Introduction

Student-centered education has often been used in ways distinguishing a set of practices or theory from traditional practices that are teacher- or curriculum-centered, sometimes colloquially referred to as “sit and get.” Cornelius-White and Harbaugh (2010) trace the various terms used to define learner centered, a common synonym to student centered, versus traditional approaches. They emphasize the learner-centered model of McCombs and colleagues (e.g., McCombs & Whisler 1997; McCombs & Miller 2007; McCombs 2013) and the person-centered model of Rogers and colleagues (e.g., Aspy 1972; Aspy & Roebuck 1977; Rogers 1951, 1961, 1983) as foundational paradigms. In higher education, the term student centered has become ubiquitous, referring to attempts by institutions to craft experiences that honor the voices and needs of students as explicit priorities as part of their missions along with furthering the study of the arts and sciences and public welfare (European Higher Education Area 2009). Faculty attempt to apply this mission and models and the practices associated with them, such as those proposed by Rogers and colleagues and McCombs and colleagues. More recently, Hoidn (2017) proposed a situative educational model based on constructivist foundations, numerous case studies, and empirical education research. It aims to support educational stakeholders and instructors in designing and implementing effective student-centered learning environments in the realm of higher education.

In order to motivate one focal aspect explored in this chapter, note that one-third of university students now enroll in an online course, and most have at some time had an online class. Moreover, about three-fourths of classes at universities are now blended (Kelly 2017), combining face-to-face classes with computer-supported tools and online learning sequences. In order to reflect this situation, we selected our two cases on the basis of illustrating and studying student-centeredness on the one hand and the inclusion of appropriate educational technologies in student-centered classrooms on the other hand. For reasons of wanting to share our experience of blended, student-centered learning (SCL) in small as well as large classes, we chose to present two case studies and subsequently reflect on their similarities and differences.

In Table 16.1, various features are listed that provide criteria for distinguishing teacher-centered and student-centered approaches to education. The student-centered mode is going...
to be illustrated in the case studies presented later, along with showing how technology can support and enhance that mode by increasing the share of students’ active participation. Note that, in practice, a classroom is hardly ever totally teacher centered or student centered. Rather, the two extremes should be considered as a continuum such that each instance of a course will be situated somewhere between the two ends. Table 16.1 can be used to help locate course practices on the continuum spanned by the two columns and inspire one to try moving between them according to the aspired learning outcomes and one’s personal capacities.

This chapter first offers an introduction to foundational theories and their research basis. It then provides two case examples of how student-centered classrooms looked in recent practice to encourage further attempts to improve practices, research and maturation of student-centered education in the university setting.

### Student-centered learning as person-centered theory in practice

For Carl Rogers, a key characteristic of SCL is that it be significant or experiential (Motschnig & Cornelius-White 2012). By significant learning Rogers (1961) means

> learning which is more than an accumulation of facts. It is learning which makes a difference – in the individual’s behavior, in the course of action he chooses in the future, in his attitudes and in his personality. It is a pervasive learning which is not just an accretion of knowledge, but which interpenetrates with every portion of his experience.

\[p. 280\]

For example, a toddler who touches a hot stove learns the meaning of hot in an involved, whole-person way that won’t be forgotten soon and would guide the toddler’s behavior in similar situations. Rogers (1983, p. 20) identified key features that are involved in such significant or experiential learning, including personal involvement, self-initiation, pervasiveness, learner self-assessment, and inherent meaning. He also asserted that it is the process of learning how to

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**Table 16.1 Traditional versus student-centered learning**

<table>
<thead>
<tr>
<th>Feature</th>
<th>Traditional teacher-centered teaching</th>
<th>Student-centered learning and teaching</th>
</tr>
</thead>
<tbody>
<tr>
<td>Learning targets</td>
<td>Instructor defined</td>
<td>Participative, cooperative</td>
</tr>
<tr>
<td>Transfer direction</td>
<td>Instructor to learner</td>
<td>Cooperative, interactive, multi-perspective, flexible</td>
</tr>
<tr>
<td>Transfer mode</td>
<td>Lecture</td>
<td>Offering exchange, sharing of resources, elaboration of themes, interaction, forum, moderation, presentations</td>
</tr>
<tr>
<td>Instructor’s role</td>
<td>Expert</td>
<td>Facilitator, coach, mentor, mediator, resourceful person</td>
</tr>
<tr>
<td>Tasks</td>
<td>Constructed</td>
<td>Authentic, real problems, situative</td>
</tr>
<tr>
<td>Assessment</td>
<td>Exam</td>
<td>Multifaceted, taking into account various contributions; including self-assessment and/or peer assessment, often done online</td>
</tr>
</tbody>
</table>

*Source: revised and extended after Motschnig & Pitner 2016.*
learn that ought to be a goal for education, not learning for specific content per se (Cornelius-White & Motschnig 2012).

Intriguingly, according to Rogers (1983),

the initiation of such learning rests not upon the teaching skills of the leader, not upon scholarly knowledge of the field, not upon curricular planning, not upon use of audiovisual aids, not upon the programmed learning used, not upon lectures and presentations, not upon an abundance of books, though each of these might at one time or another be utilized as an important resource. No, the facilitation of significant learning rests upon certain attitudinal qualities that exist in the personal relationship between the facilitator and the learner.

(p. 121)

For significant learning to happen, Rogers postulated that in each person there rests a directional, forward-moving force referred to as actualizing tendency. Students “who are in real contact with life problems wish to learn, want to grow, seek to find out, hope to master, desire to create” (Rogers 1961, p. 289). Hundreds of studies in psychotherapy and classrooms have identified and tested the basic elements of the facilitative relationship (Cornelius-White 2002, 2007). The core task of the instructor, or facilitator of learning, is to provide the attitudinal conditions of realness, respect, and empathic understanding and thereby to create a constructive climate in the classroom in which significant learning can happen (Rogers 1983). Realness refers to the facilitator’s self-awareness, authenticity, and sincere interest in and openness to the learners as persons. Respect, or unconditional positive regard, in person-centered education refers to the facilitator holding high expectations in broad terms but a patient, benign neutrality in terms of accepting each successive step in the learning process. Teacher empathy is the hands-on attention to the specifics of what students are interested in and struggling with, both in classroom content and as whole persons (Cornelius-White & Harbaugh 2010).

Motschnig and colleagues have been conducting studies on Person-Centered technology-enhanced Learning (PCeL), a particular manifestation of SCL, since the early days of blended and online learning 20 years ago (Motschnig-Pitrik 2013). They have found that technology enhanced learning with shared, transparent goals, open yet respectful face-to-face and online communication, working in small teams, presentations with feedback, provision of (primarily web-based) resources from both students and facilitator, and a combination of (online) self, peer, and facilitator evaluation results in long-lasting effects. These extend to learners’ interpersonal relationships; learning at knowledge, skill and attitude levels; increased student motivation; feeling of community; and increased team orientation and related competencies.

But how does technology fit in with student-centered or person-centered pedagogy? In PCeL, learning technology has a supportive and sometimes even enabling function based on functionalities opened up by technology (Harbaugh & Cornelius-White 2013). Some examples are as follows:

• Due to online materials, lectures can be kept to a minimum, detailing the most complex issues and motivating students to learn from online materials in ways that suit them best.
• Multiple, independent perspectives on some problem, theme or situation can be collected online. Then students are confronted with them in the follow-up session.
• Team project documents can be uploaded easily, inspected, and even peer evaluated, allowing students to take on different functions (roles) and practice giving and receiving of feedback.
In PCeL, a distinctive feature of technology use is that online elements always support the fulfillment of some task that is relevant for students. In this sense, technology supports the course process and is never employed as a “task per se.”

Jumping off from Rogers’s person-centered facilitative relationship and concept of the whole person, McCombs and colleagues developed the American Psychological Association’s (APA’s) Learner-Centered Principles beginning in 1990 and since then tested and revised their model (McCombs 2013). The Learner-Centered Principles explicate a broader variety of aspects than Rogers’s student-centered approach. They include four (overlapping) areas: cognitive and metacognitive, motivational and affective, developmental and social, and individual differences (APA Work Group 1997), which form the basis of the Learner-Centered Model. The model highlights the active, relational, constructivist aspects of learning and learners. In essence, both the original student-centered perspective as explicated and illustrated delicately and impressively in Rogers (1983) and the more recent learner-centered models share a triple focus:

- The individual learner (here used as a generalization of pupil, student, apprentice);
- The interpersonal relationship between the learner and the teacher/instructor/facilitator;
- The learning process.

APA’s Learner-Centered Principles may be found at www.apa.org/ed/governance/bea/learner-centered.pdf, which will be a larger focus of application in the second case study.

Case 1: seminar on communication and teamwork

The case presentation is organized to include a rationale for the course’s inclusion and its general goals, a description of the course, a content analysis of the significant learnings and final surveys on facilitative characteristics and sense of community.

Course selection and focus

This course was selected because, in the authors’ view, it illustrates that SCL can be achieved in an academic environment with all its requirements like mandatory enrollment, specified learning outcomes, and grading. “Communication and Teamwork” (Com-T) is a lab course with 20 participants (in the winter term 2016/2017) held in seven blocks, each lasting 3.5 hours. It is mandatory in the bachelor teacher-training curriculum for teachers of computer science who enroll into this course during their third year. It is the most intensively student-centered experience of the participants’ program.

In order to illuminate the student-centered nature of the course, the case-study will focus on the following aspects:

- Granting students as much freedom to learn as possible while keeping an eye on the aspired learning outcomes;
- The facilitative atmosphere and how it is established, perceived by students, and maintained;
- Indications of the students’ significant, whole-person learning;
- The multi-perspective grading procedure including students’ online self-evaluation and ePortfolios;
- The students’ characterization of the course and aspects of their feeling of community;
- Effects of the course (e.g., interest even outside of the class, 12 bachelor or master candidates, low drop-out rate).
Course description

Course goals: Consistent with the objective to facilitate whole person learning, the facilitator formulated initial goals at the level of knowledge, skills and attitudes as seen in the following. These were complemented by the students’ goals elicited during the first workshop, comprising items such as speaking spontaneously in front of a group, being better understood by others or being able to express oneself clearly. Special emphasis was put on including students’ experience in real-life situations and thus addressing relevant issues that teacher trainees are likely to encounter:

- General goals: Participants acquire personal experience, skills, and background knowledge in situations of professional and everyday communication (such as listening, articulating, speaking in a group, conflict resolution, decision-making). Participants build a learning community around these concerns.
- Level of knowledge and intellect: Students acquire knowledge about the basics of the person-centered approach, significant learning, the group process in teams.
- Level of skills and capabilities: Students gain active listening, dialoguing, and feedback skills in face-to-face as well as online settings. They improve their abilities in spontaneous communication, communication in difficult situations, and decision-making in teams.
- Level of attitudes and awareness: Students gain self- and other-awareness while expressing their own feelings, meanings, and intentions and perceiving those of others. They experience active listening and develop their own attitude toward it. Students become more sensitive to experiences and loosen preconceived, rigidly held constructs and stereotyped behavior. Students move toward acceptance and better understanding of themselves and others. They become more aware of their strengths and weaknesses when working in a team.

(Motschnig & Nykl 2014)

Course design: Consistent with an experiential learning style, the person-centered approach and APA’s Learner-Centered Principles, the strategy in the course design was to let students experience a rich selection of didactical scenarios under the premise of unfolding a facilitative, safe climate in the class. At least two reasons speak for a variety of didactic elements. First, the course tends to be perceived as exciting because students can experience different impulses for learning, especially important for course units lasting for a period such as 3.5 hours. Second, in particular teacher trainees get inspired in how to work with a group of learners, engage them, and create an atmosphere for sustainable, significant learning.

Structure: While there are some fixed elements that are part of each class on communication and teamwork such as elaborating expectations and fears, the active listening exercise, attitudes and techniques in active listening, encounter, dialogue versus discussion, elaborating themes in small groups and the open case setting (Motschnig & Ryback 2016), particular themes and activities come up only through the flow of the course. For example, the course instance (winter term 2016/2017) studied in this class included themes like:

- How teachers communicate whom we like/dislike;
- How flexible, real and empathic can I be as a teacher;
- Dialogue on the feasibility of inclusive education;
- Attitudes toward conflict and person-centered conflict resolution;
- Impulses for the ePortfolio as a result of the flow, questions and activities of each unit.
Interplay of face-to-face and online activities: The face-to-face sessions started with everyone in a circle. We began by discussing the reaction sheets posted online as a reflection from the last block. The idea of reaction sheets goes back to Carl Rogers, where students can express themselves individually and personally regarding the course. They can tell of the way it is or is not meeting their needs, they can express their feelings regarding the instructor, or can tell of the personal difficulties they are having in relation to the course.

(1961, p. 20)

As the sheets could be read by all participants and the facilitator who briefly addressed them in the beginning of each unit, she and the whole group could be regularly influenced by them. In this way, students co-shaped the course.

The next step was to sketch a tentative agenda for the unit on the whiteboard. This agenda served as a kind of master plan that the group could follow, adapt or leave according to the present flow of needs, wants and meaning. Care was taken to mix short theory inputs with reflection, exercises, and an open case (Motschnig et al. 2014; Motschnig & Ryback 2016) invitation in small groups.

As an example of co-shaping, a highly engaged participant reflected:

I felt it’s a bit of a shame that sometimes a few students did not participate in the discussions. Unfortunately, it’s difficult for the teacher to motivate all pupils to engage actively. A challenging question will be, how I will act upon this problem when having my own classes.

This reaction, when addressed by the facilitator, ignited an intriguing dialogue about engagement is class and brought up several perspectives of considering this phenomenon. Even some students who tended to be quiet spoke up. So, besides bringing up phenomena or questions from class to ensure “continuity” from meeting to meeting, an advantage of reaction sheets is the fact that they let quiet, introverted students have their voice and become more present to the group.

While the vast majority of reactions were positive – the students appreciated and enjoyed the constructive climate and rich, respectful, open sharing in class – some students had the courage to use the reaction sheets to voice issues they did not like. For example, one student shared his reluctance about sitting in a circle while being presented a theory input. He remarked: “The circle can be very effective for sharing . . . , however, during the theory presentation I felt exhausted and at the wrong place in the circle. In this case I would have preferred to sit in a row.” This illustrates the open atmosphere and options for learning, including the facilitator.

Grading: The course was evaluated by taking into account as many facets as feasible: students’ active participation in face-to-face and online meetings, their self-evaluation, and the ePortfolio that left students lots of freedom on what learning endeavors to include. The only requirements were a (loose) connection to person-centered communication and an expected approximate amount of time to spend with the ePortfolio of 50 hours. Finally, the grade proposed by the facilitator was compared with the one that students assigned themselves in their self-evaluation. In the case that the grade assigned by the facilitator differed by more than one with the student’s self-assigned grade, the student would be invited for an
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interview. However, this case did not happen which we see as a sign of honesty, realness and understanding.

In a nutshell, most students had never written an ePortfolio before and thus needed some guidance on how to fill it. Thus, the facilitator published a few ideas (e.g., themes for reflection, links to articles, exercises, quotations) on the course’s eLearning space after each course unit. Toward the end of the term, students’ initial unease about writing the ePortfolio seemed to turn into constructive energy about having freedom to pursue what they were interested in. Some examples of content in the ePortfolio included reflections on Rogers’ articles and books, summaries of self-organized open-case sessions; videos with examples of the students’ active listening; interviews and analysis of efforts to listen to a partner or parent, including that other person’s reactions to the attempts.

Content analysis of students’ self-evaluation for significant learning

At the end of the course, students had the opportunity to submit online self-evaluations. These would be read by the facilitator and used as an orientation for grading and as a contribution to online participation. Eighteen of 20 students turned in their self-evaluations. Students could choose to write whatever was on their minds or respond to (some of) the following questions:

- What did I contribute to the course?
- What and in which ways did I learn?
- Were there significant experiences, which were particularly relevant to me or to the group? If yes, how would I describe them?
- How intensively did I elaborate my topic/project?
- What is the most important learning I take with me?

The students’ self-evaluations were then read by one of the authors and all examples of significant experiences (there were 11 statements by 10 students) and most important, meaningful learnings and take-aways (15 statements by 15 students) were selected. These were then open coded by the other author to provide three underlying themes and selected quotes to exemplify potential learning outcomes or perceptions. In identifying themes, frequency of statements was taken into account.

Unique experience: Several participants discussed how the course was “different” from other courses, how it influenced them to see their future as an educator “as never before” and were “acquiring new perspectives” and how the “themes occupied my thoughts so much” and “my thinking at the meta-level was so strong that I perceived it almost distracting.” One student captured the experience in two short sentences: “I took with me the theory inputs and reflected my private communication. I learned a lot about myself.”

Value of active listening: Participants commented frequently on being grateful for their skill development and other results of active listening exercises, such as “It’s amazing how active listening brought about a perfect conversation, although I ‘just’ contributed with my attitude and not much verbally,” and how computer science can be “collegial and team-oriented.” Or as concerns “conflict, it is always most important to feel yourself into the other person and understand him/her. This is my core insight.”

Open course climate: The “flexibility” of the teacher, the “diversified course design,” and the fact that “the participation of students tended to be particularly high” contributed to perceptions such as “it was extremely freeing to share my problems with other persons and to hear their
perspectives and suggestions.” Likewise, the “open and honest atmosphere” and the “openness and trust” as well as the open case invitation format provided relevant, personal and professional learning for several participants.

All three underlying themes connect directly to the theory of SCL (Rogers 1983): openness or realness of the facilitator is necessary to co-create an honest, open atmosphere in which real issues can be shared. Equally important is the experience of being listened to in a non-judgmental way, allowing participants to learn from different perspectives and get to know oneself better. A unique course experience unfolded that differs from most traditional academic courses that emphasize the intellectual, technical or methodological skills at the cost of learners’ subjectivity and developing personhood.

### Final survey: students’ perceptions of characteristic features

The course was evaluated using the Encounter-Experiential Questionnaire developed by Motschnig and Nykl in 2012, assessing the perception of the person-centered core attitudes and students’ own perceived growth and movement. Altogether 17 students participated in the survey. Figure 16.1 conveys students’ perceptions of feeling accepted, Figure 16.2 of being empathically understood, and Figure 16.3 of perceiving realness and openness. Figure 16.4 depicts in how far students liked or disliked their personal movement.

These figures convey both a clear presence of the person-centered atmosphere as well as accompanying personal assessment of growth by the vast majority of participants.

![Feeling accepted in group](image1)

*Figure 16.1* Did you feel accepted in the group or workshop? (*N* = 20; *n* = 17)

![Feeling empathically understood in group](image2)

*Figure 16.2* Did you feel empathically understood in the group or workshop? (*N* = 20; *n* = 17)
Characteristic attributes: As part of the survey, students were asked to share three to five adjectives that describe the group or workshop from their perspective. The attributes mentioned were:

- Open: 12 mentions
- Pleasant (or nice, funny, friendly): 12 mentions
- Interesting: 5 mentions
- Respectful (or caring, tolerant): 4 mentions
- Empathic: 3 mentions
- Inspiring (or stimulating, motivated): 3 mentions
- Further attributes associated with the course were personal, thankful, communicational, smooth, great, relaxed, easygoing and diverse in characters.

Final survey: perceived feeling of community

The authors evaluated the course with the Community Questionnaire (Barrett-Lennard 2005), an assessment that asks participants to rate the degree of change the group (community)
underwent along 14 features on a 10-point scale, ranging from −4 (severe deterioration) to +4 (extreme advancement) on aspects of “Feeling of Community.”

Figure 16.5 shows the mean scores of participants’ estimated changes along each of the 14 features that characterize the development of the feeling of community. The results indicate a moderate to strong positive change in all 14 features of their perceived community within the group during the course. These results corroborate Rogers’s (1951, 1961, 1983) theory insofar as individual students’ reported perception of acceptance, realness and understanding in the course group goes hand in hand with students’ perception of improved qualities of interpersonal relationships, such as mutual respect and trust, attentive listening to each other, and feeling connected. Interestingly, the relatively highest value for “climate of respect and trust” on the community level goes hand in hand with the relatively best evaluation of “Did you feel accepted in the group or workshop?” on the individual level of the Encounter-Experiential Questionnaire.

The fact that the increase along the feature “shared initiative/leadership and responsibility” was ranked lowest (slightly below 2.0) of all features can be explained easily. Only within that overall frame could students gauge parts of the course, most prominently during phases of encounter or through communicating their reactions by posting reaction sheets. Thus, in a nutshell, the relative minimum at perceiving shared leadership accurately matches reality: leadership/facilitation was to a large extent the facilitator’s responsibility! This theme leads over to the next case, a large course facilitated in a way to be as student-centered as possible while, as will be argued, needing still more leadership/guidance and structure than a small course.

Case 2: large course on project management

Like the first case, this second case is organized to include a rationale for the course’s inclusion and its general goals, a description of the course, a content analysis of the significant learnings and final surveys on facilitative characteristics and sense of community.

Course selection and focus

This course on “project management” was designed on the basis of granting students the maximum possible freedom while respecting the specified learning outcomes on the level of knowledge and skills (Motschnig-Pitrik & Standl 2013). Essentially, the large course with about 150 students was targeted at guiding students toward the capability of managing projects skillfully. This resulted in the challenging question: how can a student-centered mindset be transformed into a course design in which 150 students would reach the course goals situated at the knowledge, skills and attitudes level? How could the contact, communication, realness, respect and understanding be maximized with so many students and formal requirements on outcomes and grading?

After previously dealing with the large group as a whole, an important decision was to split the cohort into three mixed lecture-lab classes and to associate each group/class with one facilitator, similar to the practice of using graduate assistants or peer leaders. A group of 50, organized into small teams of three to five people, would be easier to overlook and to converse with. Moreover, theory and practice could be intertwined more flexibly than separating theory from practice, as done so often in teacher-centered course designs.

In this case study of a 50-student group of “project management,” we put the focus on investigating how the first author put the 14 learner-centered psychological principles (see
Figure 16.5 Results from the Community Questionnaire (Barrett-Lennard, 2005) ($N = 20; n = 18$)
Figure 16.1) into practice. First, we sketch the student-centered course design that unfolded incrementally through several years of

- Reflection on students’ reaction sheets and listening to their voiced expectations;
- Input from the engaged tutor who was supported by a usable eLearning platform;
- Engaging in a high degree of interaction during the course;
- Deciding on the absence of a final exam;
- Providing transparent, multifaceted assessment and prompt feedback;
- Assuring the ubiquitous, real-life subject matter of managing a project.

Second, we give excerpts from students’ online reaction sheets. The quotes were selected to provide glimpses on how – if at all – students perceived the realization of the 14 principles. Finally, as a kind of proof of concept, we mention the results of the anonymous course evaluation.

Learners naturally want to learn, interact, grow personally and solve real, authentic problems when offered a resourceful environment and guidance where needed (Rogers 1983). This is the core of what we wanted to provide. For example, the students themselves wished to learn to plan a project or estimate its risk and effort to actually accomplish something exciting and connected to their job lives (Motschnig 2015). We are aware that this intrinsic motivation played a significant role in the students’ positive attitude toward the course. So one element to help is in the design of curriculum that is of clear relevance to students. Nevertheless, the task to facilitate the course for about 150 students came with a number of challenges that are discussed in this case study.

Course description

The course was compulsory for computer science and business informatics bachelor students. They were supposed to attend it during their third semester. Whereas in accordance with the teaching policies of the University of Vienna the course goals needed to be defined in advance, in the first unit students were also asked about what and how they’d like to learn in the course. Students responses were then matched with the predefined goals in order to agree on a gross agenda for the course. In the curriculum, the following subject-specific and transversal or generic goals were specified.

Course goals

Subject-specific goals and aspired learning outcomes required that after completing the course, students:

- Know the basic concepts of classical and agile methods of project management and are able to select and tailor an appropriate method based on a given situation;
- Can specify a project proposal and project charter (including project plans, stakeholder and risk analyses, etc.) for a small project in a team. They are able to present the elaborated documents and strategies in an understandable way;
- Know the differences between classical and agile methods.

Generic goals and aspired learning outcomes were such that after completing the course, students were expected to:
Person-centered theory and practice

- Be able to reflect on principles of interpersonal communication in teams and groups by connecting them to their (inter)personal experience in their team;
- Can reflect on the team process and their contribution in their team and course-community, including an estimation of their contribution;
- Have actively gathered experience in giving constructive feedback and receiving feedback. They have sharpened their perception regarding interpersonal dynamics in teams.

Course structure: Each of the three groups was organized to have seven face-to-face units/sessions following a mixed lecture-lab style. Each session lasted 3.25 hours, including a short break. It took place every second week, giving students sufficient time to work on their projects between the sessions. Even though formal attendance was not obligatory, active participation face-to-face and online via reaction sheets was honored in the grading. Also, instant feedback (Hattie 2008) to students’ presentations and reaction sheets was provided during the sessions such that most participants chose to attend regularly. All course materials, assignments, reaction sheets and students’ project milestone documents were shared via a usable eLearning platform.

Course design: The guiding principle enacted throughout the course was the following: the instructor felt she wanted to help students acquire the necessary knowledge and skills to manage real projects rather than instructing and assessing them from an expert position on retrieving or applying given information (Motschnig-Pitrik 2005, 2013; Rogers 1961). This called for a lively, enticing course in which students would be guided to learn some essentials and apply them creatively and collaboratively, taking with the experience of having designed and managed (an approximation of) a real project.

Different from most other comparable academic courses, our course had:

- Free, yet instructor-supported, team formation based on students’ interests in project themes;
- Sufficient time for interaction in class;
- Submitted project milestones could be inspected by all course participants such that they could learn from more than their own, self-composed project;
- Online reaction sheets (Motschnig-Pitrik 2014) after each course unit, in which students can express themselves individually and personally regarding the course. They can tell of the way it is or is not meeting their needs, they can express their feelings regarding the instructor, or can tell of the personal difficulties they are having in relation to the course.

(Motschnig-Pitrik 2014, p. 20)

- No traditional exams but a probing and reflective oral team colloquium at the end;
- A multifaceted grading scheme (Standl et al. 2012).

Interplay of face-to-face and online activities: A typical unit had the following flexible structure. It involved a discussion of students’ online reaction sheets, followed by up to three student presentations. Student-teams of three to five people presented the results of their milestones to get immediate feedback from peers and the instructor. All feedback could be used to improve the milestone and thus the final online submission of the project. After the presentations, general feedback to frequently encountered problems and particularly well-done subtasks was provided. Subsequently, the upcoming project milestone was explained and students were invited to ask questions such that all should have a clear understanding of the steps ahead. A short break
followed. The subsequent theory-focused part was an interactive presentation on project management methods, processes and techniques, with an emphasis on those that were relevant for the upcoming milestone. These presentations were enriched with interactive elements, such as asking questions, voting, break-out groups or classroom discussion. Factual details were left for individual look-up at the eLearning platform, helping to reduce the lecturing part and shifting the focus to interaction instead. At the end of each unit, students could consult the instructor with individual questions. Other components were a tutorial for a planning tool, an interactive guest lecture from a practicing project manager, incentives for finding focal themes, and spontaneous class discourses. All in all, an open feedback culture developed.

**Feedback and grading:** Students were informed about the mode of assessment in the first unit. Moreover, assessment criteria were transparently displayed on the eLearning platform. Giving early feedback to students was one of the instructor’s priorities. For example, she reviewed and assessed the documents that student teams delivered after finishing a project milestone usually within 2 days such that students got (almost) immediate feedback. Besides the team project in three milestones, there was a focal theme on any issue related to project management to be elaborated by students on an individual basis. In sum, the following items were used to assess students with a maximum of 100 possible points to receive:

- A team project with three to five students per team, following three specified milestones of an information technology project that student teams could choose freely, based on their interest. Each milestone provided up to 20 points per team, with the team presentation up to 10 points;
- A focal theme elaboration (connecting to any aspect of project management) providing up to 15 points per student;
- Reaction sheets to be submitted after each face-to-face unit. Students could collect up to 15 points from submitting reaction postings (containing question, ideas, reflections, feedback, etc.).

The class concluded with a final team review colloquium with the instructor. These meetings included a retrospective reflection on the team project in the first part and a reflection on the strength and weaknesses of the collaboration in the team as perceived by the students in the second part. These reviews discussed solution paths and connections between theory and practice. They often included the question of how the students would assess themselves or whether they considered a grade suggested by the instructor as accurately mirroring their achievement.

**Study on putting Learner-Centered Principles into practice**

Our goal is to illustrate how each of the 14 Learner-Centered Principles (APA 1997) was perceived by students. To do so, one of the authors had a student assistant read and analyze students’ reaction sheets, and select and categorize statements if they fell into one of these Learner-Centered Principles. Thereafter one of the authors selected particularly evocative statements to translate them from German (where applicable) and include them into this case study. This author also looked for statements that would *contradict* any of the principles, however no such statement could be detected, despite students’ occasional openly voiced criticism. The latter concerned, for example, some slides being overloaded with content, or students’ wanting more examples. For instance, one student shared: “I’d suggest [to] show some example how it [the milestone document] should look like, not just explaining.” This gave the instructor the chance to encourage students to be creative and not mold their solutions after examples that
never could capture all aspects relevant to a particular student or project. Nevertheless, they could look into the peers’ developing milestones to learn from more than just their own project. Interestingly, students tended to prefer the practical parts of the units, sharing, for example: “The only thing I’d like to change . . . is that I’d prefer to spend more time with practical issues instead of the theory.” And in fact, experimenting with cutting down the time for theory input and working on examples in class was met with much positive feedback. This may illustrate the open and flexible nature of the course and the mutual learning of students and the instructor who was surprised about students’ not complaining about being expected to do tasks for which they needed to look up theory provided on the eLearning platform.

Based on the selection procedure described earlier, we provide illustrative excerpts from the students’ reaction sheets indicating that the principles actually reached the students and were considered worth mentioning in the reaction sheets.

Cognitive and metacognitive factors

The six cognitive and metacognitive factors influenced the course design insofar as students were given choices wherever this was appropriate to fulfill the preconceived course goals and, at the same time, allowed students to bring in their interests, such as specific project themes or topics to choose for their focal theme. Moreover, the interactive style of the course, the reaction sheets, and the final colloquium actively helped to construct meaning from information as well as experience. The students’ presentations and immediate feedback not only trained students’ interpersonal skills, but they also provided opportunities of creating meaningful representations of knowledge fed by several life examples and social constructions. The multifaceted grading schema aimed to extend the repertoire of thinking, learning and reasoning strategies. The following excerpts from students’ reaction sheets1 (Motschnig-Pitrik 2014) illustrate the students’ perception of the cognitive principles:

A student wrote:

One thing that I remember particularly well is risk management. This may be due to the fact that the class was invited to elaborate on the theme. The short brainstorming in small groups challenged everybody to contribute something. Such brainstorming should be done more often, because I feel that not only I but also my colleagues become more actively involved.

In his final feedback, a student shared:

Regarding the instructor’s feedback I’d like to mention that I was very pleased that we students were given it openly and transparently. This way, we knew after each milestone what went well and what could be improved. This made it possible that my team revised their submission at the end. This, as well, is a felicitous idea, because a project – as we experienced it as a team – is a dynamic enterprise that is susceptible to change at any instant. We used the option to improve our project at the end with pleasure and this way we could get the best out of the project.

Motivational and affective factors

During design, care was taken to allow students to delve more deeply into the subject matter in an area that would catch most of their interest. Practically, care was taken to explain the
relevance and ubiquitous presence of project management. The following student reactions illustrate how students perceived the motivational and affective aspects of the course:

We were presented some interesting ideas on how to go about it and I am happy to conclude that this can be a task that can unleash our full creativity, as we can, for instance, compose a tutorial on how to use certain software that we found useful during the course. Furthermore, there is an interesting possibility of interviewing a project manager. I am still not quite certain if I am going to turn in this paper, since I already reached a positive grade and the end of the semester can be used to improve the grades at some other courses or even try to get them out of the red area (failure). Nevertheless, I think that the first days of Christmas holidays might be a good moment to finish the paper and earn some extra credits for the project management grade.

I appreciated it very much, whenever documents from existing projects were shown and discussed, or when issues from real projects were addressed. This helped to build a realistic connection to the subject matter and it was impressive to see how extensive the planning of a real project can be.

An intriguing “add-on” to the whole course was the visit of a project manager who knew and shared the reality of the field. What I liked in particular was that he explained how one can become a project lead, what this occupation meant for him, and what he thought about the role and work of project managers in general.

**Developmental and social factors**

Developmental and social factors were particularly important as they form the basis for social learning that plays a crucial role in project management. In this regard, active listening, feedback and the phases of team/group development were addressed both in theory and at a practical level via exercises and dialogue in class. Moreover, the instructor aimed for maximum transparency, openness, respect, and understanding throughout the course. This was perceived by the students who appreciated the constructive work climate in the course:

I consider the idea to create a project with almost full freedom very much nourishing our creativity.

What I most enjoyed in the course was the teamwork involved, due to the great chemistry in my team and the way everyone did their share. Additionally, my fellow classmates’ presentations and ideas were great to hear and see.

This [the fact that projects fail most often due to people issues] quite clearly emphasizes the huge importance of an open communication between team members in which opinions, ideas, and input is valued and considered.

I find it enriching that we all give each other feedback, that we can present our projects and also peer-review them. . . . Moreover, the feedback of the instructor is clear and distinct.

**Individual difference factors**

Finally, we addressed individual difference factors including appropriate assessment procedures in offering a variety of ways to contribute to the class and making transparent how they would
contribute to learning and inform grading. Such factors concerned the team project, where team members were free to divide the work according to individual strengths and weaknesses, however with the need to fulfill the tasks that came with each milestone. These tasks were versatile such that they could choose in which subject matter they wanted to deepen their knowledge and tended to address different skills. For example, students should formulate project goals, identify risks, use a tool for project planning, estimate project costs and design a project flyer for marketing. They also were free to choose whether they wanted to submit projects in German (the official course language) or in English (preferred for some immigrants and for practice in international settings most students would work). The following student reactions reflect how the individual difference aspects were realized:

Other teams also had some ambitious ideas and I am keen to see how they will develop by the end of our class in January. Interestingly enough, we all have very different approaches, so we had a chance to hear about different funding or sales models.

I found the examples of focal themes – e.g. a report on collaboration tools, a reflection on the cooperation in intercultural teams – helpful to facilitate my own process of finding a suitable topic. Thereby the theme of collaborating in an intercultural team appears to be very interesting and a potential candidate since in our four-man project team already three different nations are represented.

One student described her process throughout the project:

Maybe the team project needs to be introduced better. From milestone two and three onwards one is already “on track” and has clear goals, but in milestone one, students may feel a bit left alone.

**Final course evaluation results**

In the final, anonymous course evaluation that is done for each course, students graded the course 1.5 on a 5-point scale, corresponding to the middle between very good and good. Course features that tended to be graded close to 2 concerned primarily content and theory issues. Features that were evaluated close to 1 reflected the interactive, motivational, and didactic aspects of the course – those in which a student-centered course typically would differ from a traditional one. This seems to be consistent with the reaction sheets that had included some criticism of theory parts and the wish for still more guidance regarding the tasks. The consistency between the non-anonymous reaction sheets and the anonymous course evaluation can be seen as an indicator of genuineness, realness and transparency in the course, a primary characteristic of a student-centered atmosphere.

In the authors’ view, this case study – with all the constraints of studying one single case only – illustrates the challenges, feasibility, and added value of conducting a large course in a student-centered way. Of course, a few premises need to be fulfilled to embark on this exciting enterprise. For example, the course topic needs to be perceived as relevant by the instructor and this relevance has to be communicated to the students such that they truly perceive it. Most prominently, the instructor’s person-centered attitudes need to reach the students, in turn allowing them to learn significantly at various levels and to develop personally as well as socially. Last but not least, a sufficient degree of freedom in the curriculum is required to give space for creativity and intensive interaction with students.
Comparison and discussion of case study results

The two case studies illustrated that the key goal of student-centered classrooms, namely significant learning (Rogers 1961, 1983), can be achieved in small as well as large classes, involving technologically up-to-date contexts. While it is the same underlying attitude of realness, acceptance and endeavor to understand students empathically and comprehensively that matter, the amount of planning, consistency and useful structure differ. While small courses benefit from a high level of flexibility, large courses benefit from a transparent structure and course organization to effectively meet their goals – often a combination of subject-specific, small-group formation and various other features.

While at first sight it might seem that computers and technology would stand in the way of humanistic-oriented pedagogies, we illustrated that a careful, sensitive inclusion of technology can serve as an ally in promoting student-centeredness. As seen from both case studies, appropriate and appropriately dosed use of technology can support the intensity of student-centeredness (Bauer et al. 2006; Motschnig-Pitrik 2005). This happens for example through facilitating communication and contact between units/sessions (as is the case with forums and online reaction sheets) and students’ diverse, self-paced, and self-directed contributions to the class, typical for all kinds of project-based learning.

According to Rogers’s theorizing, sufficiently high levels of perceived realness, acceptance and empathic understanding yield significant learning. Indeed, in their self-evaluations students tend to report various aspects of learning that they had perceived as significant, such as having learned a lot about themselves; feeling freed by sharing their issues with other persons and hearing their perspectives; being amazed by how active listening can bring about a perfect conversation, although “just” contributing with their attitude. Thus, we offer that the student-centered approach is particularly appropriate if significant learning is the primary goal of education.

But what about other goals? What if the subject-specific goals – as is the case in the second case study and in most academic courses – are more important than learning that makes a difference to the whole person? A large meta-analysis (Cornelius-White 2007) showed that SCL results in the same or slightly better outcomes in cognitive, subject-specific spheres while being clearly superior in affective and interpersonal learning when compared with teacher-centered modes. The important contribution of APA’s (1997) Learner-Centered Principles lies in explicating cognitive and metacognitive factors of learning and integrating them with the social-affective-relational focus of student-centered learning and teaching. This broader, more differentiated explication of features in the Learner-Centered Principles makes them better tractable in educational research. This is why we chose them to guide our second case study. This choice, however, does not mean that Rogers’ core attitudes would be less relevant in courses with subject-specific learning goals. It just means that there is a larger variety of influential features that are worth considering and implementing. For example, the fact that, in the final anonymous course evaluation, a student stated that the teamwork and constructive feedback went exceptionally well and the instructor was optimally prepared, relaxed, professional and motivating, addresses a broader scope than (inter)personal attitudes. Nonetheless, the latter still shows as a prominent share in the student’s satisfaction with the course.

Under the circumstances described earlier, it is intriguing to observe that even though most students coming from a traditional mode of education want more guidance and examples to hold on to, a single course has the potential to win most students’ hearts to beat in the direction of
creativity, freedom, open sharing and constructive interaction for solving real challenges rather than rote learning of facts and working on construed exercises. Given that the instructors share the same priorities as their goals in education, this is most motivating for pursuing the student-centered mode, thereby staying an active, lifelong learner and facilitator of students’ and one’s own significant learning.

Conclusion and outlook

This chapter aimed to provide foundational premises of SCL, specifically using the research and theory of classical person-centered education (e.g., Rogers) and the learner-centered model (e.g., McCombs) and their research bases. Besides the defining characteristic of SCL in the tradition of the Person-Centered Approach (Rogers 1961), namely the perceived communication of realness, acceptance and empathic understanding, special attention was devoted to embracing educational technologies, which has been referred to as PCeL (Person-Centered technology-enhanced Learning) (Motschnig & Standl 2013). This seems justified since three-fourths of university classes now include blended components (e.g., Kelly 2017; Motschnig-Pitrik & Cornelius-White 2012; Motschnig-Pitrik & Standl 2013).

This contribution aimed to provide insight on how students see and describe their (for the vast majority, their first) student-centered course along with their major take-aways. Two case studies with both a smaller and larger number of students showed some of the challenges, processes and experiences of student-centered learning in these contexts, emphasizing the learners’ perceptions. These are seen as a crucial stepping stone in preparing students for life, lifelong learning, change and work in the multicultural knowledge society and economy of this century, a goal we share with Hoidn (2017) and like-minded colleagues. Our own learning while facilitating several courses similar to those studied in this chapter can be put as follows: despite, or better in tune with, technological advances, if significant learning – learning that makes a difference to the learners’ personality – is the goal, it is irrevocably the learning atmosphere constituted by the interpersonal relationship between all involved that has primary influence.

Further research will address long-term effects of student-centered courses on students’ professional and personal life. Such studies are intended to shed light on what are the features, conditions and elements that students reflect as being most influential on their further careers. Another line of research will investigate under what conditions game-enhanced learning, challenge-based learning and audience-response systems promote students’ motivation, engagement and outcome in large, student-centered classrooms.

Note

Students were asked for permission to quote from their reaction sheets in an anonymous way in the context of research. With very few exceptions for English reaction sheets, most reactions were posted in German and translated by the first author.

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