat remotely (using a webcam on your computer). A great tool when you can't meet F2F, but still want to deliberate or work together on an assignment. See figure below.

Figure 10. Meeting through video communication (Macromedia Breeze).



We have many tools, but the trick is to use the right tool for the right situation (see figure 11). Here too, choices have to be made.

Example

Distance education – students, and some other groups of fulltime and part-time students, use the discussion board on Black Board to exchange ideas. It is very useful to be able to post your replies on a forum in the course in a week and continue the discussion at a later time. This might be an option for more fulltime or part-time groups who don't see each other on a regular basis, but still have to collaborate.

We have facilities to chat, email and discuss online, but is chatting really a suitable tool, and do we allow fulltime students to e-mail their teacher, or do we not want that at all?

The figure below does not mention new media such as Vlogs, Blogs and Wikis, which teachers often have no knowledge of, but which might be used by students. Here too, you will have to make choices and set rules, depending on the learning practice (see figure 12).

Synchronous media ► f2f conversation; videoconferencing; telephone, chat
Asynchronous media ► sms; e-mail; discussion-board; regular mail

Figure 11. Choices in communication: synchronous versus asynchronous; an overview

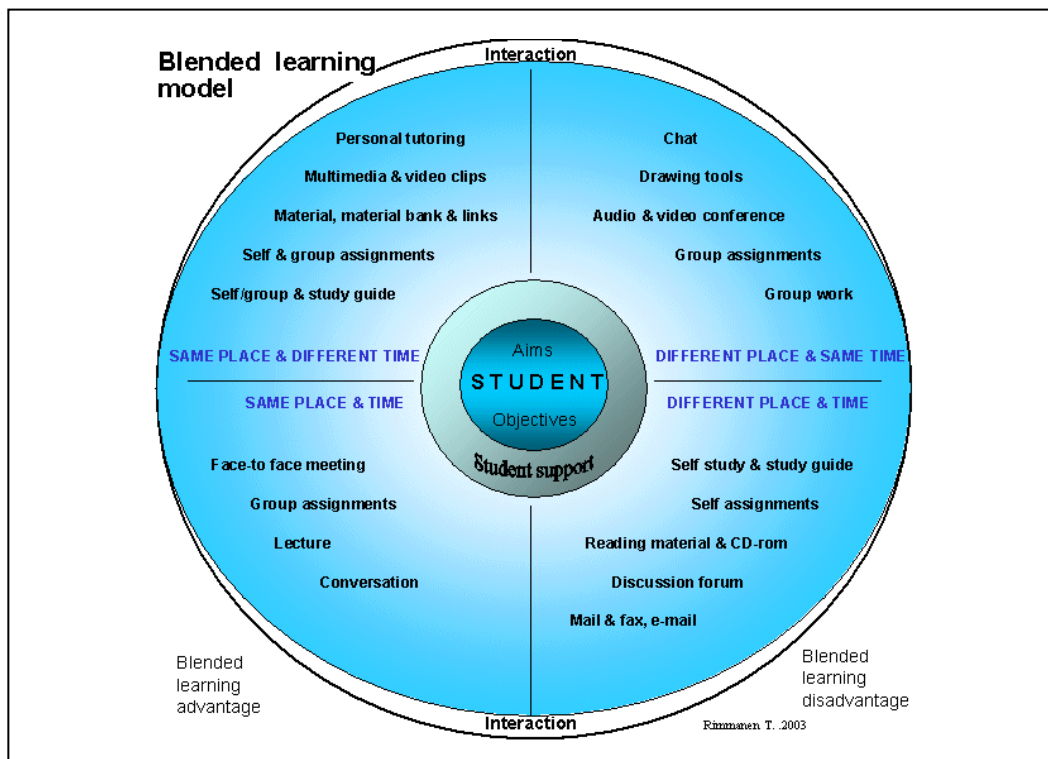


Figure 12. Choices in communication in collaborative learning practices; group versus individual

Medium	Meta-communication
Website	<ul style="list-style-type: none"> → This is of interest for everybody in the group → I've got something to inform you about → A dialogue on this is not appreciated
Discussion-board	<ul style="list-style-type: none"> → Everybody has access to this information → It's open to everybody to make a posting → Let's work together on this
Chat	<ul style="list-style-type: none"> → We've got to discuss this a e group → Your participation is appreciated here → You have influence on the decisions
Email to a person	<ul style="list-style-type: none"> → This is only meant for you → I'm her just for you → This is a private 'conversation'

Choice of the medium also determines the metacommunication

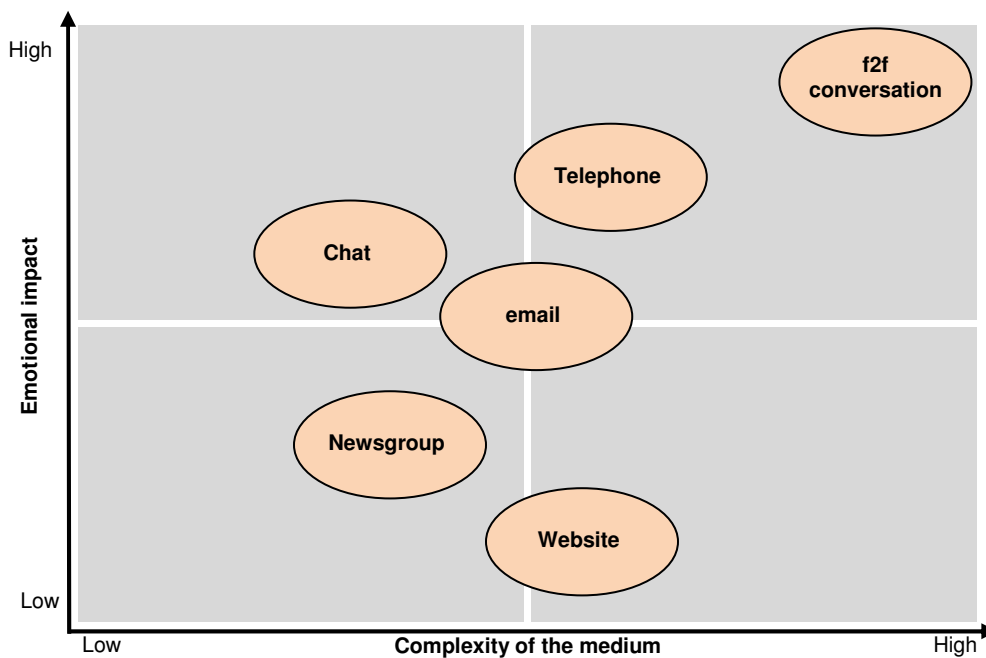
The choice of the most suitable means of communication also depends on the situation's emotionality and the medium's complexity (see figure 13).

Example

An F2F conversation, for instance, is preferred when discussing 'personal' issues, and if that is not possible, a phone call might perform that function. Email can be a suitable means of communication, but only if it's a conscious choice. In learning processes it's often more suitable to make all information accessible for everyone in the electronic learning environment: That way, email is often no longer necessary, which also unburdens the teacher.

Complex information or knowledge requires a medium that allows the complexity to be made understood. The introduction of complex knowledge requires F2f interaction, in order to determine whether the concepts are understood right, and cannot be dealt with via email, news page or information on a website. So in this case, information on a website would not be a very efficient choice.

Figure 13. Choices in communication: emotional content versus medium complexity; some examples



9. Competencies of the teacher (eTrainer/eTutor)

Naturally, the role of the teacher changes when education itself changes: A teacher controls the learning process, guides and supports students and student groups, instructs students, and he also provides for additional learning material within the learning environment. Communication is both F2F and online. In doing so, he will have to make choices depending on the situation. We call such a teacher an eTutor.

The competency profile for the eTutor/eTrainer⁵ includes four 'global' professional competencies and a provisional competency aimed at reflection and self-direction (see figure 14).

Figure 14. Overview of the eTutor/eTrainer competencies

	Individual learning	Collaborative learning
Domain expert and competent in mobilizing expertise	Designing and supporting domain-specific individual learning practices and using a network of experts effectively for additional support	Designing and supporting domain-specific collaborative learning practices and using a network of experts effectively for additional support
Competent in applying didactical strategies	Initiating and supporting processes of individual learning effectively, using adequate didactical strategies and media	Initiating and supporting practices of collaborative learning effectively, using adequate didactical strategies and media
Competent in interaction and communication	Communicating effectively in speaking and writing, using adequate media to support individual learning	Communicating effectively in speaking and writing, using adequate media to support collaborative learning
Competent in organizing learning processes with ICT	Designing and organizing relevant, rich, and effective learning environments for supporting and optimizing individual learning	Designing and organizing relevant, rich, and effective learning environments for supporting and optimizing collaborative learning
Competent as reflexive practitioner		

The four generic competencies can be subdivided into two streams: One relating to individual learning processes and one relating to collaborative learning. In order to successfully implement blended learning, you will have to train teachers specifically to acquire these competencies. Jos Fransen and Pieter Swager have designed a complete eTutoring course online, for a DU project (Digital University), in which teachers could independently acquire the eTutor competencies relevant for them.

Example

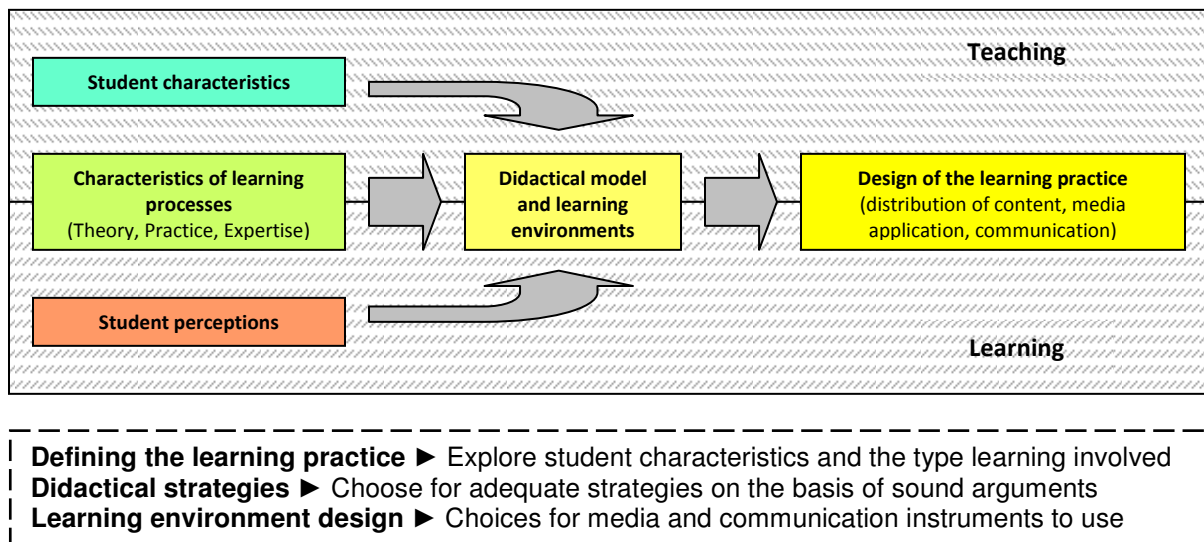
A teacher said he had been appointed on a school five years ago based on his practical experience. A didactical degree was deemed less important at the time. After a year of teaching he also had to start supervising students, some of whom were living abroad. A year later he became a tutor, and another year later an eTutor for the students abroad. By then the curriculum had evolved into a competency-based programme. The teacher felt very 'consciously incompetent'. Specific training then offered a solution.

⁵ See sub-study 3 from 2005-2006 by Jos Fransen on the site of the INHOLLAND Centre for eLearning. 'De eTutor in de context van eLearning en het competentieprofiel van de eTutor' (The eTutor in the context of eLearning and the competencies of the eTutor). See: <http://www.inholland.nl/NR/rdonlyres/87D48B88-DD3F-40D8-84AA-36A15B06686A/779/Pub3.pdf>.

10. The right blend

Every learning practice (situation) is different, and therefore the choices in blending depend on a situation. The learning practice of older, autonomous part-timers working on an assignment, who don't meet frequently during the week, will require a different approach than a group of fulltime and young freshmen, who require much structure and guidance. Another blend is required for a group of students who want to accelerate their studies by combining parts of the curriculum.

Figure 15. Decision tree for designing a context-specific 'blend'.



Does the above sound very new, or on the contrary, very familiar? For a number of colleagues the above will already be recognizable as practice. The project New Blends in Education of the INHOLLAND School of Education Rotterdam started from the idea that the experiences gained over the past eight years with the distance education teacher training programme should also be applicable to the fulltime and part-time programme as well.

In order to meet the growing demand for custom-made education and flexibility, maintaining the same or better quality, we will try to gain experience with blended learning in other programmes. During the academic year 2007-2008 we will launch the project New Blends 2, to try and broaden the experiences from the first project by experimenting on the basis of design-based research in the School of Communication and Media Rotterdam, the School of Economics Haarlem, and the School of Economics The Hague. In order to keep doing what we've always been doing: simply providing good education. For more information: see www.pabo-INHOLLAND.nl/newblends and www.INHOLLAND.nl/elearning (website Centre for eLearning).

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