

Effects of Person-Centered Attitudes on Professional and Social Competence in a Blended Learning Paradigm

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Abstract

Web-based technology increases the hours we spend sitting in front of the screens of our computers. But can it also be used in a way to improve our social skills? The blended learning paradigm of Person-Centered e-Learning (PCeL) precisely aims to achieve intellectual as well as social and personal development by combining the benefits of online learning with face-to-face encounters. While the added value of Person-Centered or whole-person learning in terms of better problem solving, increased self-confidence and interpersonal skills is well documented in the literature, its transition into practice clearly lags behind. Our goal therefore is to exploit the potentials of Web-based support for making Person-Centered teaching and learning more effective and feasible. In the paper we discuss the didactical baseline, the integration of technology, and the application of PCeL in the context of Web engineering and project management. On that basis we present our evaluation that showed – with surprising clarity – the fundamental impact of interpersonal attitudes on the motivation and learning outcome of students. Finally, we discuss the consequences of our findings for future educational strategies.

Keywords

Student-Centered Learning, Experiential learning, Whole-person learning, Person-Centered Approach, Carl R. Rogers, Person-Centered e-Learning (PCeL), Evaluation, Staff development

The only man who is educated is the man who has learned how to learn [...] how to adapt and change [...]. Changingness, a reliance on process rather than upon static knowledge, is the only thing that makes any sense as a goal for education in the modern world. [...]

The Carl Rogers Reader, chapter 21 “The Interpersonal Relationship in the Facilitation of Learning.” p. 304; H. Kirschenbaum, V., L. Henderson, eds. Constable, London, 2002.

Introduction

A recent study on the required profile of business informatics graduates confirmed that social competence, the capability to work in teams, and abstract thinking are the top three requirements in the workplace. Although current trends in e-learning appear to respect the need for cooperative learning, online communities are devoid of personal encounters and the richness of face-to-face situations where issues need to be resolved instantly. In a nutshell, there is accumulating evidence that neither traditional lecturing nor pure e-learning suffice to prepare students adequately for their future profession (Motschnig-Pitrik, 2002; Ryback, 1998). Hence, we conduct action research on shaping blended learning environments that employ technology in a situated way aiming to enrich didactic designs in which interpersonal encounters take the leading role in the learning process (Derntl & Motschnig-Pitrik, 2004a; Motschnig-Pitrik, 2004).

Several studies have shown that learning should encompass the whole person. More explicitly, this means that learning should address the learner’s intellect, social skills, and personality. If this is achieved, learning is known to be most effective in terms of being best integrated with the experience of the particular person and hence more persistent than purely intellectual information (Aspy, 1972; Motschnig-Pitrik & Nykl, 2003; Rogers, 1961; 1983; 1995; Rogers & Freiberg, 1994). This paper approaches experiential, whole-person learning by proposing to combine Person-Centered Learning, as developed by the American psychologist Carl Rogers (1902-1987), with elements of e-learning, resulting in an approach we call *Person-Centered e-Learning* (PCeL) (Motschnig-Pitrik, 2001; 2002b; Motschnig-Pitrik & Holzinger, 2002). The primary benefits of PCeL, among others, follow from providing increased room for social and personal processes and deeper learning experiences. We will argue and

illustrate that this can be achieved in the case when significant parts of the transfer of intellectual knowledge are allocated to the computer while the instructor takes on the role of a facilitator who creates a constructive learning climate based on values like transparency, respect, and understanding. Typically, learners elaborate selected topics in small groups, real or virtual, and bring together the individual perspectives in meetings of the larger group, resulting in conversations and transcripts that enrich existing expert knowledge with personal and group perspectives. In brief, PCeL courses offer a versatile range of possibilities for students to contribute and hence result in students (and facilitators) being remarkably more active than in traditional courses. In addition to cognitive gains, PCeL emphasizes social as well as personal or emotional learning and growth that, as will be argued, cannot be achieved purely cognitively but requires experience in a facilitative atmosphere (Barrett-Lennard, 1998; Motschnig-Pitrik & Nykl, 2003; Rogers, 1961). This approach is consistent with concepts like anchored instruction (Bransford et al., 1990; Cognition and Technology Group, 1990), collaborative learning (Bruffee, 1999; McConnell, 2002) and constructivist theories (e.g., Jonassen, 2004; Jonassen & Rohrer-Murphy, 1999). Yet it emphasizes the quality of relationships (Barrett-Lennard, 1998) and through them the development and growth of congruent intra- and inter-personal dispositions as a foundation of deep learning by the whole person.

In the next Section we briefly present the didactic and technical concept that underlies our applications and case-studies of PCeL. In the third Section we describe and motivate learning scenarios that spring from the philosophy of PCeL and state our basic hypotheses on the allocation of face-to-face and Web-based elements for effectively integrating intellectual, social, and personal learning (Nykl & Motschnig-Pitrik, 2002). In the fourth Section we discuss the results of the online questionnaires and reaction sheets that we collected in our courses on project management and Web engineering over a time period of one and a half years. The final Section then discusses the consequences of our findings and directions for further research.

Fundamentals of Person-Centered e-Learning (PCeL)

Preliminaries

Person-Centered Learning has been developed by the famous American psychologist Carl Rogers as a radically new approach to education that is applicable to learners of all age groups independent of their social background (Rogers, 1983). The theory underlying Person-Centered Learning is derived from Rogers' life-long experience in counseling, psychotherapy, facilitating encounter groups, and teaching at several universities. In his well-known book "Freedom to Learn", Rogers (1983) describes the concept and research foundation of Person-Centered Learning along with several applications in various contexts and subjects (such as French, Physics, Neuroscience, etc.) that appear highly illustrative and useful for the practitioner.

Our research at the University of Vienna, Department of Computer Science and Business Informatics, focuses on integrating Rogers' theory and experience with modern technology (Motschnig-Pitrik & Holzinger, 2002; Derntl & Motschnig-Pitrik, 2004a). In other words, we aim to enrich Person-Centered Learning with the use of New Media in order to make the blended approach more effective in primarily two respects. The first concerns a still further improvement of learning processes by adjusting Web-based technology to optimally support findings from psychology, sociology, and pedagogy. The second, and in our time increasingly important issue, deals with efficiency. From experience we know that Person-Centered "Teaching" is more demanding on facilitator's time than conventional courses that can be prepared once and reused several times. Regarding efficiency, we hypothesize, hope, and, to some degree experience that New Media, in particular the Internet, can be employed to reduce some of the overhead caused by the Person-Centered style. This is because the provision and dissemination of material, including artifacts produced by students, course organization, and personalization, are easier with information and communication technology (ICT).

The basic hypothesis underlying Person-Centered Teaching/Learning can be stated as follows:

Human beings are constructive in nature and strive to actualize and expand their experiencing organism. According to Rogers' Theory of Personality and Behavior (Rogers, 1959) the constructive tendency can unfold itself best in a climate that is characterized by three attitudinal conditions, also known as *Rogers variables*:

- *Realness*, with synonyms such as congruence, transparency, genuineness, authenticity;
- *Acceptance*, else referred to as respect, unconditional positive regard, caring attitude, concern for the individual, acknowledgement (Schmid, 2001);
- *Empathic understanding*, a deep form of understanding of the meanings as well as feelings of the learner.

These must be held or lived by the facilitator and communicated to the learners such that they actually can perceive them (Rogers, 1961). Based on extensive research in schools, Aspy (1972) argues that a Person-Centered style of teaching is effective only, if the instructor's or facilitator's level of all three attitudinal conditions lies above a threshold (being the level 3) defined by specific formulations in a questionnaire with 5 levels for each of the variables.

While it may appear that Rogers' approach is not compatible with conventional curricula, our own experiences in advanced courses are quite the contrary. Given a certain degree of space in the respective curriculum we have found that Person-Centered Learning, combined with the use of New Media, is a truly effective and rewarding approach which we chose to refer to as PCeL (Person-Centered e-Learning) (Motschnig-Pitrik & Derntl, 2002; Derntl & Motschnig-Pitrik, 2004b). In the following we formulate two hypotheses that we consider essential for blended learning. The first hypothesis follows immediately from adopting Rogers' findings and deals with personal attitudes and skills of facilitators. It can be stated as follows:

“The better facilitators communicate and learners perceive the attitudes of realness, acceptance, and understanding and the more transparent the whole setting is, the deeper will be the learning processes at all three levels.”

Clearly, PCeL requires qualifications of facilitators that essentially differ from those of good instructors in many respects. Besides skills for motivating students and delivering understandable lectures, facilitators need a high degree of inner flexibility to be able to react to individual situations in the here and now. They need to be able to respect individuals as well as the tendency of the whole group. They must be able to moderate discussions and visualize results, both in face-to-face meetings and in online settings. Most importantly, they must, in coalition with the learners, be able to find the right compromise between personal-, social-, and curricular requirements.

The second hypothesis includes the computer as a versatile tool. It can be stated as follows:

“In the case that the computer can take over significant parts of the transfer of intellectual information, more room will be left for social and personal learning in a facilitative climate.”

If pure transfer of information is no longer the focal point in face-to-face meetings, they can be used to anchor knowledge to existing experiences of the learners, to the exchange of learners' viewpoints and/or materials, to discussions of expert meanings, to applications, etc. In this way learners will be more active personally and will be able to experience working/learning in teams that construct knowledge. Later, this knowledge can be compared with expert meanings and overlaps as well as deviations provide valuable sources for sharing and dialogue.

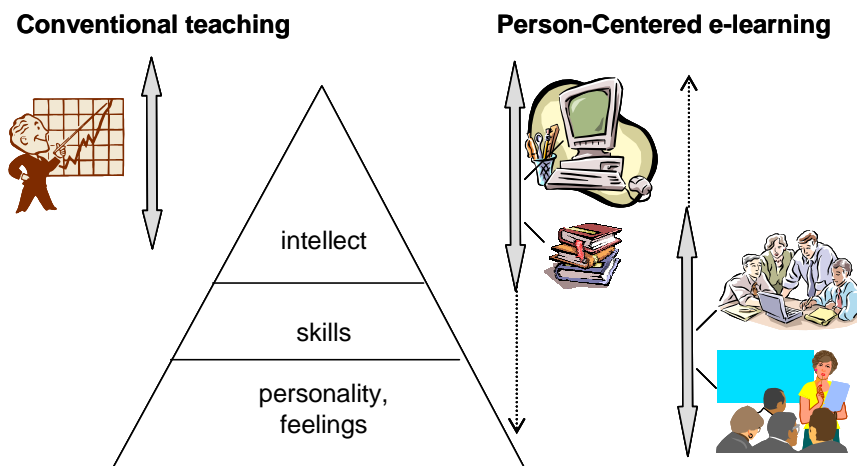


Figure 1. The three levels of learning and their primary support by facilitators and computers

Figure 1 illustrates this conception of PCeL by comparing it with conventional learning. The vertical arrows indicate the primary focus regarding the individual levels. Whereas conventional teaching addresses first of all the intellect, and the instructor is the one who sets targets and engages in the transfer of information, PCeL propagates to all three levels. Thereby, computerized support, initially complemented by other resources, may dominate on the intellectual level by striving to optimally support the cognitive, time-based, and location-based

requirements of the individual learner. Although learning communities and social knowledge construction can be supported by ICT, we allocate learning at the social level more strongly to the presence phases, as far as traditional university courses are concerned. In such courses, various face-to-face settings are arranged to allow for team meetings, group discussions, presentations of students or the facilitator, meetings with experts, etc. In any case, we see real, acceptant, and understanding relationships as the driving factors in whole-person learning.

We also strongly believe and have initial qualitative evidence that the more intellectual information is available in electronic, well organized, structured, and searchable form, the more effective PCeL will become. This is because the strongly individual and open style of the Person-Centered Approach that establishes the affective basis is well supported by an open repertoire of resources and tools to be most effective. We have observed that easy availability of material eases the facilitator's task of organizing material and gives (advanced) students still more opportunities to satisfy their curiosity by finding sources that suit their interest and style. We have observed that, if left with a choice, students tend to search the Internet and integrate self-found resources into their project work rather than strictly keeping to the reading lists provided by facilitators.

Before giving empirical evidence and qualitative arguments to support our hypotheses, we invite the reader to learn to know the basic ideas and principles underlying PCeL.

Characteristics and goals of Person-Centered Teaching and Learning

Person-Centered, or Student-Centered Learning is a personally significant kind of learning that integrates new elements, knowledge, or insights to the current repertoire of the learner's own resources such that he or she moves to an advanced constellation of meaning and resourcefulness (Barrett-Lennard, 1998). Person-Centered Learning can be characterized by the following goals (adapted from Rogers, 1983, p. 3, and complemented by ideas borrowed from Barrett-Lennard, 1998, p. 187-188):

- a participatory mode in all aspects of learning and decision-making, furthering and experiencing self-responsibility for learning and for assessing gains;
- a climate of trust in which curiosity and the natural desire to learn can be nourished and enhanced;
- helping students to achieve results they appreciate and consider worthwhile and inwardly meaningful, such as to build their self-esteem and confidence;
- uncovering the excitement in self-initiated discovery, which leads students to become life-long learners, fosters originality, and brings out the creative potential of the individual;
- developing in instructors the attitudes of realness, authenticity or transparency; acceptance or respect and empathic understanding that research has shown to be most effective in facilitating learning;
- helping instructors to grow as persons finding rich satisfaction in their interactions with learners and thus increase their personal resourcefulness;
- Increasing a person's capabilities to experience and explore his or her own processes, thus raising the awareness of meaningful ways of inquiry, in other words, learning how to learn. This generic meta-capability enhances the person's disposition to successful problem solving in new and unforeseen situations.

The Student-Centered Approach to teaching and learning is one of the derived theories of Carl Rogers' Theory of Therapy, Personality and Interpersonal Relationships (Rogers, 1959). Consequent research in the Student-Centered Approach proved (Aspy, 1972; Cornelius-White, 2003; Rogers, 1961; Tausch & Tausch, 1998) that students achieve superior results along with personal growth in terms of higher self-confidence, creativity, openness to experience, self-respect, and respect towards others and their environment, etc., if they learn in an atmosphere or climate in which the facilitator (instructor, teacher, etc.) holds three core attitudinal conditions and if they perceive them, at least to some degree (Rogers, 1961). While this may sound easy, concrete situations (e.g. curriculum requirements, critical students) often are challenging for instructors to find the proper proportion among the three dispositions in the context of external requirements. Person-Centered courses depend not only on the instructor's plans but due to their participatory mode bear in themselves the unexpected, the chance to learn from situations in the "here and now", that requires a large amount of internal flexibility in both facilitator and students. Consequently, as will be discussed in the fourth Section, personal resourcefulness of the facilitator has significant influence on the students' motivation and learning.

PCeL: Integrating Person-Centered learning with technology

The old rule in teaching: prepare once and use several times simply does not apply, if students are to participate in all aspects of learning. Clearly, facilitating significant learning requires extra effort, at least initially: Time to

think, to communicate, to structure, and organize contributions in order to make them effective for the whole group, to provide special material, and, time and commitment to acquire the skills necessary to shift from being a good instructor to becoming a good facilitator of learning. In the following let us see in which ways technology can help to reduce some of the extra work inherent in facilitating Person-Centered Learning.

- **Provision of resources via the Internet or the e-learning environment.** Lecture notes, reading lists, links to professional Web sites and project homepages can be made available electronically. The material can be uploaded and updated whenever deemed necessary. Students can contribute to searching material and making it available for the whole group, optionally with comments on contents, quality, and/or availability. This saves some of the facilitator's time for dealing with versions, organizing copies, searching material for individual purposes, and the distribution of material. In the case that all resources are well organized in one place, all participants can appreciate the flexible availability of material around the clock and independent of a physical location. Learners can take on responsibilities for various issues regarding the virtual learning space thus encouraging self-organization.
- **Course homepage and Internet as knowledge sources.** Locality of all organizational/structural information regarding the whole course as well as the provision of organizational information on individual course units makes communication more efficient in the case that students regularly read that information. Computer science students in particular and other students in general can use the Internet for explorative, open learning (Freimuth, 2000). This learning paradigm is particularly suited to the Person-Centered Approach since students are free to explore the semantic Web and can cooperate in fulfilling their tasks. Our experience is constrained to working with rather advanced students. Beginners may need some support in effectively searching the Internet, although this could change as time proceeds.
- **Communication and participation.** The Person-Centered Approach with its orientation towards the students' interests and participation in all aspects of learning necessitates intensive communication between all concerned (Rogers, 1970). In this respect, a learning environment provides means (discussion forum, students' workspaces, blackboards, whiteboards, etc.) to facilitate and to focus communication. Results from project work and from face-to-face meetings can be distributed easily by individual participants with just minimal involvement of the facilitator. Also, student tutors can help to answer and/or screen questions and help to save the facilitator's time.
- **Evaluation.** Continuous cooperation that is traceable by special programs and Web-based self- and peer evaluation make final tests and exams superfluous in many cases. Final meetings with students or small teams tend to be used more strongly to reflect on the whole course experience and personal learning, based on self- and peer evaluation, than on recalling course content.
- **Templates for Person-Centered e-learning.** We are deriving and developing Web templates to provide effective organizational support for characteristic, application-independent patterns of PCeL elements. Learning scenarios that have proven successful in practice are modeled, managed in a pattern knowledge base, and implemented by wizards and prefabricated Web application fragments (Derntl & Motschnig-Pitrik, 2003; 2004b). Initial experience shows that Web applications resulting from instantiating templates considerably reduce the organizational and administrative overhead of PCeL courses. The Web applications we are constructing (CEWebS, Cooperative Environment Web Services – cf. Derntl & Mangler, 2004; Mangler & Derntl, 2004) are open-source, high-level, intuitive and highly usable modules or molecules that build on lower-level, traditional e-learning elements or atoms. The elaboration, acquisition, and construction of patterns ideally would bring educators from various organizations together and could serve as a basis for staff development as well as research regarding situated media-didactical competencies. Ideally, such meetings would be facilitated in a Person-Centered style.

In our experience, PCeL courses still take more of the facilitator's time than conventional courses, but the overhead is clearly outweighed by the intellectual, social, and personal gains of the participants. Moreover, we conjecture that increased experience with the new style will reduce some further fraction of the overhead. Unfortunately, we cannot give quantitative data on the amount of overhead in PCeL courses since we conduct many of them as action research studies to which we devote more time and effort than would be necessary otherwise. As mentioned before, expertise needs to grow incrementally. Personally, we perceive a decrease in extra effort due to emerging patterns and more familiarity with the options offered by the Web-based learning platform. This goes hand in hand with an increase in providing freedom and trusting our spontaneous responses rather than over-preparing individual units.

Expression of Rogers' Three Core Conditions in Blended Learning Environments

Due to the significance of the three core conditions in any growth-promoting relationship, we are in the process of searching for ways on how to express and manifest them in the context of learning situations. In other words,

we suggest general learning scenarios that can be seen to accompany and manifest the corresponding attitudes. These scenarios are supposed to have a Person-Centered atmosphere at their core while encompassing rich dialog, team- and individual activities, various materials, tasks, resources, problem-based learning processes and computer-mediated communication in ways that encourage cooperative, self-initiated learning. In the following, we express each core condition in terms of learning situations that allow one to communicate or carry on the underlying attitude and illustrate the result by individual student's reactions.

Realness

In learning situations, realness (authenticity, openness, transparency) as an attitude should go hand in hand with letting learners solve real, authentic problems that they themselves find worthwhile or even fulfilling to resolve. In our experience, some of which will be reflected in quantitative terms in Section 4, allowing students to solve authentic problems (e.g., designing their own cooperative environment, building a Web application for their Tennis club, etc.) increases their motivation, personal involvement, learning and achievement, time spent on the project, and also the total satisfaction as a result of the course. A student writes in his reaction sheet:

"I found working on our own project really cool. You can even avoid the stress in the final weeks if you keep to your work plan! – Many thanks."

Another notion that symbolizes realness or transparency is the provision of open reactions or constructive feedback. Students are encouraged to comment on other participants' or teams' contributions such as their oral presentation or their written projects milestones. They also are asked to write reaction sheets on face-to-face units such that the (electronic) comments are exposed to the facilitator and, via Web based services, to all other participants. This allows the facilitator to "view the whole picture", to see where he or she stands at the moment, and to discuss the comments, complaints, wishes, confusions, expectations with the learners in the next face-to-face meeting. This mode of reflection and reaction – distant and present, respectively – definitely contributes to raising the level of transparency in all aspects of the course. One female student writes in her reaction sheet:

"What I also liked was that the reaction sheets were discussed with the students. In most other courses, you are asked to evaluate the course in the end. Afterwards one does not know what this was good for and does not get any information about the results. Talking openly about the reaction sheets let me feel that we all as the whole group of students were taken seriously and were respected."

The Internet opens up yet another dimension of transparency: Since space is almost unlimited, all projects and solutions can be made visible for the whole group, such that everyone can learn from more than their own project or example. Comparing, copying, discussing, and most of all, cooperating and revising are encouraged rather than punished. In a facilitative climate experiences are shared and paths to improvement, rather than mistakes, are sought.

Acceptance

In cooperative learning situations there exist vast possibilities to show acceptance or respect to students. Once they are offered the option to participate in shaping (parts of) the course, for example by encouraging the expression of their individual learning targets and taking them into account, they are already trusted to be able to co-shape their course. Thus, genuine participation and any offer to participate in decision making are symbolizations of respect towards the learner. Similarly, encouragement of self-initiated action and any other form of providing freedom can be seen as respecting the other person as someone of individual self-worth, irrespective of the current level of knowledge but with respect to the learner's potential development (Rogers, 1961; Vygotsky, 1982) at his or her own pace, constrained solely by the requirements of the respective curriculum.

A student writes in his reaction sheet:

"The open atmosphere in all presentations made this unit an event of rare occurrence in the context of the university. Although we did not have a precisely defined topic and fixed requirements, I think I am learning more than in other courses. [...] This course, with all its openness and the possibility to

make mistakes without negative consequences allows one to learn in a way that is not possible in any other course at the university.”

Besides providing freedom, shifting power and influence from the instructor to the participants can be perceived as signs of trust based on acceptance. Concretely, the situation of course evaluation or evaluation of any document or contribution lends itself very well to shifting power from the instructor to the group or individual who participates in the grading process by self- and/or peer evaluation. Our preferred mode is to give equal share to self-, peer-, and instructor evaluation such as to make the grading process as multi-perspective and informed as possible, showing respect to the individual, the group and the instructor's own perception.

In learning situations as well as in management there appear to be two opposites of an accepting, respectful, caring style: authoritarian and laissez-faire attitudes. While strict control imposes external, fixed conditions or values on what is acceptable, a laissez-faire style is passive, lacking the communication of caring and respect. Cooperative learning groups, on the contrary, allow for intensive communication among peers and, if working in a facilitative climate, appear to be particularly strong in allowing for a high degree of caring or respect among learners. This applies even in settings with large numbers of students that otherwise would call for rigidly prescribed tasks or exercises to be solved by students.

In particular, we found learning contracts highly practical for bridging the gap between curricular requirements and self-initiated and self-directed learning. They allow students to take on responsibility in an open-ended learning space, where success can be approached in an incremental fashion, very much like in an industrial project. Thus, learning becomes a transitional experience between complete freedom to learn whatever is of current interest to the learner, to evidently respecting the course- and curriculum requirements. Our online support of managing and peer- and self-evaluating learning contracts of cooperative teams of students illustrates in which ways technology and humanistic educational principles can be brought together in order to make learning more meaningful and yet manageable in terms of effort. Interestingly, although the learning contracts (to be revisited in the fourth Section) required some additional effort, they were perceived as much more meaningful than conventional exams. All four participating instructors agreed on repeating the experience in the coming term.

Understanding

In learning situations empathic understanding comes in multiple manifestations. Certainly it involves a deep understanding of the whole situation and learners' meanings, purposes, constraints and potentials. It means seeing projects and problems from the learners' state of knowledge and frame of reference and a willingness to accompany the students in their ways of searching for solutions rather than just imposing prefabricated recipes on them. Facilitators' contributions, for instance materials, presentations, tutorials, need to meet the students' demand of knowledge or techniques to solve problems, not vice versa. Importantly, understanding also encompasses patience in periods of following rather than leading (Schmid, 2001) and yet at every instant watching out for moments of insight. To facilitate whole person learning as intensely as possible in order to promote personal and intellectual growth, it is essential to react to and exploit particular situations from the here and now. This requires the facilitator to empathetically take into account the whole situation of the particular course and community of learners for course design.

Naturally, deep understanding involves the clarification of uncertainties. However, there is evidence (Anderson, 1991) that understanding based on seeking and finding solutions in a way comparable to an internal, conceptual birth process is much deeper and more persistent than flat understanding in the form of rigid constructs delivered by some external source or authority. Person-Centered learning means listening to the learner, in order to accompany him or her towards a learner-driven clarification of uncertainty. This is equally important for understanding cognitions, purposes, meanings, and feelings, focusing on the aspect that is pivotal to the recipient in the current situation.

In blended learning written materials tend to play a significant role. In this respect, Tausch and Tausch (1998, pp. 266-277) have found four aspects or dimensions for the understandability of written materials: Texts should be well structured, neither too lengthy nor too concise and use simple language while revealing the essential message. Furthermore, stimulation should be provided for example by giving examples, citations, narratives, including pictures, etc.

Evaluation in Courses on Web Engineering and Project Management

The gross goal of the project management courses can be stated as: “*Participants should be better qualified to accomplish effective project work in teams*”. This general goal can be decomposed into sub goals situated on three levels. On the intellectual level, students should learn strategies and techniques for managing information and communication technology (ICT) projects. On the level of social skills, participants should experience working with various colleagues in teams of various sizes, and improve their communication and presentation skills. On the personal or intuitive level, students should observe and perceive Person-Centered attitudes in action and derive their own experience. Although the basic structure, thematic context (“Communication, motivation, leadership, and cooperation in project management”), and the gross goals of the practical course module were predefined by the instructors, the emphasis and individual learning targets, topics, and processes – not surprisingly in light of PCeL philosophy – turned out to be different in the four course instances. The e-learning platform, in this course, served mainly to supply intellectual and organizational information, as well as to provide a repository for students’ projects. In the presence phases we elaborated and discussed topics, students presented their projects and lecturing was kept to a minimum.

An example of a technique that we tried out in a meeting was “active listening” in triads. Vivid arguing evolved around the question on what place active listening has in discussions where everybody should be able to bring in his/her opinion. Students comment on this exercise in their own words:

“In this unit I particularly liked the exercise of ‘active listening’. I had known this concept already, but only through applying it concretely to a particular situation could one pay attention to the individual issues involved and could change perspectives.”

“I found the ‘active listening’ exercise particularly formative. It is an approach about which I had absolutely no idea before, but that I experienced as highly interesting. This is mainly because it is not relevant only for team- and project cooperation but also for everyday life.”

In order to make it possible to learn from the students’ experience in this quite novel course format, every student had to hand in a reaction sheet after each workshop. The format was essentially free, although a catalog of sample issues of interest was provided by the Internet for those who wished some guidance. In the final group, all reactions have been published via the e-learning platform, although in an anonymous form. In the end of the last workshop, students were also asked to work out some questionnaires such as the Person-Centered questionnaire or the official evaluation sheet of the University of Vienna.

To get an objective picture on the particular realization of PCeL in the context of the practical course on soft skills in project management, all reaction sheets of the 56 participating students (note that there were actually four concurrent groups) were evaluated. On the average, each student delivered 10.49 comments or statements. Katharina Mallich, taking the role of an independent evaluator, graded the individual statements with three grades, namely 1 denoting “*I liked it/ it was positive*”, 2 saying “*neutral, could be improved or modified*” and 3 standing for “*I didn’t like it/ it was negative*”. The results of the most frequent statements are sketched in Figure 2. The most frequently mentioned comments referred to the multitude of practical exercises which were stated 75 times during the three workshop units with a score of 1.13 from three possible points. Also very frequent (48 times) positively valued (1.05 points) was the new and innovative manner of the course and the pleasant and relaxed atmosphere which was mentioned 39 times and scored with 1.16 points. Information about structure and processing of the workshop was rated 34 times as relatively good with 1.63 points. Between 28 and 30 times students considered their active inclusion and co-operation with colleagues very positive, in particular the insightful discussions, the phases of feedback and the initial presentation of each other. This introduction contributed to the friendly atmosphere of the courses and stimulated much co-operation inside the whole group. The only problem that recurred during the workshops in two groups concerned a discussion of recording the lessons on a cassette recorder.

Apart from the reactions on recording, all frequent students’ comments were evaluated as generally positive. In our view, it remains an open issue, whether situations like the one with the recorder improve or deteriorate the quality of a course. The response may depend on the number of such situations, the quality or sensitivity regarding the way they are handled by the facilitators, and the students’ personalities.

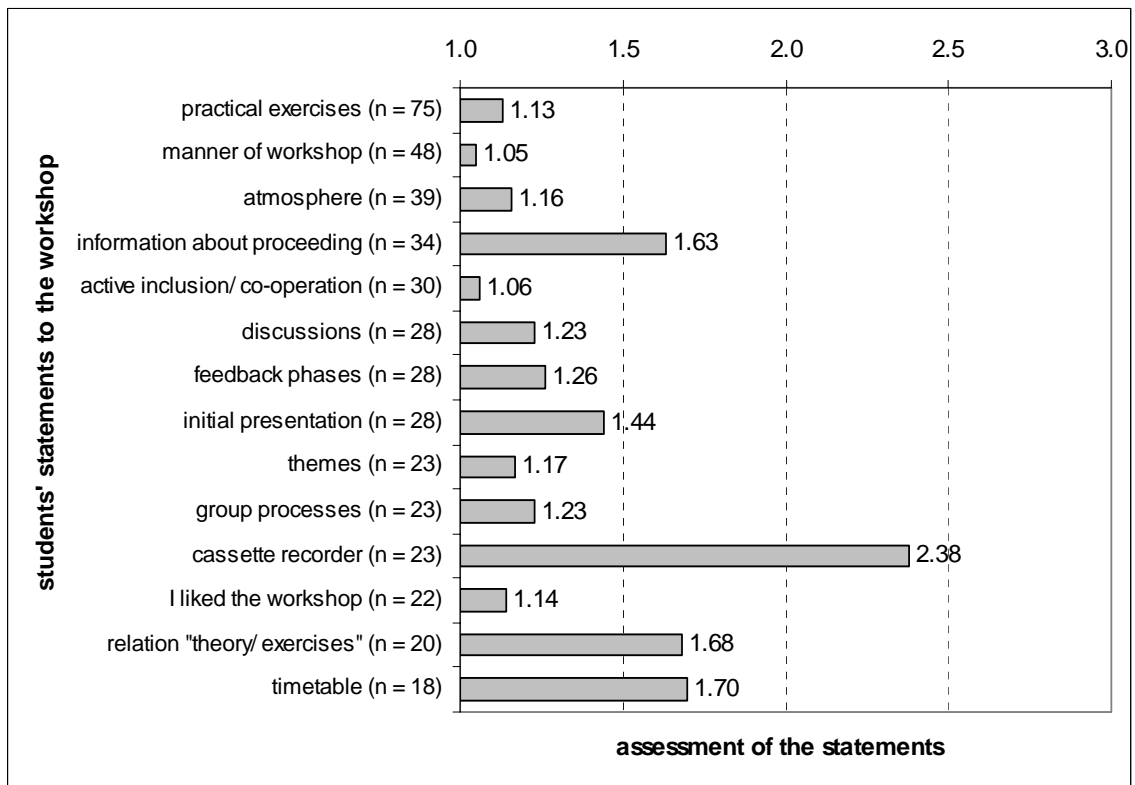


Figure 2. Most frequent statements and their evaluation on a 3 point scale; 1=positive ... 3=negative

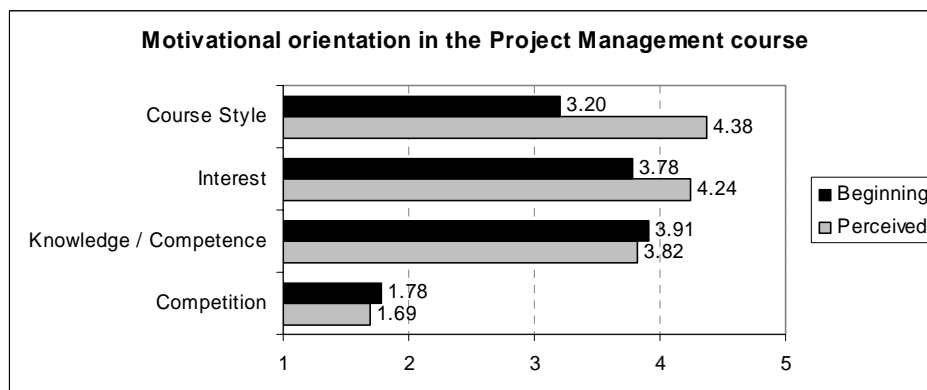


Figure 3. Motivational orientation for a typical course ('Beginning') compared with the course on Project Management ('Perceived'); n = 15; Scales: 1 stands for 'does not apply at all', 5 means 'applies highly'

In order to gather some more objective data on our course in the following term we asked students to respond to an online questionnaire with about 60 questions. Out of 28 students (from two parallel courses), 15 submitted the questionnaire both in the beginning and in the end of the course. 22 questions concerned the motivational orientations of students such that in the beginning of the course, students were asked about their motivation to attend a typical course due to motivational factors such as interest, competence, competition, and course style. In the end the questions concerned the students' participation in the project management course (PM-2003) due to these factors. As can be seen from Figure 3, the major motivation for students to attend a typical course was to increase their knowledge and competence in the subject area (with a mean value of 3.91), whereby the increase in factual knowledge was expected with a mean value of 4.2 and the practical elaboration of material just with 3.27 (not shown in the Figure). The motivation by knowledge and competence was followed by the motivation by interest in the subject matter and by the course style. After having attended the course on project management, the students' motivation with respect to competence and knowledge stayed about the same (in fact it was decreased for acquiring factual knowledge and increased for the practical elaboration), whereas their motivation due to the particular course style (to be discussed below) increased significantly from 3.2 for a typical

course to 4.38 for the PCeL style course! Also, the motivation due to interest in the course's subject matter has been increased from 3.78 to 4.24, while the importance of competition stayed low. As will be discussed below, these results were reproduced in a course on Web engineering with a larger sample size, but only in those groups in which the instructor was perceived as highly real, acceptant, and understanding. In all other groups, no single motivational orientation could be increased significantly as a consequence of the course, although the gross course structure and technology support stayed the same for all instructors!

Before moving to the evaluation of the Web engineering course, let us look at the individual factors contributing to the course style cluster. The expected and perceived values of the course-style factors are given in Figure 4 which illustrates the importance of providing a constructive learning climate. In fact, the positive atmosphere was perceived as highest (mean value $M = 4.67$ on a 5-point scale) among all motivational factors in the course PM-2003, followed by the collegial cooperation among peers ($M = 4.53$)! The largest difference in motivation (between a typical course with $M = 2.27$ and PM-2003 with $M = 4.33$), however, was achieved in the factor 'active participation of students', followed by allowing time for discussion.

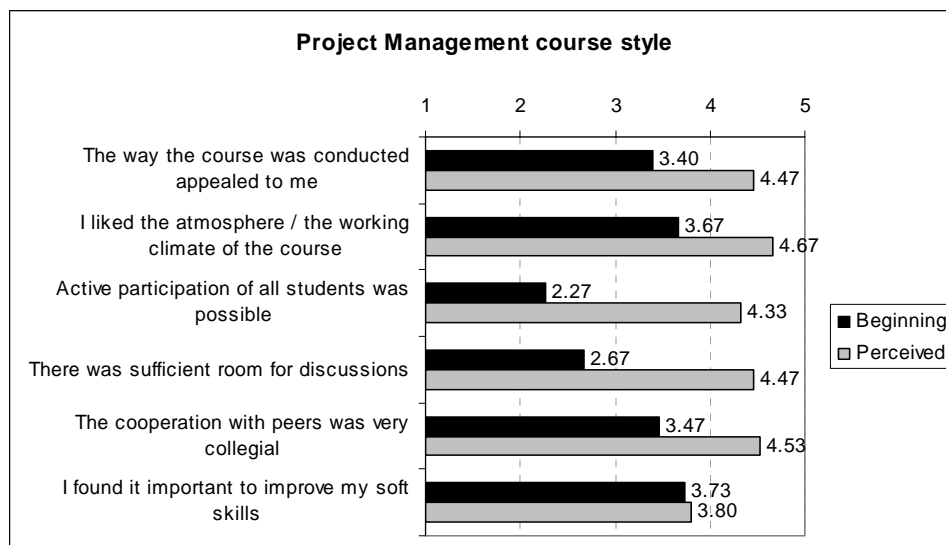


Figure 4. Motivational orientation due to various factors regarding the course style for a typical course ('Beginning') compared with the course on Project Management ('Perceived'); $n = 15$

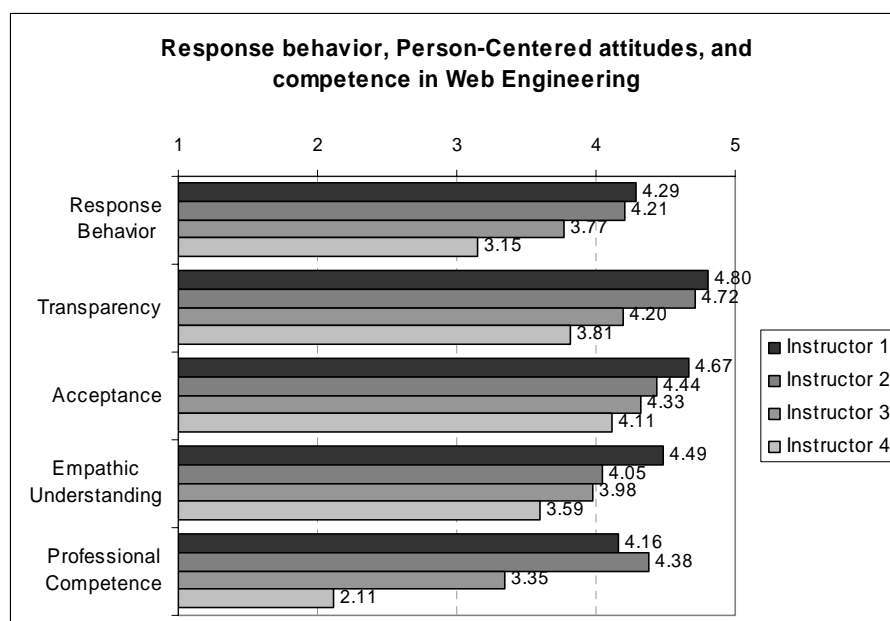


Figure 5. Response behavior, Person-Centered Attitudes and competence of four instructors in the course on Web Engineering WE-2003 ($n_1 = 47$; $n_2 = 39$; $n_3 = 47$; $n_4 = 27$)

While project management was a course that was held in a seminar room with group size about 17 students, the Web engineering (WE) course took place in a computer laboratory and group size was about 30 students. It seems particularly thrilling to compare the empirical evaluation of these two different settings, in particular in investigating the influence of Rogers' core conditions on students' motivation and learning outcome across groups of different instructors of the course WE-2003. In WE there were 12 groups such that each instructor conducted two to four groups. Figure 5 lists the students' ratings of the four instructors regarding their response behavior, realness, acceptance, understanding, and competence in the subject matter. In this context note that 'instructor 1' of Web engineering was the same person who conducted the courses in project management. It is noteworthy that there were no significant differences in her ratings between Web engineering and PM-2003 regarding the attitudes listed in Figure 5, although differences between the four instructors of Web engineering tended to be statistically highly significant.

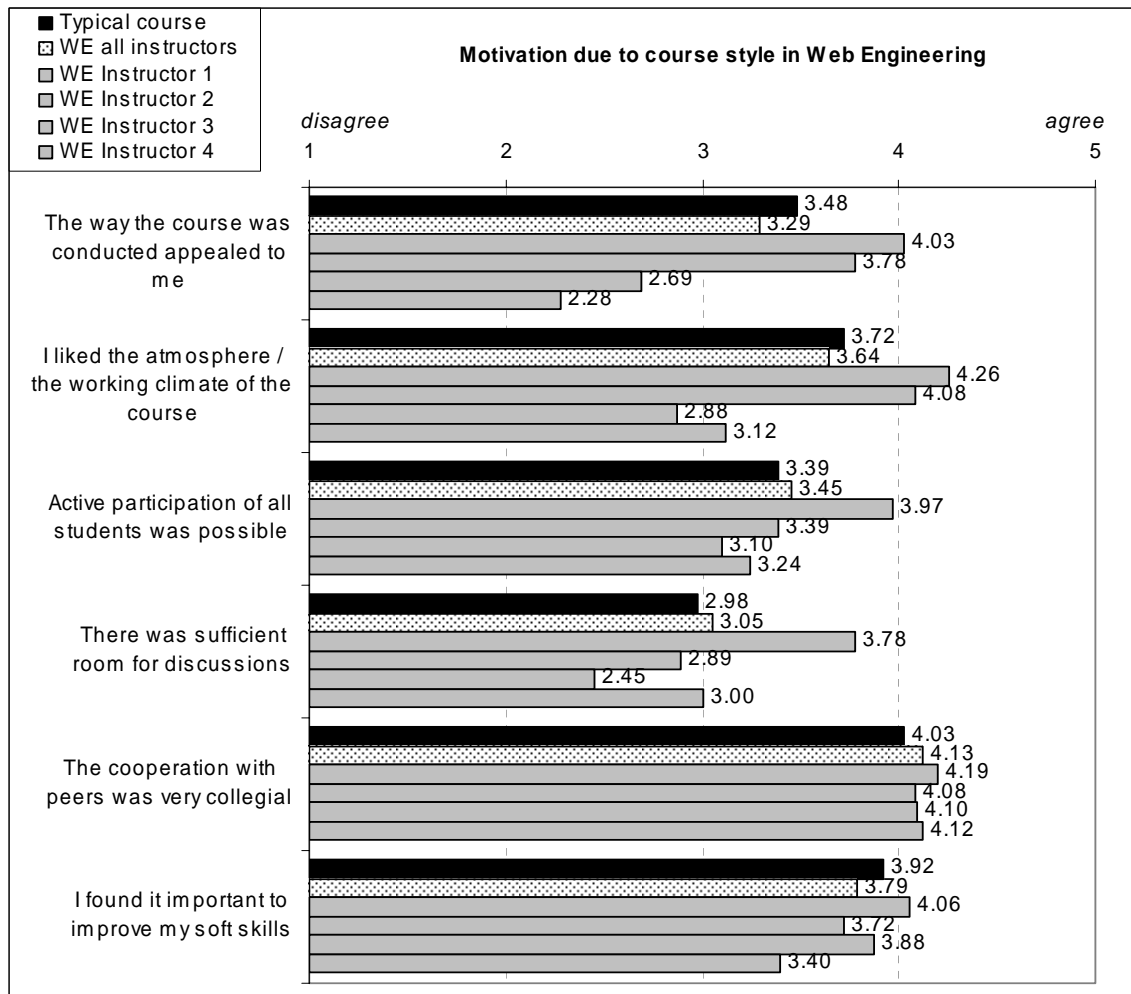


Figure 6. Motivational orientation due to various factors regarding the course style for a typical course ('Beginning'; $n = 131$) compared with the course on Web Engineering ($n1 = 38$; $n2 = 36$; $n3 = 32$; $n4 = 25$)

There were no statistically significant differences regarding students' expected and the perceived motivation to participate in a typical course and Web engineering, except for competition. In Web engineering, students typically cooperated more and competed less. However, comparing the expected and perceived motives to participate in Web engineering with respect to groups of the four instructors, motivation due to the course style was increased in groups of instructors 1 and 2, who were ranked high in Person-Centered attitudes. In groups of instructor 1 the increase was statistically highly significant as shown by a paired t-test ($t = -3.60$, $p = 0.001$, $n = 35$). Also, in groups of instructor 1, motivation due to students' interest in the topic was higher ($M = 4.31$) than in comparable typical courses ($M = 3.97$). The results of a multivariate ANOVA (compare Table 1) showed further significant differences between the four instructors in Web engineering.

Table 1. Motivational orientations of students: Analysis of variance with instructor as independent variable and the motivational orientations as dependent variables

Dependent Variable	F	P
Course-style-orientation	9.90	p ≤ .001
Interest-orientation	4.54	p ≤ .001
Competence-orientation	3.00	.03
Competition-orientation	1.47	.23

(df = 3; numbers of participants: instructor 1: n = 62, instructor 2: n = 66, instructor 3: n = 77, and instructor 4: n = 47; ntotal = 252)

Looking for the concrete factors that contributed to the differences in motivation between typical courses and Web engineering, Figure 6 shows that, precisely as in the course on project management, the positive atmosphere proved to be the strongest of all motives related to the course style (with a mean of 4.26), followed by the collegial teamwork with peers (M = 4.19). Unlike in project management, however, the strongest of all motives to participate in Web engineering was to increase one's professional competence and the interest in the provided content (both ranked 4.31 in groups of instructor 2 and instructor 1, respectively). Next followed the positive working climate (M = 4.26 in groups of instructor 1), as depicted in Figure 7. Statistically, however, the slight differences between these motives are not significant. Consequently, there is a strong indication that instructors with high Person-Centered attitudes and sufficient competence in the subject matter are capable of keeping or even increasing students' motivation along factors distributed on all three levels of learning. In other words, all three contribute highly to students' motivation to participate. It also follows, that some aspects of motivation are decreased by instructors who are perceived as being just about average in Person-Centered attitudes. It is remarkable that these changes in motivation are brought about in courses with just two hours per week over the period of one semester! A further consequence of our research is almost astonishing in how precisely it supports Person-Centered theory: The increase in motivation goes back, in the first place, to the instructor's capability of providing a positive working climate where, furthermore, students can participate actively. Given the instructor is perceived as highly real, respectful, and understanding, the positive climate is perceived by students as being among the *top three motives* for participating in the course.

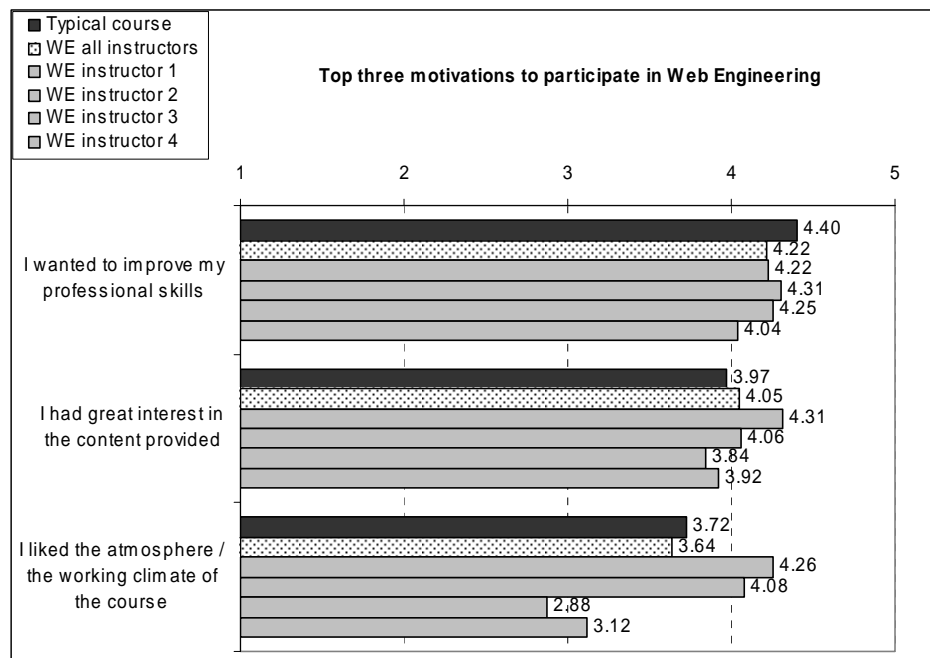


Figure 7. Top three motivational items in a typical course (n=131) compared with groups of the four Web Engineering instructors (n1=38, n2=36, n3=32, n4=25)

In Web engineering 84% of the students decided to cooperate on constructive work rather than take the exam. It was clear from the outset that a major goal was self-initiated, cooperative teamwork and learning with an emphasis on communication, reflection, and a critical, application-dependent selection of techniques. With these goals in mind, we suggested a learning contract like project: the *Web Engineering Learning License* (WELL) to

be offered to students in order to provide them with the option to engage in self-directed constructive work rather than take a conventional exam, which was offered as an alternative.

In a reaction sheet, one student writes:

“First of all I’d like to mention that WELL is a great idea. Often it is the case that one hears and learns the material in a lecture, but does not really understand it, because one doesn’t have the time to go into all topics of the lecture. Nevertheless, I have some suggestion regarding the proceeding of WELL. Comparing the individual contributions one sees that they differ strongly. It might be wise to prescribe some format and rules, such as minimal and maximal page number, base structure of the contents, structure and expected number of citations, layout, etc...”

Another student mentions briefly:

“In this course you see that it is possible to give free space for students, even if the requirements are of a precise nature. Of course, the WELL contracts contributed to having more contact to the students (but also caused more work)”.

Yet a third one comments:

“I find the idea with WELL cool, because I can avoid the stress during the last weeks of June, if one does the time management more wisely than we did. Many thanks.”

In addition to online reaction sheets we have conducted an empirical study confirming that 72.8% of the students who participated in the WELL project valued its long term learning effect as higher (41.9% much higher and 30.9% somewhat higher; cf. Figure 8) when compared to taking a conventional exam. Additionally, 64% of the participating students considered the engagement in the WELL project as more time-intensive. We emphasize that the values reported here stem from our first approach to this novel form of assessment and we intend to improve several aspects of WELL contracts, based on our initial learning.

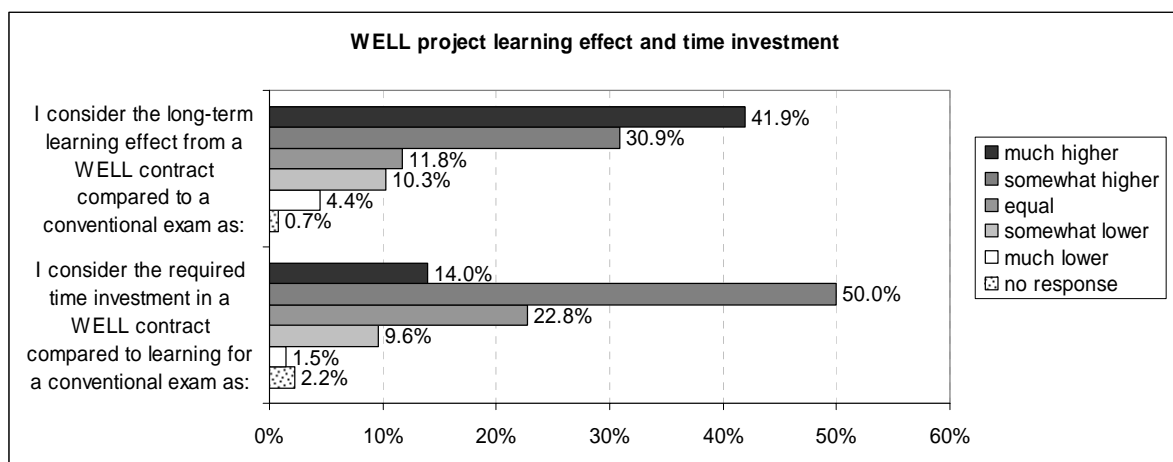


Figure 8. Long-term learning effect and time investment perceived by WELL participants compared to conventional exams (n=136)

Another statistically significant difference we measured concerns the learning outcome in terms of project work. Individual projects were peer evaluated such that each student (out of 299) was supposed to evaluate at least three projects of his or her choice. During this evaluation he or she could distribute 1 to 5 bonus points to each project he or she reviewed. Interestingly, the weighed received bonus points of students participating in groups of instructor 1 accounted to 46.94, whereas the average points for groups of instructor 2 to four were less than 38.33. This indicates a clear trend but further research is necessary to prove the influence of the three core conditions on achievement in projects.

Finally, Figure 9 lists students’ estimates on individual skills they acquired in Web engineering, depending on their instructor. The topmost bar depicts, respectively, the students’ estimates for skills acquired in a typical course, as indicated in the beginning of the term. It is well known that these estimates tend to be more optimistic when compared with estimates in the end of the term, where students are amidst exams and hence less relaxed

(Rogers & Freiberg, 1994). In any case, we find it interesting to observe that in Web engineering, unlike in typical courses, students profited slightly less regarding factual knowledge. Note, however, that the difference is statistically significant only for the instructors who were estimated lower in Person-Centered attitudes. Significant gains in Web engineering were perceived to concern practical competence, the production of work documents, and the importance of interpersonal relationships, in groups of instructors who were perceived as high in Person-Centered attitudes. These results strongly confirm our initial hypotheses. Firstly, they illustrate that learning on three levels is improved by instructors who are perceived as real, respectful and understanding. Secondly, they show that in a blended learning design, where the computer takes over parts of the transfer on information, more space is left for social and personal learning and this space is transferred into perceivable learning and growth.

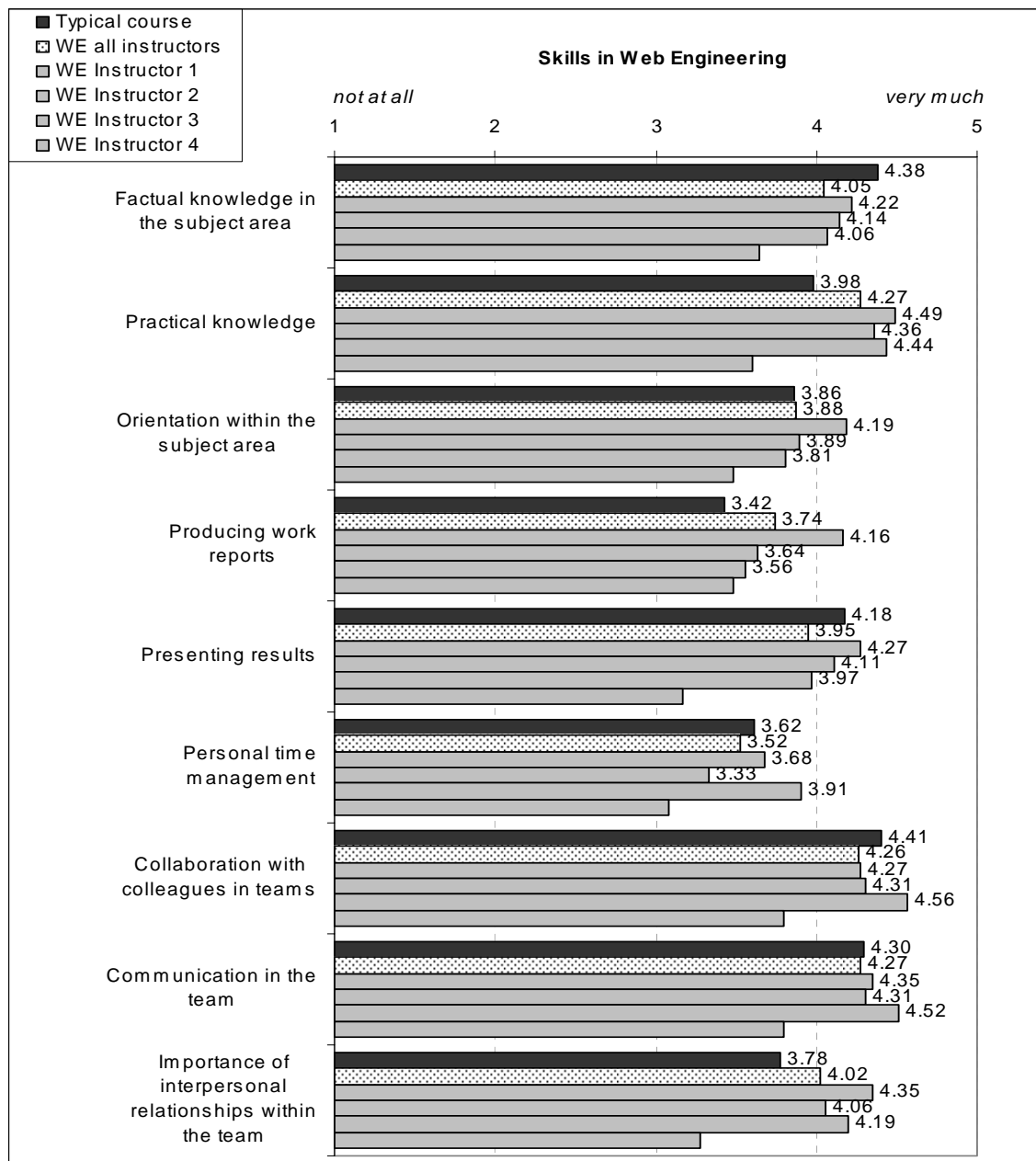


Figure 9. Selected items and competencies as estimated to be acquired in a typical course compared with Web engineering and dependent on individual instructors in Web engineering

Conclusions and Future Work

In this paper we have shared some experiences, reactions, and evaluations of our concept and practice of integrating Web-based learning technology into a humanistic educational paradigm in order to make learning

more meaningful, persistent, and effective. Summarizing, PCeL aims to enrich traditional courses by addressing learners at three levels: intellect, skills, and personality and intuitions. Technology is employed to take over a significant part of knowledge transfer at the level of intellect, thereby providing space for active participation and meaningful interactions both in real and virtual communication. We have observed that the interleaving of “here and now” encounters with computer-mediated communication and action has been perceived as a highly constructive mode of sharing and learning cooperatively from multiple perspectives such that constructive cooperation came about faster than in pure settings with face-to-face or online learning.

But what is the added value of PCeL and where does it come from? Students’ reactions as well as the empirical evaluation have indicated that students’ most significant motives for participating in PCeL style courses have been the increase of professional competence, the experiencing of a positive atmosphere, the collegial cooperation with peers, and interest in the subject matter. Interestingly, these top motives each address one of the three levels of learning: intellect, skills and feelings, and the differences in mean values of these top motives were statistically not significant. These findings support Rogers’ theory of whole-person, or experiential learning that emphasizes the integration of cognitions, intuitions/feelings, and skills, based on the actualization tendency that is directed towards actualizing the whole organism. Our initial, and due to the small sample sizes limited evaluation has nevertheless confirmed that instructors who are perceived as highly real or transparent, respectful, and understanding motivate students more strongly than instructors who are perceived otherwise. From this it appears that if the rich and stimulating environment provided by a sensitive use of New Media is also growth promoting, provided by instructors with high interpersonal values, motives for learning flow into each other and complement one another synergistically. Yet, our study also shows that a blended learning paradigm in which there is room for social and personal processes leads to improved learning only if instructors are perceived as personally well equipped to fill this space. It is remarkable that, if the latter is not the case, such a learning paradigm tends to lead to decreased motivation as well as learning outcome. Although our results should be viewed as initial, based on three courses conducted over a period of 1.5 years, they call for a *co-development of media- and personal competence*, if blended learning shall be effective.

Further research will take several directions. First, we are conceptually modeling some generic PCeL elements – we call them PCeL patterns (Derntl & Motschnig-Pitrik, 2004b) in order to support them with appropriate Web-design elements in an open source environment *CEWebS* (Cooperative Environment Web Services; cf. Derntl & Mangler, 2004; Mangler & Derntl, 2004). These are intended to provide the computerized framework for deep and persistent learning on the one hand and to support and simplify the organization, administration, and evaluation of PCeL courses on the other hand. Second, we continue with case studies and action research on PCeL and, concurrently, improve the test instruments in order to be able to observe the effects of changes. Third, we are in the process of populating a virtual community of persons interested in the Person-Centered Approach in higher education (<http://elearn.pri.univie.ac.at/pca>) in order to have a medium to share experiences and coordinate research aiming to promote authentic science (Hutterer, 1990). Everybody interested in joining is welcome! Last but most challenging and influential is the field of staff development in the spirit of co-developing media-, personal-, and interpersonal competence in order to facilitate PCeL most effectively.

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