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Learner-Centred Learning Tasks in Higher Education: A Study on Perception among Students

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Abstract: Universities face the challenge of constantly improving the quality of higher education and changing the learning behaviour of students, from passive reactive learning to active self-regulated learning. Learner-centred, constructively designed learning tasks offer a great opportunity here. This paper investigates to what extent the learning process is challenged by these learning tasks, and how these tasks are perceived by the students, using a before and after survey of students studying at bachelor level in business courses at a German university. The paper starts with a short description of constructivism in the context of task design and the main characteristics of learner-centred, constructivist-orientated learning tasks: openness to problems, situation orientation, openness to solution paths, and degree of difficulty. Then the research method used is outlined before the findings are presented. The before and after survey shows that despite an increased complexity and workload, the motivation to deal with topics on the subject remained stable.

Keywords: self-directed learning; learning tasks; student surveys; university didactics

Citation: Li, J. Learner-Centred Learning Tasks in Higher Education: A Study on Perception among Students. *Educ. Sci.* **2021**, *11*, 230. https://doi.org/10.3390/educsci11050230

Academic Editors: Maria José Sousa, Fátima Suleman, Pere Mercadé Melé and Jesús Molina Gómez

Received: 10 April 2021
Accepted: 9 May 2021
Published: 13 May 2021

1. Introduction

The increasing competition among universities confronts them with the challenge of maintaining the quality of studies and teaching at a competitive level, both nationally and internationally, and of constantly improving teaching [1].

In light of the above, approaches to activate self-directed learning have moved into the focus of current discussion [2,3]. For example, Mandl, Gruber, and Renkl [4] have found that in traditional forms of university teaching, students often acquire "inert" knowledge (knowledge that the learner is unable to apply). The learning behaviour of students should therefore be changed from passive memorisation to active transfer-orientated learning [5,6]. Lecturers, in particular, are thus increasingly faced with the challenge of ensuring the competence of students through learner-centred methods [7]. This form of self-directed learning is particularly problematic in large university courses because of the large number of participants, since learner-centred methods such as discussions, group work, and so forth, are challenging to use within large groups [8–10].

At this point, learning tasks in university teaching offer a great opportunity to promote analytical, learner-centred, and self-directed learning [11], since they encourage the application of knowledge and encourage the use of the content learned to solve real problems [12,13]. However, a shift from a teacher-led learning culture to a self-directed form of learning can also be dangerous. Vermunt and Verloop [14] (p. 270) speak of the danger of "friction" if the teaching strategy and the learning strategy do not fit together; the students are over- or underchallenged and they consequently do not gain a learning effect or, in the worst case, the learning effect is negative.

Currently, the use of learner-centred learning tasks, especially in business management courses, has not been sufficiently researched. With regard to learning tasks in higher education, the studies of van Merriënboer and Kirschner [11], and Hoogveld, Paas, and Jochems [15], which dealt with the construction of learning tasks for university teaching, are significant. Their works deal with a model for the construction of learning tasks within the framework of university didactics. Based on this model, various continuing education programmes for lecturers have been developed and empirically evaluated [11,15]. Furthermore, the abovementioned studies take the perspective of the lecturers and the implementation of learning tasks by lecturers, in other words the teaching style, as their main focus. The question of the extent to which students are able to deal with self-directed learning tasks, and whether these are compatible with their own learning strategies, has hardly been researched. This paper addresses this research gap, examining students' perceptions of the use of complex, learner-centred learning tasks in bachelor level business courses at a university in Germany. The change in teaching strategy is achieved by adapting the tasks used in exercises and tutorials in the past, to constructivist-orientated, self-directed learning tasks. Specifically, it was investigated to what extent the learner's learning process is challenged by these learning tasks, and how these tasks are perceived by the students. Therefore, the research question is:

How do students perceive the increase of cognitive level, complexity, and openness of learner-centred learning tasks?

This paper starts with a short description of constructivism in the context of task design. Then the research method used is outlined, before the findings are presented, followed by a discussion and a view to future outlook.

2. Constructivism as a Basis for the Construction of Learner-Centred Learning Tasks

On a theoretical level, the learning task concept pursued here is linked to constructivist learning theories. Billet [16] describes how learning is enabled by two important elements. On the one hand, the presentation of knowledge as a specific situation from the field and, on the other hand, the thinking activities that construct, modify, and apply this knowledge in order to deal competently with situations in this field. Specifically, this study is based on the eight principles of the constructivist-orientated problem-based learning environment of Savery and Duffy [9], which cover both knowledge presentation and thinking activity. These principles are [9] (pp. 137–140):

1. link all learning activities to a problem or to a larger task;
2. support learners in developing ownership of the overall problem or task;
3. design an authentic task;
4. design the task and the learning environment to reflect the complexity of the environment in which the students will work after their studies;
5. give the learner the ownership to develop their own solution processes;
6. design the learning environment in such a way that it supports and challenges the learner's thinking process;
7. encourage the testing of ideas against alternative views and in different contexts;
8. provide opportunities for reflection on the content learned and the learning process itself.

Learning tasks are understood to be tasks that serve the purpose of learning or practicing knowledge. They are a matter of material control of the learning process [17]. Constructivist-orientated learning tasks should be designed according to these eight principles.

Based on these principles, characteristics of constructivist-orientated learning tasks were derived. The first two principles of Savery and Duffy [9] emphasize the problem: "openness of learning tasks", which embeds the learning tasks in a larger context. The learning tasks should be formulated in such a way that learners are confronted with a question or problem. Learning tasks must have a stimulating quality that results from a challenging and motivating problem orientation [3]. The development of learning tasks becomes more significant and more realistic if the work instruction within the learning task is not too clear, and the learners themselves must identify the problems to be worked on [9] (p. 139). Problems should not be clearly specified, but at best should be discovered by the learners themselves in an open process.

Savery and Duffy's [9] third and fourth principles aim at the characteristic of: "situational orientation" of learning tasks. It is of particular importance in knowledge transfer, to show the learners in which practical context the learned knowledge is applicable. This situation orientation is understood as a reference to everyday life and the world around us, as well as in the sense of authentic application contexts. Learning tasks that are integrated into a typical professional situation by means of a business reference show students the sense of learning [13,18]. In the context of a university degree program, the living world can of course also include the area of scientific work. The lack of embedding learning in authentic contexts can lead to a lack of transferability of the content learned [9]. Therefore, it is necessary that learning tasks with real, or at least constructed application relevance, promote the application of the learned skills in real life situations [19–21].

The fifth principle mentioned above by the authors refers to the "solution process" when dealing with the learning task. Constructivist learning tasks do not provide only one correct solution. The solution process can be designed openly, where learners are given the opportunity to pursue their own action strategies and goals by using openness in their solution path. Learning outcomes and solution paths develop heterogeneously and are regarded as fundamentally unpredictable [9,22]. If the solution paths are open, the learners need to decide for themselves which strategies, concepts, and procedures they use to solve the problem. The learners will need already pronounced metacognitive skills, since they will have to control their own learning processes in order to successfully complete the tasks; it is desirable that there should be different ways of solving the task. Different approaches are also desirable to encourage learners to develop their ability to deal with divergent forms of situated presentation [9]. In this way, unexpected task completion processes can be understood as a learning opportunity. In this sense, the openness of solution paths also fulfils the requirements of principles seven and eight, which refer to the evaluation of ideas and the reflection on the learned content.

In order to design the learning environment as described in the sixth principle in such a way that it supports and challenges the thinking process of the learners, attention must be paid to the degree of difficulty of the learning tasks. The cognitive level of the learning tasks must be carefully considered. This defines different gradations: whether the content is to be remembered, whether it is to be understood, whether it is to be applied in a similar way or to a new problem at hand, or whether learners are to acquire additional knowledge by themselves [23,24]. Ideally, learning tasks promote at least the level of application of the acquired knowledge in real situations in order to solve problems at a higher level [11,12]. The degree of difficulty of a task can also be regulated by the linguistic complexity [25,26]. This complexity is increased in a task, for example, if the partial aspects relevant for mathematical modelling are presented in a sequence according to logic of the situation, that does not need to be logical for the solution path, and the mathematical variables are named in the text. This is necessary because even in professional life not all information is presented in the way it is needed to solve a problem. Furthermore, complex sentence structures or formulations, which are caused by the authenticity of a situation, can also lead to an increase of the linguistic complexity. This complexity encourages students to independently work out the relevant information for the task at hand. Consequently, this characteristic also serves to fulfil the requirements of principles three and four, which refer to the authenticity and complexity of learning tasks.

In summary, the characteristics of learner-centred, constructivist-orientated learning tasks can be divided into the variables of openness to problems, situation orientation, openness to solution paths, and degree of difficulty. The property "degree of difficulty" in turn has the subcategories cognitive level and linguistic complexity.

3. Method

3.1. Research Design and Data Collection

In order to answer the research question, a research intervention with both before and after surveys was realised. The intervention covered the change process from traditional small-step tasks which were part of four bachelor courses in business administration at a prestigious German university to constructivist-orientated self-directed learning tasks. To measure the effects, a standardised quantitative online survey of the students involved was conducted, to reach as many people as possible [27].

In the surveys mainly single and multiple-choice questions were used. The main items were assessed using a 4-point scale, in which the students rated comments on a scale from "totally agree" to "disagree". A 4-point scale was chosen to get a response tendency. There is no "neutral" option in the scale form. This procedure is suitable for capturing perceptions. Respondents were also asked to weight statements using percentages. The questions were derived from the above-mentioned theoretical principles and cover the derived variables of openness to problems, situation orientation, openness to solution paths, and degree of difficulty. In order to measure the effect of learning tasks, the motivational disposition plays an important role [28,29]. This can be revealed as a preference for a particular field of knowledge or action [30]. An individual develops extensive knowledge and skills through the motivation to deal with a topic. [18,28]. Additionally, the time spent for task processing per week was asked to investigate the objective workload of the students before and after the intervention, because the workload and complexity of the tasks define the learning context [31]. Therefore, the interest of the students in the respective subject matter was also surveyed. Questions were developed for the survey by the research team according to the theoretical framework. When formulating the questions, students were considered to have no previous pedagogical knowledge. Consequently, no pedagogical terminology was used, and the contents were paraphrased. The questions were formulated in such a way that the participants could understand them by reading them once and their motivation to complete the questionnaire was maintained. The questionnaire itself was divided into three parts: demographic data, perception of the learning tasks based on the constructivist dimensions, and additional questions about motivation and time expenditure.

Table 1 shows an overview of the relevant variables and the asked questions for the research question.

The validity of the questions was checked by a pre-test with five students of economics. Furthermore, an expert in quantitative research reviewed the questionnaire.

Table 1. Overview of the variables, questions, and scales.

Variables	Questions	Scales
Problem openness	With the work instructions, I was able to understand what was expected of me without further explanation.	totally agree agree rather disagree disagree
Situation orientation	I was able to apply the lecture contents in the task.	totally agree agree rather disagree disagree
Solution openness	I was able to work on the task according to my own solution path (e.g., calculation path, processing steps, argumentation structure).	totally agree agree rather disagree disagree
Cognitive demands	To answer the learning task, one had to …	… % only reproduce what you have learned by heart … % understand the … … % contents so that the tasks could be solved … % apply the contents to an existing problem … % acquire additional knowledge

Table 1. *Cont.*

Variables	Questions	Scales
Complexity	I was able to extract the information necessary for the processing from the task.	totally agree agree rather disagree disagree
Degree of difficulty	I find the level of difficulty of the task to be appropriate.	totally agree agree rather disagree disagree
Motivation	The task has motivated me to learn more about the subject area.	totally agree agree rather disagree disagree
Time spent	Processing the task took the following time per week: (without attendance time).	less than 1 h 1–2 h 3–4 h more than 4 h

The surveys were conducted before the COVID-19 pandemic began in the winter semester of 2017, the first student survey was conducted to analyse the perception of the learning tasks used so far in the lectures. This first survey aimed at students of those courses in which the tasks had not yet been changed.

In the summer semester of 2018, more than 300 assigned tasks were investigated for the characteristics of constructivist-orientated learning tasks, using a structured document analysis. The analysis grid was developed based on the above-mentioned characteristics of the learning tasks. The research team improved the learning tasks according to constructivist criteria in cooperation with the lecturers responsible for the courses.

In the winter semester of 2018, the lecturers used these improved learning exercises in their regular courses. In order to investigate the effects of the redesigned learning tasks on the students, the same surveys on the learning tasks used were conducted with another cohort after the intervention, therefore we had two different samples. The second survey was conducted to investigate whether there are any changes in the students' perceptions. Both surveys took place on one of the last course dates, so students had already completed most of the learning tasks. A member of the research team went into the seminar room at the beginning of the seminar and invited the students to participate in the survey. The internet address of the online survey was then shown on a presentation slide. Afterwards, an invitation to participate in the survey was sent out to the students by e-mail to also reach the students who were not present at the course on the day. This method ensured a high level of participation in the survey.

The date was evaluated on the basis of mean value calculations with a two-sample t-test for significance. The open-source calculation program R was used for the calculation.

The research team was not involved as lecturers in any of the courses. The survey was anonymous and was analysed by the research team. The result was presented to the lecturers of the courses involved. This separation between the research team and the lecturers minimised power differentials and coercion. The combination of qualitative document analysis and quantitative surveys allowed the investigation of different perspectives and dimensions of the intervention [32].

3.2. The Intervention

These four courses were exercises to deepen the content of the lectures. The courses took place weekly during the semesters. The courses each had more than 100 students and could be described as large-scale courses. There were two lecturers per course, with eight lecturers in total involved in the intervention. The lecturers were junior academics with two to three years of teaching experience. The lecturers had little previous training in higher education didactics and so that the improvement of the learning tasks was closely supported by the research team. The research team showed the lecturers potential for the improvement of the old learning tasks and showed possibilities of how to improve the learning tasks according to constructivist dimensions. The lecturers then improved the learning tasks by themselves.

Both the discussions with the lecturers and the analysis of the learning tasks demonstrated that the tasks were not formulated in a constructivist manner prior to the intervention. In the revision of the learning tasks, reference was made to the constructivist-orientated characteristics presented above: openness to problems, situation orientation, openness to solution paths, and degree of difficulty, in order to proceed according to the eight principles of the constructivist-orientated learning environment according to Savery and Duffy [9]. In particular, the tasks with the cognitive level of memory were adapted to achieve the higher learning objective of "understanding and applying". Thus, in many learning tasks, the reproduction of definitions was abandoned after the adaptation. Instead, the students were asked to explain technical terms and concepts based on self-selected examples.

According to the situation orientation, individual units of knowledge were linked together in the revised learning tasks and partly enriched by linguistic complexity. The tasks were contextualized in typical business situations.

For example, a mathematical cost accounting task was revised by the following situated task.

Excerpt from the task: "You already suspect that your manager will not be satisfied with the resulting increase in costs. In order to prepare yourself well for the discussion with him/her, you should therefore give it some more thought. Which measures and concepts could be used to reduce production costs?".

Learning tasks where the solution paths were given in small steps through several subtasks were made more open by allowing students to freely choose the solution strategy.

The learning tasks became more extensive through the addition of practical relevance and higher degree of difficulty. Through this enrichment, the students are requested to filter the relevant information needed to solve the problem in the task by themselves.

In addition to increasing the complexity of linguistic logic and raising the cognitive level, the problem openness of the tasks was increased. The problem to be solved had to be identified by a situation analysis and is not clearly identified by the lecturers.

4. Results

In the following section the findings are presented according to the research question and the characteristics of the learning tasks already described. The results before and after the intervention are presented and compared according to the characteristics of the learning tasks.

Out of a total of 2495 students, 495 took part in the first survey. The response rate was therefore 19.92%. From the participants, 51.9% were female, 47.7% male, and 0.4% diverse, with an average age of 22.1 years. This second survey involved 481 out of 2350 students with an average age of 21.7 years. Of these, 58.2% were female, 41.0% male, and 0.8% diverse. The response rate was 20.47%.

The characteristic problem "openness" indicates that learners should identify the problem presented in the learning task through their own analytical performance in order to develop action steps by themselves. During the intervention, the learning tasks were revised in such a way that problems and work instructions were no longer identified separately but were integrated in a complex situation. Work instructions could only be derived after an intensive investigation of the situation presented. Consequently, the research question asked was whether the students can understand the content of the work instructions without further explanation and understand what is required. After the intervention (survey 2), the students answered significantly ($p < 0.05$ **) higher 2.21 than before the adjustment of the tasks (survey 1) 2.08 (scale of four: 1 totally agree/4 disagree; see Figure 1). The clarity of the work instructions was reduced. The before and after survey showed that in comparison to the initial situation it was now more difficult for the students to independently recognise the specific problem to be solved.

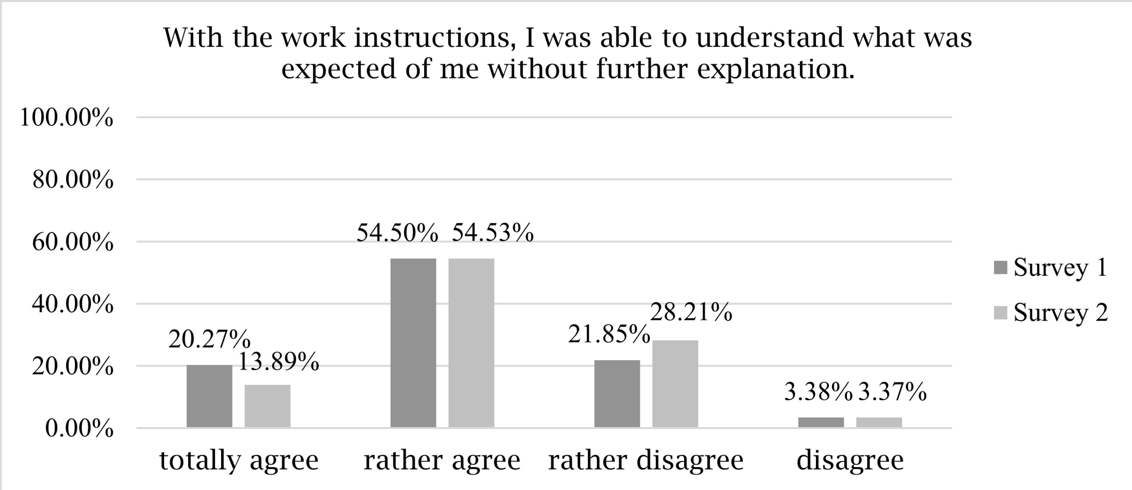

Figure 1. Students' perceptions pre- and post-intervention for problem openness.

Regarding the characteristic "situation orientation", when revising the tasks, it was ensured that the learning tasks did not repeat the theoretical scientific treatises of the lectures, but that the learning tasks represented complex professional situations. Consequently, a one-to-one transfer of the lecture contents to the learning tasks was no longer possible; students first had to transform lecture content into job-related contents. The study showed the associated change in contextualisation with a significant ($p < 0.05$ *) change in the mean value of the question as to whether the lecture content could be applied to the tasks, from 1.74 (survey 1) to 1.84 (survey 2) (four scale: 1 totally agree/4 disagree; see Figure 2). The business contextualisation of the learning contents required an increased transfer ability of abstract lecture contents into situated learning tasks. The comparison of the mean values between the two surveys showed that the tasks required an increased transfer ability of the students. In comparison to the first survey, the students found it more difficult to apply lecture content to situational learning tasks in the second survey.

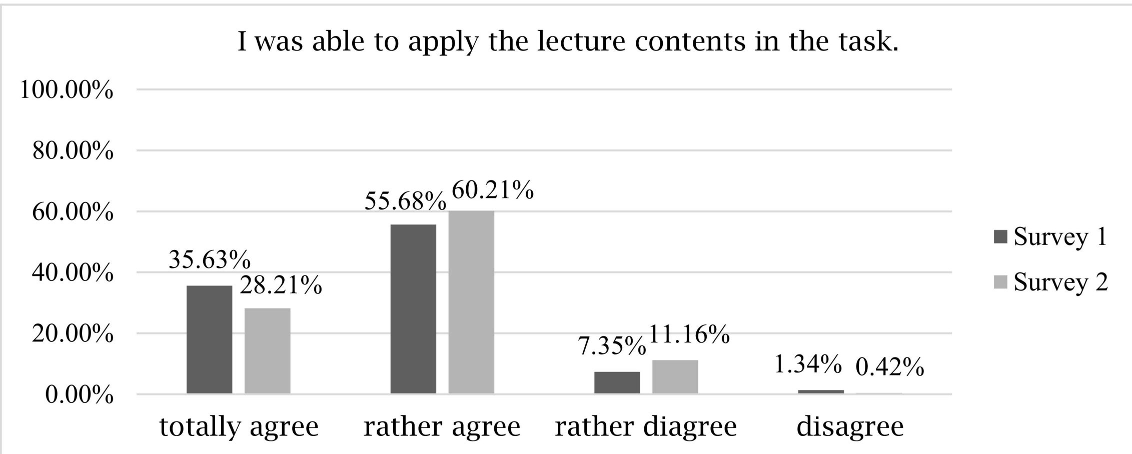

Figure 2. Perception of students pre- and post-intervention for situation orientation.

For increasing the openness of solution paths, the narrow specification of solutions, for example, through small-step work instructions, was reduced. At this point, students were asked to derive and justify their own solutions. Here the question was asked as to whether the students could work on the tasks according to their own solution. There was a significant change ($p < 0.05$ *) from 2.34 (survey 1) to 2.44 (survey 2) after the intervention (scale of four: 1 totally agree/4 disagree; see Figure 3). It is astonishing that despite the increase in the openness of the solution paths, the students responded that they could not develop their own solution path. This result could be explained by discussion of the results of the tasks during the courses, especially if lecturers only discussed one solution path.

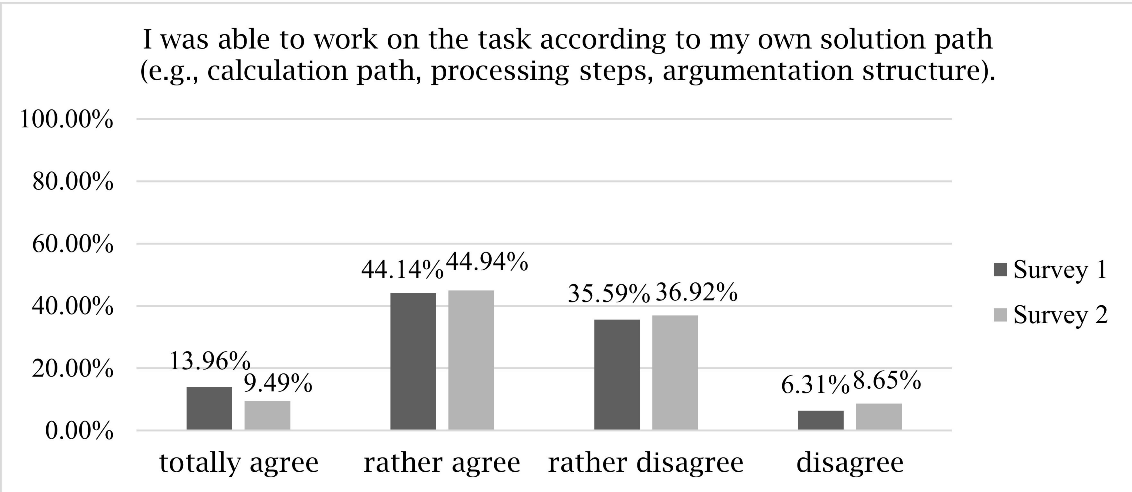

Figure 3. Students' perceptions pre- and post-intervention in terms of openness to solution paths.

In order to challenge the students' thought processes, and to increase the degree of difficulty of the learning tasks, the intervention raised the cognitive level of those tasks that were limited to reproducing what had been learned. Tasks that required problem solving were used more frequently. Regarding this characteristic, 29.25% of the learning tasks in the first survey, according to the student perception, were distributed as follows: 29.25% of the tasks were to reproduce only what had been learned, and 32.19% required an understanding of the contents first so that the tasks could be solved. Only 27.32% of the tasks were conceived in such a way that one had to apply the contents to an existing problem, and only 12.47% required one to acquire additional knowledge. The survey after the intervention shows that the adjustments of the learning tasks led to a significant change in the perceived cognitive level compared to the first student survey. Here, a reduction of 6.16 percentage points indicating tasks requiring the exclusive reproduction of what was learned, was measured, from 29.25% (survey 1) to 23.09% (survey 2) ($p < 0.001$ ***). On the other hand, the proportion of tasks that required an understanding of the content in order to be able to solve them increased significantly ($p < 0.001$ ***) from 32.19% (survey 1) by 4.57 percentage points to 36.76% (survey 2). A significant shift in the other two areas: "applying content to a given problem" and "acquiring additional knowledge" could not be measured (see Figure 4). It may be difficult to make a distinction at this level from the students' perspective. The before and after studies show that students perceive the increased cognitive level as being significant. In summary, the adaptation of tasks led to a shift in the cognitive level from "memorising" to "applying".

Another method of increasing the difficulty of learning tasks is through the utilization of the characteristic of linguistic complexity. During the intervention, the presentation of information in the learning tasks was revised. Mathematical indicators were transformed into vocational units and information was presented according to situational logic instead of the logic of the solution path, so that relevant information for accomplishing the task was not always clear and could only be identified through analysis. For the investigation, the question was asked as to whether students could extract from the task the information necessary for the task's processing. The study's result showed a significant ($p < 0.05$ *) increase in the mean value from 1.73 (survey 1) to 1.83 (survey 2) (four scale 1 totally agree/4 disagree; see Figure 5). The increased complexity of the linguistic logic meant that the students were not always able to clearly extract the information necessary for processing from the tasks, compared to the initial survey.

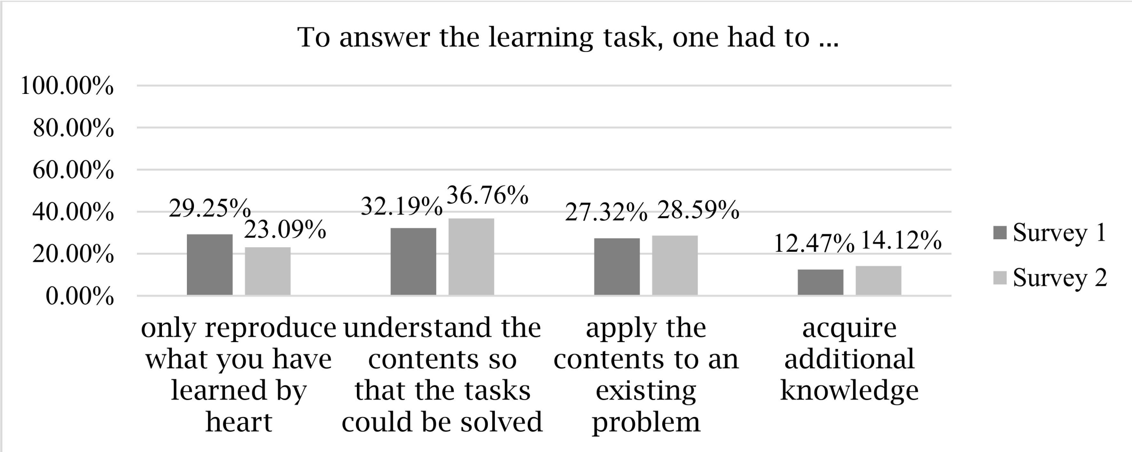

Figure 4. Students' perceptions pre- and post-intervention of the cognitive demands of the tasks.

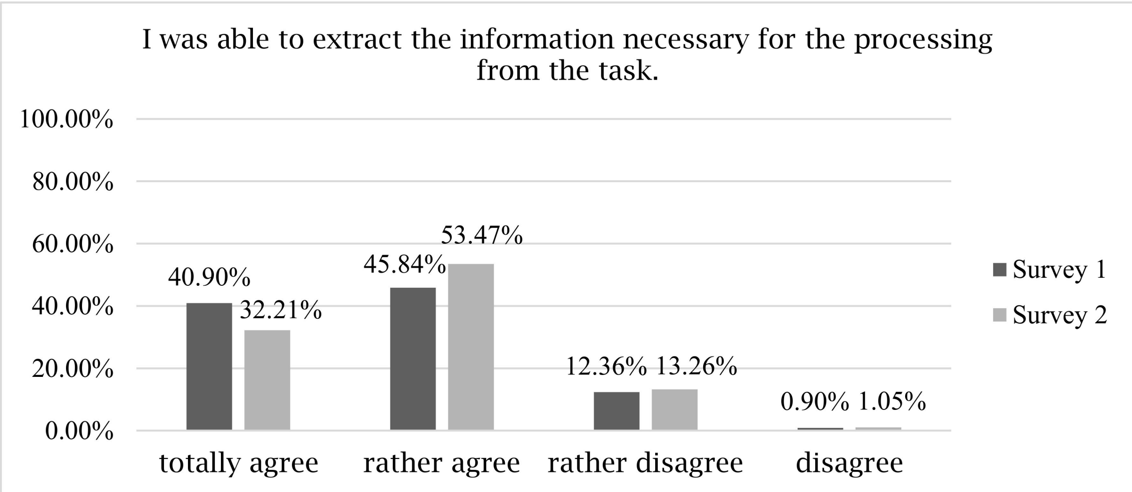

Figure 5. Students' perceptions pre- and post-intervention of complexity.

Furthermore, for the investigation of the characteristic "degree of difficulty", respondents were asked about their direct perception of the degree of difficulty. The comparison of answers in the two surveys to the question: "I find the degree of difficulty of the tasks is appropriate", showed that with the degree of difficulty of the learning tasks a significant shift of the mean value ($p < 0.05$ *) from 1.9 (survey 1) to 2.01 (survey 2) by 0.11 points can be determined (scale of four: 1 totally agree/4 disagree; see Figure 6).

In addition to questions about how the tasks were handled, the motivation to learn more about the subject area was also questioned. Despite the additional time required, and the perceived increase in the complexity of the content and the difficulty of the tasks, it was possible to determine an unchanged motivation (see Figure 7).

The increased level of difficulty was also reflected in the time required to solve the tasks. On a scale of four (in which 1 corresponds to less than one hour and 4 to more than 4 h) the time required increased significantly ($p < 0.001$ ***) by 0.24 from 1.77 (survey 1) to 2.01 (survey 2). Students required more weekly learning time to solve the tasks than before the learning task adjustments (see Figure 8).

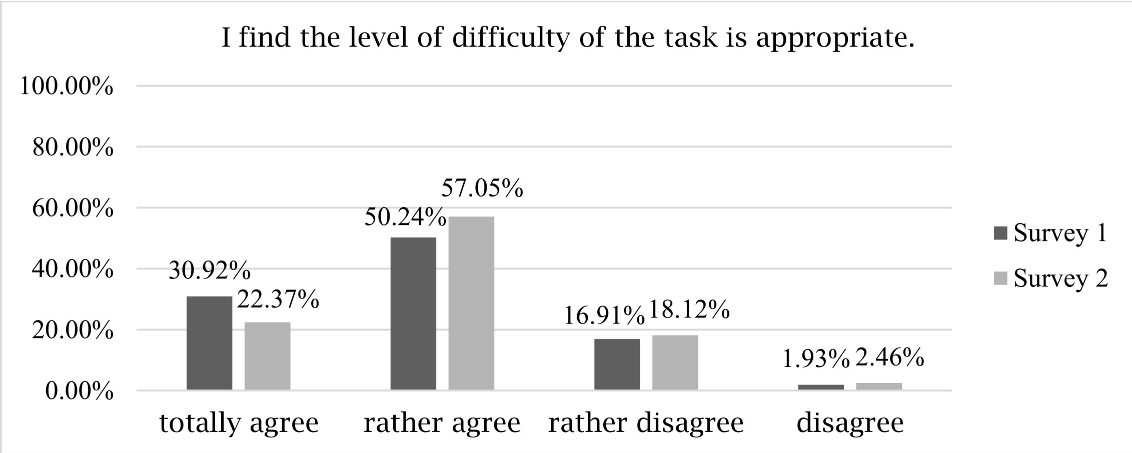

Figure 6. Students' perceptions pre- and post-intervention on the degree of difficulty.

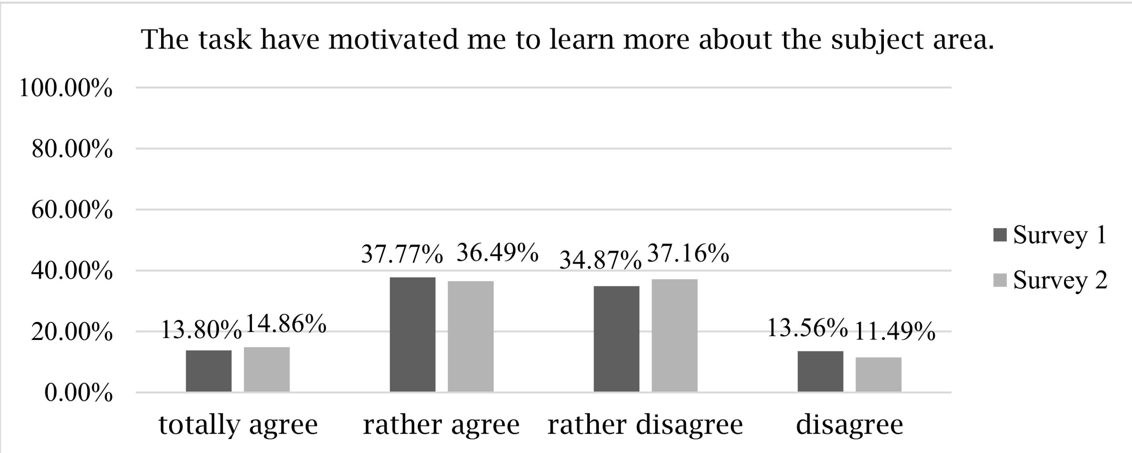

Figure 7. Perception of students pre- and post-intervention for motivation.

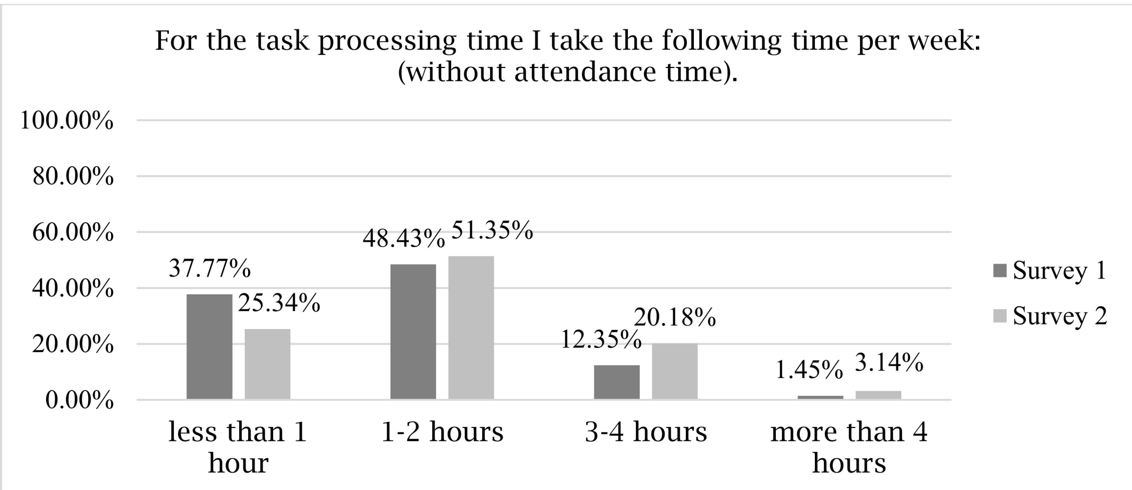

Figure 8. Time required to process the pre- and post-intervention tasks.

Table 2 gives an overview of the items with ordinal scales in the first and second survey.

Table 2. Overview of the items with ordinal scales in the first and second survey without the variable "cognitive demand".

	Survey 1		Survey 2			
Variables	**m**	**SD**	**m**	**SD**	***p***	**Level of Significance**
Problem openness	2.08	0.74	2.21	0.70	0.008	$p < 0.01$ **
Situation orientation	1.74	0.65	1.84	0.62	0.024	$p < 0.05$ *
Solution openness	2.34	0.80	2.44	0.76	0.033	$p < 0.05$ *
Complexity	1.73	0.72	1.83	0.68	0.031	$p < 0.05$ *
Degree of difficulty	1.9	0.75	2.01	0.67	0.029	$p < 0.05$ *
Motivation	2.48	0.92	2.44	0.89	0.618	$p > 0.05$
Time required	1.77	0.71	2.01	0.76	0.00000334	$p < 0.001$ ***

The mean values of the survey results of the learning tasks are mostly in the positive range of the scale showing that the students' handling of the learning tasks is definitely conducive to learning.

5. Discussion and Conclusions

The results show that working through the learning tasks enhanced by the increase of the characteristics problem openness, situation orientation, openness of solution paths as well as degree of difficulty, requires the more intensive involvement of the students. However, the before and after survey shows that despite the increased complexity and workload, the motivation to deal with topics of the subject has remained stable.

This could be as a result of the fact that the learner-centred, constructivist-orientated learning tasks now activate the learners' self-regulation more strongly. The increased complexity led initially to an excessive demand on the learners because they were not used to working on constructivist-orientated tasks. The study by Tremblay, Leppink, Leclerc, Rethans, and Dolmans shows that complex tasks produce a higher cognitive load and require more working time than a simple task; a lack of problem-solving experience and information research experience hinders the thinking process and results in a poorer self-assessment of performance. Complex tasks, however, strengthen reflective practice during debriefing. Students indicated that they learned more from the complex tasks [33].

Perkins [34] already mentioned three challenges that learners face in learner-centred, constructivist learning environments. The first is the cognitive complexity of the learning environment, which can lead to an initial cognitive overload of learners. Second, the increased demand on task management skills is described. The learners do not receive pre-defined solutions and must now activate their own task management skills. This ability can be developed in different ways depending on the learning culture and learning level of the learner. Thirdly, Perkins [34] shows that the constructivist-orientated learning environment contains two learning goals at the same time. On the one hand, students should acquire professional competence; while, on the other hand, they should also independently control the learning process for the acquisition of professional competence. A more recent study by Kyndt, Dochy, and Cascallar, on the context of learning tasks and subjective perception of students also confirms this effect [31].

At the same time, the results of the surveys also show that complex learning tasks motivate students to deal intensively with realistic and complex issues in a self-directed manner [35]. In this context, an initial overload can be prevented by an appropriate support system, such as scaffolding and coaching [34].

In general, the transition from traditional tasks to those designed along constructivist lines should be carried out step-by-step by the instructors. The changed expectations of students' learning behaviour must be clearly communicated and introduced by a support system [11,34]. In this context, the discussion of tasks must also be open so that the students' self-determination is required [9]. According to Jonassen [22], constructivist-orientated university teaching does not necessarily require small seminars with group work and discussions. More important is the development of concrete support tools for the students.

Nevertheless, it must be emphasised that the use of constructivist-orientated learning tasks alone is not sufficient to change learning culture. For this to happen, the university needs a holistic concept in which method of performance assessment is also constructivistic. This is because learning successes acquired through constructivist methods cannot be fully captured by the traditional performance assessment of knowledge acquisition at the lower-order level, leading to “sham constructivism” [6]. Against this background, the culture of performance assessment must be reconsidered so that constructivist-orientated learning methods can be fully effective. Instead of conducting a traditional written examination at the end of a learning unit, it is more appropriate to use learning portfolios, learning reports, and so forth [6].

Finally, the limitations of the study should also be pointed out. For example, only a single intervention in a university was analysed here. The learning process itself was not examined either, in other words, no teaching visits were made. Furthermore, no statements can be made about the actual learning success of the students due to the new task types.

Despite these limitations, the findings show that the introduction of constructivist-orientated learning tasks must be accompanied by the introduction of a constructivist-orientated learning culture into the university landscape. This intervention study is significant because the use of learning tasks shows a possibility to also enable constructivist learning in the context of large-scale courses where project work is not possible. The students’ perceptions give evidence on how the use of learning tasks can be adapted.

The results can be transferred beyond business studies to other academic disciplines where the reconstruction of knowledge and the transfer of knowledge to the professional context is important, such as in the field of teacher education.

Against this background, this study contributes to research on the use of learning tasks from a student’s perspective. The implementation of a constructivist-orientated teaching and learning culture must focus both on the people who prepare the knowledge and those who learn it.

Funding: This research received no external funding.

Informed Consent Statement: Informed consent was obtained from all subjects involved in the study.

Data Availability Statement: The data presented in this study are available on request from the corresponding author. The data are not publicly available due to privacy.

Acknowledgments: I would like to express my special thanks to Christian Gronowski and Matthias Pilz as well as to the participating lecturers.

Conflicts of Interest: The author declares no conflict of interest.

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