

Towards Learner-Centered Learning Goals based on the Person-Centered Approach

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Abstract – While learning goals need to be predefined at the curriculum and course level, it is the concrete course offering, the instructor or facilitator, the student colleagues and learning designs that are decisive in determining whether learning goals can truly be called “learner-centered.” In this paper we identify features and preconditions of learner-centered learning goals, consider their context and focus on describing course-level scenarios that allow facilitators to include students in co-determining and following learning goals. Results are illustrated by student reactions and brief summaries of results and references to more detailed studies. The theoretical inspiration and interpersonal value system for learner-centeredness is borrowed from the Person-Centered Approach.

Index Terms – learning goals, student-centered learning, Person-Centered Approach, learning contracts, coUML, computer science education, inclusive universal access.

INTRODUCTION

Academic institutions prefer learning goals that are learner-centered rather than being based predominantly on instructor’s interest or short lived industry needs. Despite the insight that learner-centered principles [1] in general and learner-centered learning goals in particular contribute to engaging learners at all levels of learning and increase students’ intrinsic motivation, we observe that currently most learning goals are far from being learner-centered. They tend to be determined by strategies and curricula established by various stakeholders, but a significant involvement of students tends to be the exception rather than the rule. This is surprising, in particular in engineering education, since as engineers we have learned that project success and acceptance hinges on addressing *all* parties involved, prominently also the end users. A software product, for instance, that fails to adequately address the users’ needs, will lack user acceptance. But let us ask: What shall students do who want to finish their degree in time and find that the goals and teaching methods fail to meet their learning styles and needs? It can be easily imagined that precious time and resources are wasted by inadequate instructional practices.

We view the person-centered or student-centered approach to teaching and learning [2] [3] as a special

“flavor” of the learner-centered paradigm in so far as person-centered learning is consistent with learner-centered principles [4]. However, it puts pivotal emphasis on facilitative interpersonal attitudes and relationships [3]. Also, we prefer the term person-centered to student-centered since there is evidence that the best of learning and personal development is achieved if all parties, i.e., facilitators, teachers *and* students contribute all their resources at the level of knowledge, skills, and (inter)personal attitudes in order to foster significant learning [5]. Note that learner-centered principles such as the consideration of both cognitive and meta-cognitive capacities, the role played by motivation and emotion in learning, the influence of developmental and social aspects, and the consideration of individual differences were developed by Barbara McCombs in the nineties. They were taken up by the American Psychological Association and continually revised.

At the Research Lab for Educational Technologies, which is part of the Faculty of Computer Science, University of Vienna, we have been involved with putting person-centered principles into practice since about eight years ago. We have experienced that, in particular initially, it takes quite some extra effort to really consider student goals in course offerings. Nevertheless, looking back, we have always found it a good investment judging from students’ reactions regarding learning outcomes, empirical studies, and students’ feedback on improved employability-related aspects. In the longer term, and with appropriate support through educational technology and policy, we consider the extra effort definitely worth investing and perceive our own gains in terms of new insights, improved interpersonal relationships, or contacts with industry and other faculties. This is why in this paper we aim to share our experience in working with learner-centered learning goals based on a person-centered approach to teaching and learning.

For better understanding, let us take a look at the enclosing environment first. Within the EU, one principle of the so called Bologna process [6]—an endeavor to align educational structures and credits systems in Europe—is the specification of “learner-centered learning outcomes.” This calls for taking on the students’ perspective in *specifying* learning outcomes and determining:

- What learners should know and be able to as a result of an offering (study, course, module, unit)

- The time or effort needed to achieve goals in terms of the credits received for passing.

This orientation can be seen as an initial step towards considering the students' perspective. However, in our view it is still far from *determining* or designing learning goals and aspired outcomes from the perspective of the learner. The latter requires addressing at least the following issues:

- **Learner profiles:** How do we know what the learners' goals are, if we don't know the learners?
- Teachers as **facilitators** of learning with a broad scope of engagement options for students in their respective fields [7];
- **Learning strategies** that encourage learners to view learning as their personal project;
- Ways to acquaint students with the **professional and social requirements** imposed on them by the labor market. How should learners know what they need if they don't have an impression of their future activities?
- Aspects such as **job satisfaction:** capable employees tend to be satisfied, motivated employees;
- **Long-term goals** and educational strategies;
- **Multi-perspective** approach to including all stakeholders in the planning of curricula;
- **Job profiles** determined in cooperation with potential employers, i.e., representatives from industry;
- **Scientific profiles** and educational aspects determined by staff;
- **Ontologies** and an agreed-upon vocabulary for capturing essential characteristics of learning goals at various levels.

As a consequence, it appears that learning goals, in particular if they shall be learner-oriented, need to be pre-specified to some degree based on stakeholder wisdom, but also be kept flexible and adaptable once followed in specific situations (course offerings) attended by specific students.

Within the scope described above, the major contribution of this paper is to discuss a number of scenarios aimed to genuinely include learners in *co-determining* learning goals, paths, and assessment. The scenarios, activities and attitudes we suggest are based on our educational experience such that effects will be illustrated by survey results and/or students' reactions. In order to embed the scenarios in the broader context of computer science and engineering education, we differentiate between issues at the curriculum and at the course/module levels, respectively, in the next section. Subsequently, we identify and explain features of learner-centered learning goals. In addition, the preconditions required to enable educators to work with learner-centered learning goals are discussed. These preconditions address diverse levels and aspects such as flexibility and space in the curriculum to react to students' perceived goals, or the openness and competence of the instructor/facilitator to elicit students' goals and to support their being put into practice. More generally, the goal of research reported in this paper is to promote and

encourage the participation of students in all aspects of learning in the spirit of *Inclusive Universal Access* [8]. This means to accompany students by offering inclusion in all aspects of the course, flexibility in setting course goals and process, and providing access to all available resources in order to make learning more engaging, meaningful, and effective.

LEARNER-CENTERED LEARNING GOALS IN CONTEXT

Whereas individual students attend individual courses or course units with particular goals, expectations, and motivational orientations, these tend to be shaped by prior talents, life orientations and experiences. Complementarily, curricula are likely to be designed to offer education needed for a range of job profiles in the respective fields and for scientific and societal qualification. This is why learning goals, both subject-specific and generic, need to be considered at multiple levels and stages that influence the course-level scenarios of integrating learner-centered goals. While some strategic considerations are mentioned in the introduction, this section considers essential issues at the curriculum- and the course level:

Curriculum: gross level, provides overall constraints and opportunities:

- "Cross-cutting concerns," i.e., goals that transcend the boundaries of individual courses, in particular generic or transferable competences;
- Qualification of staff;
- Modular structure and degree of flexibility, e.g., choices between modules or courses;
- Range of predetermined course formats (e.g., lecture, lab course, seminar);
- Incremental promotion/development of qualifications.

Course/module: detailed level including:

- Constraints given by course format, duration, number of students, available rooms, etc.;
- Predetermined goals and free space; required, optional, and self-determined goals;
- Scenarios for including students in determining learning goals and assessment procedures;
- Learning technology, support by tutors;
- Assessment criteria and procedures.

WHAT ARE LEARNER-CENTERED LEARNING GOALS?

I. Features

Learner-centered learning goals describe what learners want to know and be capable of as a result of a particular educational offering. In this respect, learner-centered goals are always situated, i.e., derived in a concrete educational context and taking into account all options and limitations of that context. We propose to characterize learner-centered learning goals by the following features:

- They emanate from the process of sharing one's aspirations with the educator and optimally other learners in a particular educational setting;

- They are co-determined by educators and learners as part of their learning process;
- They potentially address the learner at all their levels, i.e., the level of intellect, skills, and attitudes, and pertain to subject-specific and personal learning;
- They are facilitated by educators and/or peers as part of the educational offering;
- The degree to which they are reached or satisfied is co-assessed by learners themselves.

II. Preconditions

Based on the theoretical foundations of Person-Centered Learning [9], matched by our experience [10], we propose a number of preconditions that need to be met in order to allow students and educators to effectively address learner-centered learning goals. These preconditions are:

- **Flexibility** and **space** in the curriculum to be able to react to students' perceived goals;
- **Time** to allow for finding, expressing and specifying learner-centered goals;
- **Willingness** and minimal **competence** of students to state and share their goals; also, willingness, openness and interpersonal competence of instructors/facilitators to elicit students' goals and to personally accompany/support their being put into practice;
- **Cooperative attitude** of educators and students;
- **Constructive relationship** between educators and learners;
- **Assessment procedures** that do not ignore learner-centered achievements. Optimally, assessment contributes to and is part of learning, in that it provides and exploits inclusive access to all the learners' inner resources, and helps to organize them effectively.

SCENARIOS FOR ELICITING AND FOLLOWING LEARNER-CENTERED LEARNING GOALS

In this section, we present three selected scenarios for including and/or eliciting learner-centered learning goals in concrete course settings. For each scenario, we provide a description of the context and the process. Additionally, the main activities for each scenario are modeled using a simplified coUML [11] notation, which should be self-explanatory.

I. Learning Contracts

The use of learning contracts is one method of building freedom in the classroom [3]: learning contracts allow students to define and follow their own learning plans and targets while providing them with a substantial degree of both security (through facilitation by the instructor) and responsibility (through defining own goals and paths). Learning contracts can be employed as an alternative form of evaluation of students' achievements, while the contracts act as signed agreements about desired learning goals. The use of learning contracts helps to develop and evaluate/assess the skills to be developed in a course more

directly and explicitly than a conventional written exam. While exams only require passive reconstruction of previously transmitted or read information, learning contracts allow students to explore and elaborate areas of interest in an active, self-directed way that can significantly leverage motivation by supporting and developing an inquiring state of mind [3]. Also, they may further deeper interest/knowledge in a special application/context of the course's subject matter. Conceptually, learning contracts show some similarity with project-based learning scenarios: they are embedded in an iterative procedure including the following steps:

1. Learning contract proposals by students/teams and approval by the facilitator (i.e., definition of learning outcomes and process)
2. Elaboration of deliverables defined in the contracts.
3. Evaluation of contributions.

The learning contracts scenario basically is one of the most immediate forms of introducing learner-centered learning goals. During the initial phase—i.e., in proposing the contract contents, activities, and outcomes—students are given the freedom and responsibility to explicitly define and voice their own learning goals. Those proposals are reviewed and approved by the facilitator to ensure compliance with curricular requirements, the course context, and topics.

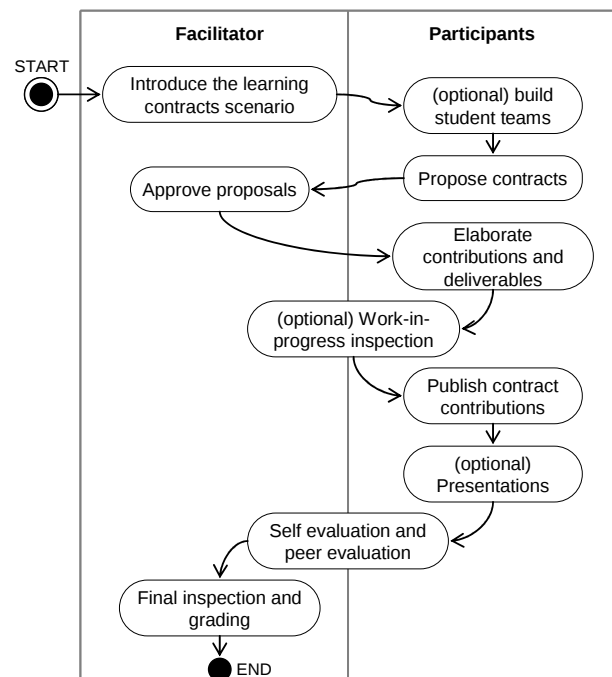


FIGURE 1
LEARNING CONTRACTS SCENARIO

Figure 1 depicts a generic activity model of the learning contract process. The model illustrates the distribution of responsibility in the whole process among the facilitator and the participants. While in conventional settings most of the responsibility in defining goals, in directing the process, and in evaluating students rests on the instructor, his/her role

becomes more of a facilitator or coach for learning contracts. Responsibility for proposing learning goals and outcomes in contracts, in directing the learning process, and in evaluating the outcomes (self and peer evaluation) is to a significant degree transferred to students. If implemented accordingly, such a scenario enables more active involvement of students in definition, participation, and evaluation of learning, and is therefore an appropriate means in approaching a learner-centered mode of instruction.

The most notable applications of learning contracts in our context took place in 2003 and 2004, when we offered a new CS bachelor's module on Web Engineering, involving 355 students in 2003 and 183 students in 2004. Faced with so many students in one lecture course and 12 concurrent lab courses, the primary intent was to avoid having to grade more than 350 written exams (which would have been the duty of the instructor who did the lectures) and to involve those students in a more engaging, meaningful scenario. The rules for learning contracts were announced as follows:

- Students team up with 2-3 peers and propose a contract to be approved by the team's lab course instructor;
- The learning contract includes the definition of learning goals for the team; this must at least include the creation of one significant written contribution about some topic related to the course theme;
- Teams participate in peer evaluation of learning contracts of 3 other teams at the end of the semester;
- The final inspection of the team's contributions includes a brief oral examination of each team member by the lab instructor about core subject matter presented in the lectures. This was intended to compensate for one of the weaknesses of the learning contracts approach: as the work focus in the contracts might be quite narrow (e.g., specialized topics), the remaining topics in the module's topic range would otherwise likely remain "untouched" by the learning contract teams;
- A signed learning contract can be used as a substitute to the (otherwise mandatory) written examination at the end of the semester;
- The decision whether to propose a learning contract has to be made at the beginning of the semester and can be revoked at any time.

The advantages of this scenario were twofold:

1. **Students:** they were offered to choose between (a) learning all the content presented in the lectures for a written exam or (b) learning in a team setting on some topic that is collaboratively chosen by team members and through a process based on learning goals set in collaboration by the team members.

2. **Administration:** the learning contracts offer would (a) significantly reduce effort required for grading written exams and (b) distribute the remaining grading workload among the lab course instructors instead of keeping it only with the lecturer.

It turned out that our offer was considered highly attractive by students: in 2003, close to 84% of all students

engaged in learning contracts, and in the following year, 58% chose to engage in learning contracts. More than 72% of participants in 2003, and about 77% in 2004, perceived their long-term learning effects as being higher, respectively, in the learning contracts setting compared to learning for the written exam. Regarding the decline in popularity that is evident in 2004, it could be explained by the fact that the post-hoc survey in 2003 has shown that 65% of learning contract students perceived their time investment required for fulfilling the learning contracts higher as compared to learning for conventional written exams (only 12% thought the effort required was lower; 23% considered it a tie). Obviously, students' appreciation of personal relevance and self-direction of learning within a learning contract setting outweighs the extra effort required.

More detailed information on our learning contracts project can be found in [12] [13].

II. Collaborative Elicitation of Learning Goals

The course "Development for Technology-Enhanced Learning" was conducted in winter term 2005 and was offered to PhD students of the Faculty of Computer Science and the Faculty of Educational Sciences. The overall aim of the course was to provide students with an interdisciplinary platform or workgroup for exchange on technology-enhanced learning topics, and to help each other with the progress in their PhD studies and theses. In the opening session the first time slot of approximately two hours was dedicated for agreeing upon the language spoken in the course (English vs. German), the tasks structure, as well as goals and topics to be addressed in the course. Furthermore, modes of evaluation and further time slots for meetings were arranged.

The first step towards learner-centered learning goals was undertaken in the form of a flipchart on overall goals and expectations. The course instructor moderated and noted inputs of students, who could freely name all their goals and expectations. Students nominated technical expectations like "Discuss professional communities" or "How to employ new media", and expectations on how learning should take place, e.g., "Cooperative work", "Experience group process" or, "Learn from each other".

In a second step each student was asked to define his/her learning goals. The instructor provided a pinboard and small slips of paper. Students were asked to answer the question "What do I want to learn?" on about 3–5 slips. After writing down personal learning goals, students attached them to the pinboard and subsequently ordered them cooperatively to create goal clusters. Most nominated learning goals concerned the interdisciplinary setting of the course (10), e.g., "Broaden perspective based on different viewpoints". Furthermore, students wanted to benefit from their colleagues on how to deal with the own dissertation project (6 nominations), e.g., "How others cope with their doctoral study", and getting to know colleagues (3 nominations), e.g., "To get to know other better and find

possible overlaps in the research field”. There were also 4 personal learning goals dealing with subject matter.

The generic process underlying the collaborative elicitation of learning goals in this course is depicted in Figure 2.

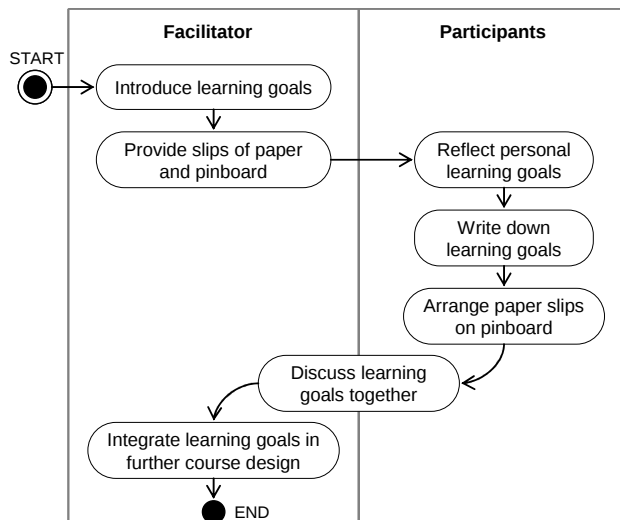


FIGURE 2

SCENARIO FOR COLLABORATIVE LEARNING-GOAL ELICITATION

Reactions of students indicate that they valued the possibility of bringing in their personal learning goals and comparing/aligning them with goals of their peers. However, some students remarked that some discussions got too lengthy, presumably because most decisions were subject to prior discussion in the whole group (language, tasks, goals, topics, evaluation, time). One student put it like this: “I like the idea that we all can agree on what we want to do in this course. However, [lengthy] discussions are just annoying ... I prefer to keep those organizational / administrative discussions as short as possible.”

Students also reflected on their initial problems to express their goals and expectations: “When talking about our expectations for this course, I could hardly express what my expectations were. Now, after some thinking and reflection I found out why. I know ‘where’ I want to be at the end of this term. I have ideas about how I can reach those ideas – however, only vague ones. I hope this course can make its contribution to get myself there.”

For additional information on this course refer to [14].

III. Determining Focus Topics

The context of this scenario is a blended learning course on “soft skills in project management” with about 20 participants that is repeated each year. The overall course goal is that students improve their communication and moderation competencies as well as selected professional competencies in the context of project management. The face-to-face thread of the course consists of ten moderated workshops, 4 hours each, where individual topics within the gross framework of “soft skills in project management” are elaborated following a strongly interactive style. The first

three workshops are moderated by the instructor who practically introduces students to elements of the moderation technique by applying them in context. For instance, in order to select those professional skills that students aspire most strongly, they are asked to collect individual professional competence items on a flipchart and to discuss their importance for project managers in general. After complementing the list by competence items found in the literature, students are asked to state their particular goals and expectations for the course. Based on thorough listening and students’ expressed interests in the first three moderation units, the facilitator creates a list of topic clusters and invites students to complement them such that they may add themes they wish to be elaborated in the course. It is proposed that they form small teams of about three persons in which they moderate a particular theme. Once everybody is satisfied with the list of proposals, a group choice procedure is started: each student may distribute three points among the topics. Those 6–7 themes that attract the most interest are selected and students can freely position themselves among the topics. If, for example, one topic is highly preferred, sometimes it can be split into two subtopics such that students end up with a theme they are intrinsically interested in. Accompanying descriptions of moderation elements and more theoretical background on their application is provided via the online learning environment and can be inspected on demand.

The generic process of determining the group’s topic preferences is shown in Figure 3.

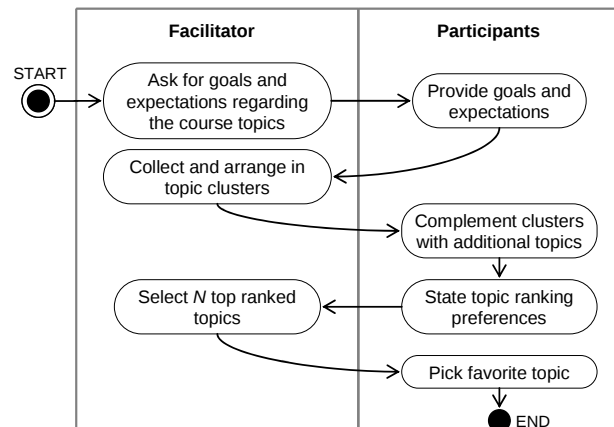


FIGURE 3

SCENARIO FOR DETERMINING FOCUS TOPICS

The figure clearly demonstrates the distribution of action, interaction, and responsibility in deciding on which topics to collectively focus on throughout the course. This kind of involvement in collaboratively determining the course focus was appreciated by students, as some of the written reactions collected at the end of the most recent course in summer 2007 indicate:

“I see another benefit in the increased self-organization of students who participate in the course as well as improved communicative competencies, supposedly also a higher degree of tolerance toward different opinions.”

"It took me much effort to decide which topics to select for presentation and which just to refer to. I needed some time for reading, getting an overview, and making my own picture. It was a real challenge [...], but equally it was a highly interesting and valuable experience."

"I think [we] have formed a group that could work together and collaborate on various topics very soon. This was of course beneficial for the whole course, not only for the first block."

"In fact I did not know what [to] expect till the course started. [...] It was interesting to watch how a group of people that don't know each other can cooperate if they want or have to. And I think we wanted :)"

The quantitative evaluation of this course showed that students felt they learned most from their active engagement: This encompassed practical exercises, whereby all of them (except an initial exercise on active listening and one on team work) were suggested by the student teams in a self-initiated manner. Active engagement and involvement equally encompassed other forms of activities, in particular communicative exchanges that were emphasized throughout the course, both face to face as well as online.

As a general finding from quantitative evaluation (e.g., [8] [10]) we can state that in our courses following learner-centered goals in a facilitative atmosphere, students tend to perceive significantly more benefit from issues like active participation and cooperating and communicating with peers and the facilitator, than from provision of content, or transmission of subject-specific knowledge. This is why we believe that these scenarios contribute to higher student motivation and more meaningful learning outcomes.

CONCLUSIONS

The move towards including learners in determining learning goals is psychologically and socially fully justified: Participation tends to improve motivation and acceptance and thus can lead to more engaged and persistent learning. It appears to be less clear, however, in which ways learners can be included, what this means to educators, and what are effective learning designs that support students in viewing learning as their project for which they are co-responsible.

In particular in the age of technology support in learning and a vast increase of all knowledge sources, traditional pedagogies fall short in providing orientations for educators. Therefore, in this paper we have described and reflected on some scenarios stemming from our educational practice. The scenarios cross a wide range of courses and have been successful in some ways of including learners. They all are based on the theoretical basis of the Person-Centered Approach that fully acknowledges the power of self-initiated learning when accompanied by congruent, resourceful and respectfully understanding facilitators. Our most essential learning has been that:

- Success depends on the cooperation of all parties;
- Self-initiated activities need to be part of assessment;

- (Extra) effort needs to stay within limits;
- Authentic problems and self-initiated processes are particularly motivating;
- Learner-centered goals do not imply that everybody does what s/he wants, but instead they are "flexibly engineered" and considered throughout the course.

ACKNOWLEDGMENT

This research was supported in part by the University of Vienna through the project "Technology Enhanced Learning" (SP395001).

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