education sciences

MDPI

Article

How Can Flipped Classroom Approach Support the Development of University Students' Working Life Skills?—University Teachers' Viewpoint

Sanna Väisänen * and Laura Hirsto

School of Applied Educational Science and Teacher Education, University of Eastern Finland, Yliopistonkatu 2, 80100 Joensuu, Finland; laura.hirsto@uef.fi

* Correspondence: sanna.m.vaisanen@uef.fi

Received: 9 November 2020; Accepted: 1 December 2020; Published: 4 December 2020

Abstract: Higher education students need both generic skills and field-specific knowledge in order to cope with the diverse demands of working life. The aim of this study was to gain a better understanding of the development of university students' working life skills and of how these skills can be developed in learning environments utilizing the flipped classroom approach. The focus was on the experiences and thoughts of higher education teachers concerning which learning environment features support the development of working life skills. Altogether, 22 higher education teachers from a Finnish university were interviewed with semistructured interviews, and the data was subjected to content analysis. The results indicated that teachers identified several generic and field-specific working life skills, the most important of which were collaboration, communication, information literacy, and skills related to career and responsibilities. The flipped classroom appeared to support students' active role and facilitate versatile ways of learning. Especially, cooperative and active learning were identified to be the key means to support the development of students' working life skills in flipped classroom environments. Facilitating students' opportunities to develop their working life skills can be seen as an integral part of flipped classroom environments in many ways. However, it is important that the opportunities are actively promoted, and conceptual and practical tools are provided for the student through university studies.

Keywords: flipped classroom; working life skills; learning environment features; university teacher; higher education

1. Introduction

University students learn specific knowledge of their own study field during their studies. However, they also need different generic skills in order to cope with the demands set by their future work. In accordance, one aim for university studies should be to provide opportunities to develop generic skills that can be transferred to other contexts [1–4]. These generic skills are sometimes learnt alongside learning the content knowledge [5], but they should also be identified and actively taught [3]. Further, it has been proposed that students should acquire skills for life-long learning through their studies, as well as the ability to self-regulate and adapt to the changing environments in which they will be required to act [6]. The concept of working life skills can be approached, for example, through 21st century skills [7,8].

It has been suggested that even if some skills, such as problem solving and communication, are seen as a part of disciplinary know-how and are valued by higher education teachers, they are not always the objects of explicit and conscious teaching [9]. Furthermore, although supporting students' learning of working life skills, traditional teaching methods and pedagogy are not enough, but should

be augmented by the use of varied teaching methods and pedagogical practices [10]. Barrie [11] also points out that these working life skills should not be seen as discrete outcomes but as part of all learning. It has been shown that, for example, integrating theoretical (conceptual, general knowledge) and practical (context specific) elements can enhance the transfer of learned skills to novel contexts [12]. Furthermore, it appears that in active learning environments students can practice the skills that are needed in their future work [13]. For example, the flipped classroom has, in general, been shown to support active learning [14–16] and to place a student in the center of his/her own learning process [14].

However, there is rather little systematic research on how the development of students' generic skills can be supported during university studies in general [17]. The flipped classroom approach has recently gained very much interest in higher education, however, there is a lack of knowledge of how exactly a flipped classroom can support students in their learning of working life skills. Thus, this study aims to bring new knowledge to this area by exploring what kinds of working life skills higher education teachers identify and how they perceive the flipped classroom learning environment as supporting the development of students' generic skills alongside the learning of content.

1.1. Developing Generic Working Life Skills

Abilities for lifelong learning include the ability to regulate one's own learning, which is needed in working life [18]. Furthermore, communication and collaboration skills have been seen as key generic skills [13,18], as well as problem-solving skills [1,2,13] and critical thinking skills [1,19]. These skills are often referred to as the 21st century skills [8]. More specifically, Binkley et al. [7] divide the 21st century skills into four categories, namely *ways of thinking*, *ways of working*, *tools for working*, and *living in the world* (see Figure 1).These categories are further divided into a total of ten skills. On the one hand, working life skills can be divided according to Nykänen and Tynjälä [20] into skills that are related to (1) academic formation of knowledge and scientific thinking, (2) integration of the knowledge, (3) social and communication skills, (4) self-regulation skills, and (5) skills of management and networking. According to Singh et al. [19], teachers in higher education emphasize oral communication skills, problem-solving skills, critical thinking, and various skills to work in groups as important generic skills, which need to be developed during university studies. Furthermore, social skills are seen as central to many fields in working life and, in accordance, developing social competence is considered as one of the key generic skills [5]. It has also been suggested that professional behavior, such as in a future doctor's work, requires understanding of ethics, communication skills, and team working as well as skills to reflect learning from practice and experience [21].

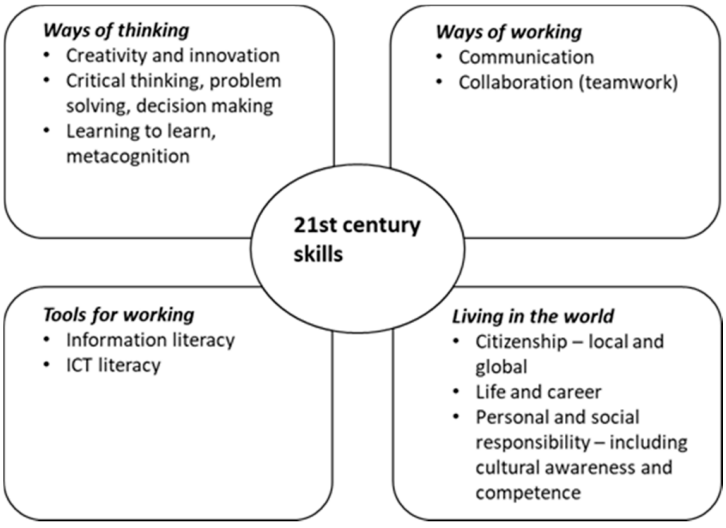

Figure 1. Binkley et al.'s [7] 21st century skills.

There are some features of the teaching and learning environment that appear to support students' working life skill development in higher education. According to Kember and Leung [22] and Kember, Leung, and Ma [23], these features include an aspiration to understand central concepts (i.e., teaching for understanding), active learning, relationships with other students and cooperative learning, teacher-student interaction, feedback and assistance as well as the use of varying assessment methods. Furthermore, the theory and practice nexus as well as dealing with authentic problems can be included in such learning environments [10,20].

Central elements for supporting the development of generic skills in higher education appear to be, for example, discussions, sharing experiences, and collaboration [10,17], as well as collaborative planning [24]. The use of versatile methods for assessment is also significant. Decision-making skills more specifically appear to be supported by working together and by peer evaluation [10]. Self-evaluation, in turn, supports the development of lifelong learning, according to Virtanen and Tynjälä [10]. Furthermore, the development of generic skills may be supported by enabling the participation of university students in authentic learning environments, tackling authentic working life problems, as well as by actively integrating theory and practice [17,24]. Hence, pedagogical practices that support the development of generic skills appear to include, for example, critical and active examination of knowledge, and utilizing students' own previous experiences and feedback [10]. In addition, working at the interface of theory and practice appears to support problem-solving skills [10].

It has been proposed that, for example, large class size may work against the teaching of generic skills, because the development of these skills requires working on open-ended problems, which may be hard to integrate into a pedagogical design in settings where there are a lot of students present at the same time [9]. Furthermore, from the pedagogical viewpoint, higher education teachers may lack understanding about the nature of generic skills, or lack experience of teaching them [9], which may have an effect on their pedagogical choices. Therefore, it is important to consider how university teachers perceive supporting working life skills in a flipped classroom approach.

1.2. Flipped Classroom Learning Environment in Developing Working Life Skills

Learning via the flipped classroom (FC) approach appears to be student-centered [25–27]. FC usually utilizes pre-materials such as videos and pre-readings, e.g., scientific articles [28,29]. Students have, for example, been shown to appreciate the opportunity to pause and repeat a video while studying [30,31], if they do not understand what was taught or they need more time to reflect on the new knowledge [30]. There also appears to be some evidence that students feel that watching videos to adopt knowledge increases the effectiveness of their learning [31].

Meaningful practice-oriented classroom activities also appear to support students' experience that learning in a flipped classroom environment is effective [31]. Furthermore, watching videos before actual face-to-face learning sessions appears to help students achieve pre-set learning goals, because it supports participation in learning activities [26], which may utilize discussions (peer and expert) and student presentations [29]. Furthermore, pre-materials appear to allow time for more engaging and useful learning activities during face-to-face lessons, such as more time to interact and learn from others [32]. Further, students appear to perceive that working in groups, which support their learning, is a general advantage of FC learning [27,33]. According to Lee et al. [30], students appear to perceive positively such learning situations in which they have plenty of opportunities to discuss with other students and in which they can experience active engagement and participation in the learning process. Furthermore, it has been suggested that a cooperative group work may be a significant learning tool for students, provided that they work on the same exercise and that they get feedback while working [34].

Compared to a traditional lecture, the flipped classroom may provide more space for collaborative learning [34]. Studies have shown that flipped classroom pedagogy appears to improve students' collaborative learning strategies [35]. According to O'Flaherty and Phillips [29], the flipped classroom approach creates opportunities to develop, e.g., communication skills and working in groups, and for this reason it is seen to improve students' interaction and problem-solving skills as well as enabling

support for the development of students' critical thinking and life-long learning skills. For example, it has been suggested that critical thinking, which also appears to be supported by the flipped classroom, is an important ingredient for acquiring deep knowledge [35]. These perspectives prepare students for working life [29]. Further, it may be suggested that the flipped classroom can have a significant role in promoting students' creativity, such as novelty and flexibility, for example, by supporting more preparation, thinking, and problem-solving [36]. It may also enhance students' ability to regulate their own learning [37]. There is some evidence that graduated students appear to experience that their generic skills, such as communication and analytical thinking skills, have been developed better in a flipped classroom learning environment compared to traditional teaching contexts [38]. Students also appear to perceive that they should take more responsibility for their own learning [31]. Thus, there is some research on how students have experienced their learning in terms of working life skills or 21st century skills, but there is not much knowledge on how university teachers, who are planning their courses to include certain more generic learning outcomes, see the possibilities of flipped classroom environments in supporting their students' learning in this respect.

1.3. Aim of the Study

The aim of the study is to gain a better understanding of higher education teachers' perceptions of the development of students' generic skills and of how working life skills can be developed in a learning environment that utilizes the flipped classroom approach. University teachers were considered to be interesting informants, as they had experiences of planning and teaching courses through flipped classroom. Generic skills that can be transferred are needed when university students proceed to working life, and these skills may be learned alongside a substance content.

Accordingly, the following research questions were addressed:

1. What is understood by working life skills in general and in various fields in the university context?
2. What kind of elements in courses based on the flipped classroom approach support the development of skills needed in working life?

2. Materials and Methods

The context of the study was an educational development project (see Figure 2), in which university teachers were supported in transforming their university level courses according to the principles of the flipped classroom or flipped learning approach. University teachers volunteered to participate in the development project and to work on their courses during the project, and the teachers were provided training through collaborative seminars, see [39]. In the educational development project, there were two cohorts of altogether about one hundred participants from various disciplinary fields.

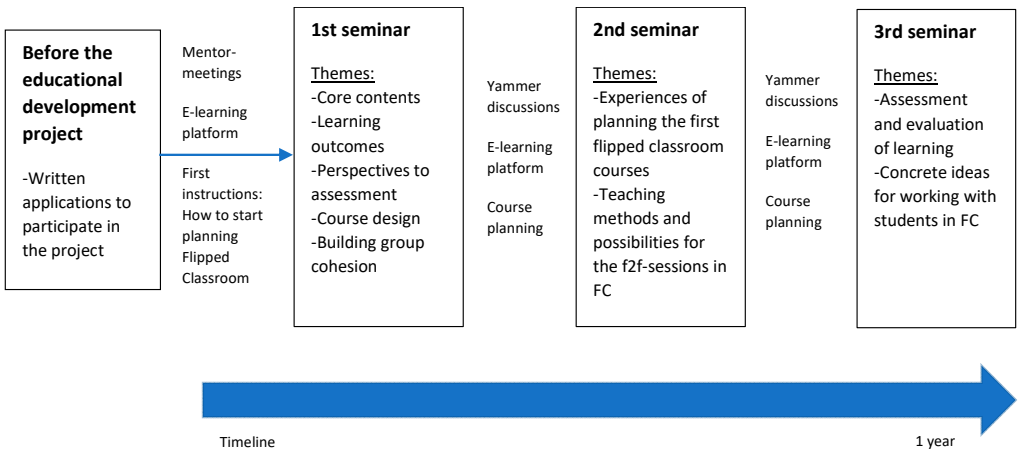

Figure 2. The Flipped Learning-educational development project design, see also [39].

2.1. Participants

The study used a data collected from university teachers (N = 22) teaching in a Finnish university. Seven of them were male and 15 were female. An email request to participate in the interview was sent to those teachers who had participated in the educational development project and had transformed their own teaching according to flipped classroom principles. The participants represented a variation in their amount of teaching in higher education. They also had differing fields as their branch of science. The participants were sufficiently representative of the fields in the university.

Teachers were sent a briefing in which the nature of the research was described and consent to participate was requested. The teachers' participation in the study was on a voluntary basis and they had the opportunity to withdraw from the study if they wanted to. Information about the participants is given in the reports without compromising their anonymity, for example in the descriptive citations from the interviews.

2.2. Data Collection

The interviews were conducted during the spring of 2019. The interview frame for the wider research project was created collaboratively by several researchers, and various themes were included in the interview. Before the data was collected, the interview protocol was validated in three pilot interviews. These pilot interviews are not subjected to analysis. Interview data were collected by trained researchers. Participants were interviewed mainly face-to-face, one at the time. Four of the interviews were conducted online.

In this study, themes related to working life skills and learning environments that support students' learning were included in the analyses. In this context, the semistructured interview (see Table 1) included questions about how teachers see working life skills in different fields and how a flipped classroom approach can support the development of students' working life skills and expertise that are needed in their future work. There were also questions about teaching experience and reasons to start with the flipped classroom approach. Most of the teachers did not have earlier experience of teaching through the flipped classroom approach, but they were trained to design their courses in alignment with it. Altogether, seven questions were asked concerning working life skills and their development. The interview questions about working life skills were part of a wider interview regarding the flipped classroom approach in higher education. The duration of the interviews ranged from 65 to 142 min. The interviews were audio-recorded digitally and transcribed into text files by members of the research group.

Table 1. Interview themes.

1. What do you understand by working life skills? (i.e., generic skills)
2. What do students need to know in your field as they graduate and enter working life? What are the key working life skills in your field?
3. How did your flipped classroom course support the development of skills needed in working life? What are the elements that flipped classroom provides to support the development of working life skills?

2.3. Analysis

The research utilized a qualitative approach to explore university teachers' perspectives on the development of generic skills in flipped classroom learning environments. The qualitative content analysis was performed and ATLAS.ti software (version 8.0) was utilized. The analysis was started by reading through all the interview transcripts (N = 22) in order to gain an overall understanding of the data as well as to register initial ideas that came up from the interviews [40].

In the second phase, the focus was on exploring themes including both general and field-specific working life skills as well as elements of the learning environment that support the development of such skills. A theory-driven analysis strategy was utilized [41]. More specifically, Binkley et al.'s [7]

model as well as Kemper et al.'s [23] model with the supplement of Virtanen and Tynjälä [10] and Nykänen and Tynjälä's [20] were applied. Firstly, the data was coded into four main categories both in general working life skills and in field-specific skills; teachers referred to ways of thinking, ways of working, tools for working, or living in the world [7]. In addition, the elements of the flipped classroom learning elements that supported the development of the working life skills were coded into seven main categories based on the Kemper et al. [23] model complemented with three main categories from Nykänen and Tynjälä [20] (see also [10]). In the third phase of analysis, the main categories of working life skills were coded into ten identified subcategories. Some working life skill categories were divided across more than one subcategory.

Validation of the criteria for each category was critically discussed and evaluated by the authors [42]. Parallel categorization was utilized. The intercoder reliability rate was 89% for categorizations of working life skills. In cases of uncertainty or disagreement, consensus was achieved by discussion. Furthermore, consensus was achieved by clarifying criteria. Analysis of teaching and learning environment features was performed separately by the researchers at first and then it was discussed together. As was conceived theoretically, the empirical categories of the descriptions of learning environment were considered to be overlapping. Thus, one kind of description could be included in the category of active learning as well as in the authentic case category.

3. Results

3.1. Working Life Skills Developed in Higher Education

The higher education teachers were asked to consider what they understood to be general working life skills and what are the central working life skills in their own field when students transfer to their future profession. The results showed that higher education teachers identified both general and specific working life skills needed in students' future professions (see Table 2). However, they mentioned by name more field-specific skills than general working life skills.

Table 2. Number of teachers (*n*) who identified general and field-specific skills.

	Ways of Thinking	Ways of Working	Tools for Working	Living in the World
General	2	9	8	7
Field-specific	5	18	15	12

Further analysis showed that the general working life skills mentioned by the teachers were divided especially into *ways of working* ($n = 9$), *tools for working* ($n = 8$), and *living in the world* ($n = 7$). *Ways of thinking* ($n = 2$) were more rarely reported. In terms of general working life skills, the numbers of mentions (in contrast to the number of teachers, who mentioned) were considered (see Table 3). This was due to the fact that some teachers mentioned more and various kinds of working life skills; therefore, the number of mentions will give a better understanding of the features of the data. In the category of ways of thinking, teachers identified learning to learn and metacognitive skills as being a part of working life skills. On the one hand, one teacher responded that *"it means, for example—the ability to study new things all the time, or when needed. Ability to see, like to recognize one's own skills and an ability to kind of modify them"*. On the other hand, teachers did not report for example creativity, critical thinking or problem-solving as general working life skills.

In terms of ways of working, teachers identified especially the ability to work effectively as a part of a team or to manage projects, i.e., collaboration. They also emphasized the ability to get along with other people in the working community. For example, "*Firstly, what comes to my mind is perhaps teamwork and social skills. Well, social skills are related to the ability to get along with everyone, even if they are not your best friends, or even if someone has certain personality traits which annoy you a lot. Despite that, you must be able to work with anyone. So the ability to collaborate with all sorts of different stakeholders comes to my mind*". Furthermore, ways of working included the ability to communicate. Teachers identified the

need for people, for example "*—to find ways to communicate constructively and effectively and pleasantly with changing assemblies*".

Table 3. Frequencies (*f*) of the mentioned general and field-specific 21st century skills.

21st Century Skill	Skill	General (*f*)	Field-Specific (*f*)
WAYS OF THINKING	Creativity and innovation	0	0
	Critical thinking, problem solving, and decision making	0	4
	Learning to learn and metacognition	2	4
WAYS OF WORKING	Communication	2	10
	Collaboration	7	13
TOOLS FOR WORKING	Information literacy	7	17
	ICT literacy	2	1
LIVING IN THE WORLD	Citizenship	0	0
	Life and career	6	8
	Personal and social responsibility	3	8

In terms of tools for working, teachers also mentioned an ability to seek and process information and have a content knowledge, i.e., information literacy, as general working life skills. This means, for example: "*knowledge handling skills*" and "*how to apply knowledge*". Technological skills were also mentioned, although to a lesser degree. For example, "*digitality is strongly linked to working life skills in modern times*". Living in the world included skills related to career as well as personal and social responsibility. Especially skills related to career were identified by teachers, such as skills to adapt to change, time or task management and ability to organize and lead.

> "Well, working life skills are those skills that people need in working life for coping there well, because working life has changed so much. That the kind of traditional thinking, that someone graduates as something and goes to a working place, and then they are there with those same skills like into retirement age and like 'that's it'. It is not that way at all anymore. People have to be flexible to change and—if we go back to the students and their skills—I would say that these are the skills that they need to survive in working life as it is nowadays."

In addition, teachers identified the need to be able to follow the rules of societies and workplaces, i.e., to know the codes and manners that are generally accepted. This also included working morality:

> "I would like to think that it is a working life skill that you consider it important to prepare for things, and that you do so and bring to the situation what it is your duty to bring into it. In a way, it's that morality, but it's also about how you perceive things, what needs to be done, what needs to be done next, and how this situation should proceed. So it's pretty close to this flipped classroom."

Field-specific working life skills that higher education teachers frequently perceived as central to students in their future work, were *ways of working* (n = 18) and *tools for working* (n = 15). Skills related to *living in the world* (n = 12) and *ways of thinking* (n = 5) were also reported (Table 2).

In further analyses, the frequencies of mentions were considered. In terms of more specific descriptions of field-specific skills, teachers highlighted especially skills of collaboration and communication (see Table 3). Teachers recognized the importance of the ability to work in diverse groups and teams within the working community and with different kinds of customers. As an example:

> "To get along with everyone in the working community, to be kind and business-like. And then also to get along with patients. And then a good ability to work in different

> working environments and situations; even in unexpected situations you need to be able to act. And appreciate the skills of others as well. That is, working in a team as a member who kind of leads that whole team, if you think about a doctor's job."

Being able to communicate, for example, with a customer or as a specialist was seen as significant for future work. *"You have to manage many kinds of communication, not only spoken but also this kind of digital communication. —So, well, communication skills are maybe the most important"*.

Teachers also identified the ability to use tools for working, i.e., to deal with both information and ICT literacy, meaning to search and handle information. However, ICT literacy was rarely reported. Management of the content knowledge of their own field as well as an ability to search for knowledge needed in their own field was highlighted. Furthermore, students were considered to need skills to process knowledge and to identify appropriate knowledge in their future profession.

> "As we are not preparing [students] for any specific professions, but for various expert tasks, then they are more related to the content knowledge, that one must be able to interpret the scientific publications of one's field, or scientific text, and be able to utilize it in practice, and to produce their own text and research information in their field. Probably also that they know how to apply theory to practice."

Responsibility for working in a socially acceptable way was also mentioned as a significant skill. This meant that there are some generally accepted particular rules and manners in workplaces that should be followed. For example, teachers mentioned the importance of being at work on time, because not all students are nowadays. Further, teachers saw the importance of ethical behavior and the ability to be an example to others. "*It comes to mind that when they come late so much nowadays and that kind of thing, they should probably learn the ethics of working. Also, this kind of just old-fashioned normal politeness, manners and being on time and following the rules of working life*". In addition, with regard to responsibilities, students also need to learn to handle managing and leading projects and to manage stress. They should also be able to adapt to changes in their career:

> "Probably in working life, this ability to transform is emphasized quite a bit. You pretty much hear it constantly that we are educating, or in elementary school there are currently people who will be graduating for jobs that don't even exist yet. So, with this idea in the background, it's probably important to be able to change and transform."

Teachers identified problem-solving skills and critical thinking as a part of the skills students in their own field will need when they begin in their future work. Moreover, skills of metacognition and learning to learn were mentioned, such as *"Well, he/she needs to be able to be self-directed. Because, for example for a teacher, no one comes to say what you should do. You are responsible for that by yourself"*.

3.2. Features of the Teaching and Learning Environment Supporting the Development of Working Life Skills

Another analysis point was teachers' perspectives into specific teaching and learning environment that they thought would support the development of working life skills. Teachers identified the kind of pedagogical practices in flipped classroom courses that they perceived to support the learning of generic skills. In the analysis, variation of mentions was classified and the number of mentions was counted. This was done in order to understand variety of pedagogical practices teachers utilized. In general, some of the teachers saw that compared to traditional teaching, the flipped classroom approach better supports the development of working life skills. Especially active learning (f = 39), which is characteristic of the flipped classroom approach, relationships with other students and cooperative learning (f = 19), as well as working life connection (f = 15), were seen as teaching and learning environment features that supported the development of working life skills.

Teachers identified opportunities for *active learning* as a central feature of learning environments enabled by a flipped classroom approach. There were multiple methods that teachers used during their courses, and active learning was included in all face-to-face lessons and also in the pre-material phase. Particularly searching knowledge and taking responsibility for one's own learning was supported by studying via the flipped classroom. Using pre-materials, students had to search knowledge, clarify things for themselves and take responsibility for learning. For example, they had to manage their time to prepare for a face-to-face lesson and they had to perform tasks independently. This, in turn, supported self-regulation, managing time, and solving problems. Furthermore, students did not get the right answers to questions, but they had to try to work them out by themselves. After pre-materials the students were better able to apply and deepen their knowledge during a face-to-face lesson, and they were able to be active and take part in the teaching-learning process. Learning by doing and active participation during face-to-face lessons were seen as activating the students.

> "Well I would probably think that such a flipped classroom course allows students to acquire that knowledge themselves. They have links out there where they can get more information, and in a way in working life, no one knows everything all the time, and all the time the recommendations change and new research findings and treatment practices change, i.e., you have to keep up to date and look for that information yourself too. That, in a way, that kind of independent searching of knowledge and diverse learning started for students in this course as well." (Active learning, working life connection)

According to teachers, learning of working life skills was supported in flipped classroom environments by *cooperative and collaborative learning*, i.e., working together with peer students. Working together as a group during face-to-face lessons was common in the interviewed teachers' flipped classroom courses. There were, for example, different kinds of projects, cases, and group work. Throughout these, teachers observed that students were able to develop their interaction and communication skills, leading a project, time management as well as responsibility for their own and peer students' learning and the progress of the group. Furthermore, because of the principles of the flipped classroom, teachers saw that learning begins with students themselves and that there is a need for a student to be self-regulated and to take responsibility for their own learning. Although students worked as part of a group during a group work, they had to be responsible to do certain things on time so that they were able to do the group work during a face-to-face session. According to teachers, in the flipped classroom environment students cannot go to a lesson or to work with a group, and tell others that "*yeah, sorry, I have not been doing anything*".

> "At least that flipped classroom of mine, as it's also such socio-constructive learning, or we deal with those cases in groups. Often the pre-material, the flipped material, which is theoretical material which the students often study before contact teaching, is still done in my teaching independently. But then the tasks based on it are already done together. Of course [the pre-material] can also be studied together, if the students want to do it that way themselves. Thus, certain kinds of semi-metacognitive skills and self-management are present in a flipped classroom course more often than in traditional teaching." (Relationship with other students and cooperative learning, active learning)

Teachers identified *teaching for understanding* ($f = 7$) as an element to support students' development of working life skills during their flipped classroom course. Teaching for understanding was involved in cases in which students were able to find answers to exercises by themselves, search for information that they needed to apply and deepen their own understanding to solve the problem at hand. According to teachers, students had to take over theoretical knowledge in advance in order to be able to deepen that knowledge and to understand more difficult concepts or ideas. Teachers referred to the fact that students had to search for knowledge, learn to understand that knowledge and apply it, and that by doing so they gained a more representative picture.

> "It promoted the idea that one has to find out for oneself, like trying to understand some of the basics—It is kind of highlighted in flipped classroom because of the emphasis on pre-material, because they are not getting ready-made answers from the teacher, but in a way the fact that they themselves are trying to understand and find out things from the material given about it. So students themselves attempt to get a holistic conception of something." (Teaching for understanding, active learning)

Teachers identified features that supported the learning of working life skills as *working life connection* (f = 15) and *authentic problems* (f = 5). Teachers reported diverse working life connections during their flipped classroom course, such as concrete examples and doing things in contact with working life. There were also producing projects in collaboration with companies and activities that were based on competence demonstration. According to teachers, students were also able to make *connection between theory and practice* (f = 4) in flipped classroom environments. Projects realized in groups supported the connection between theory and practice because the students had to understand how, for example, the theory of customer behavior is related to the practical decisions made. Furthermore, the students had studied theoretical aspects from pre-materials via texts or videos, and they were able to apply them during face-to-face lessons and to add their own experiences. During face-to-face lessons, there was sufficient time to deepen knowledge through varying authentic cases. These authentic cases, for example, included solving problems by doing exercises such as solving real patient cases:

> "I believe that it was the workplace investigation section which gave an insight into how to assess the potential health risks of a job. Perhaps it would not have been so in-depth if it hadn't been flipped, like in the case of the occupational disease suspicion. That when students had to think in advance that about what an occupational disease is—that when they have to go through the material beforehand, and find things from there, I thought it had some effect that it would be better remembered." (Authentic problems, active learning)

To a much lesser extent, there were mentions of *feedback and assistance* from a teacher (f = 1) or *assessment* (f = 2). For example, students had an opportunity to ask a teacher for help after they had tried to understand pre-materials by themselves. Teachers also utilized students' peer reviews during flipped classroom courses. According to the teachers, this further supported the students' ability to present constructive feedback or criticism, and further supported their ability to value the views of others, which is linked not only to emotional intelligence but also to giving feedback.

> "[One] is then able to do this in a way, when there are peer assessments and other things, and in a way can also give such a constructive critique. So, in which ways one is able to bring those own views, but on the other hand one is also able to appreciate that other person's view, that in a way it is-perhaps partly related to that emotional intelligence, but also to … the assessment of the matter itself, but also that how the issue is raised in a way." (Assessment, active learning, relationship & cooperative learning)

Additionally, teachers reported *curriculum coherence* (f = 2) in their course, which was seen when the learning of specific knowledge or skills was constructed during the study path, knowledge was constructed based on previous knowledge and when students were able to associate learned skills with previous learning. Teachers did not explicitly disclose teacher-student interaction as a teaching and learning environment element that supports the learning of working life skills. This may be due to the fact that descriptions of solely teacher-student interactions may belong to many categories at the same time. As collaboration and active learning were among the most mentioned, these features may be related to teacher-student interaction, which may occur in such situations. However, as the flipped classroom places more emphasis on peer interaction and collaboration between peers in face-to-face sessions, it may diminish the amount of pure dyadic interaction between teacher and student.

4. Discussion

There are various definitions of generic or working life skills. However, there are some similarities between the definitions. These skills may also be examined as 21st century skills [7,8]. Teaching these skills may not always be conscious. It is significant to explore what kind of skills university teachers emphasize, because this is a basis for what and how teachers teach. Hence, this study aimed to explore higher education teachers' perceptions of students' working life skills and how these skills could be developed in higher education learning environments. The context of this study, in which the skills were developed alongside the content, was the courses utilizing the flipped classroom approach. The findings of the study both bring some novel knowledge and expand previous understanding of the significance of the flipped classroom in developing working life skills.

The findings demonstrated that teachers identified both general working life skills and field-specific skills, although field-specific skills were mentioned more often. This may imply that teachers are more familiar with skills specifically needed in their own field than with working life skills in general. However, it has been argued that generic skills should be identified and actively taught [3]. Teachers appeared to recognize ways of working and tools for working especially as being skills needed both in general and in their specific field. Our findings indicated especially the significance of the ability to work together as a member of a team as well as the ability to search for knowledge. Furthermore, being able to work as an effective part of a working community in terms of responsibility, ethicality, and stress management were emphasized. Conversely, skills included in ways of thinking were less reported than other skills, although innovation, critical thinking, and problem solving are generally considered to be significant working life skills (e.g., see [1]). The ability to use metacognition and abilities of learning to learn, i.e., skills needed in lifelong learning, was identified; these skills are meaningful in the constantly changing world.

Our findings suggested that teachers saw that a learning environment utilizing the flipped classroom approach supports the development of university students' generic skills during their studies. Furthermore, teachers appeared to utilize several features of the teaching and learning environment and pedagogical solutions to support the development of their students' working life skills. It has been shown that in active learning environments, students can practice the skills that are needed in their future work [13]. Our findings indicated that teachers identify that active learning is supported by the flipped classroom, which was also detected in previous research [14–16]. The flipped classroom approach utilizes active and diverse ways of learning and provides students with an opportunity to participate, i.e., it aims at activating students' learning. Furthermore, the findings of our study indicated that teachers clearly identified the significance of active learning in supporting the development of students' working life skills, and that they used various methods of teaching and learning to enable students' activity during their course. Especially taking responsibility for one's own learning and active self-regulation as well as searching for knowledge were supported in active learning enabled by the flipped classroom approach. Pre-materials allowed students to participate more actively in face-to-face lessons and to apply and deepen their knowledge, which clearly activated the students. This has also been detected in previous research [26,32].

Our results suggest further that teachers identified especially ways of working, i.e., collaboration and communication (see also [5]), as necessary working life skills, and because of that they also had face-to-face lesson exercises that supported the development of these skills. The teachers utilized collaborative learning in their face-to-face lessons that was supported and facilitated by the flipped classroom approach. Exercises that teachers used to support the development included, for example, different kinds of projects, authentic cases, and group works throughout, which the students were able to work together around the same problem and to develop their interaction and communication skills. Previous research has shown that compared to traditional lectures, the flipped classroom approach may have more space for collaborative learning [34], and further, the flipped classroom appears to improve students' collaborative learning strategies [35].

Teachers did not disclose significantly different assessment methods or feedback or assistance while supporting students' learning and development of generic and specific working life skills. There is a need for these to be identified as a part of a supportive teaching and learning environment [23]. Various assessment methods were discussed during the educational project and university teachers' training, but perhaps the general flipped classroom approach in terms of using videos and activating face-to-face sessions was already a big change for many of the teachers and they did not have time to think about their assessment methods in greater detail. This might be something that should be emphasized more in educational development projects in which teachers are actively transforming their courses. If we can change their ways of collaborating with students in the face-to-face setting and general teaching methods, what would it require in order to transform more thoroughly university teachers' thoughts and practices about assessment, and to move from summative assessment towards more formative assessment or assessments that support learning?

The results are significant in terms of higher education teachers' perceptions of actions supporting students' working life skills, particularly for the light they shed on the possibilities of the flipped classroom approach to support the development of these skills. The results indicated that higher education teachers identified both generic and field-specific working life skills in a versatile manner. In terms of supporting students' developing working life skills during university studies, there is a need for identifying working life skills on a large scale. Furthermore, the development of these skills requires versatile teaching methods and learning environments (see [10]). Our findings support and draw together research evidence that the flipped classroom approach supports the development of working life skills (see [29,34,36]). Therefore, facilitating students' opportunities to develop their working life skills via a flipped classroom should be actively and consciously promoted in university studies. This would require that higher education teachers identify different kinds of working life skills even more precisely, and that they have the means to promote the development of those skills by appropriate and diverse teaching and learning methods, theoretical tools and various assessment methods. This calls for teachers to utilize active, learner-centered teaching methods.

There are some limitations to the findings that should be considered. For example, one potential limitation of the transferability of the results should be noted. Qualitative data was collected from one Finnish university. Details of the findings may not be relevant to other contexts or to higher education in other countries. Hence, there should be both more qualitative research conducted in other higher education contexts and quantitative research to validate the results. There were altogether 22 interviews, which may be seen as a limitation of this study, however, through the analysis process the viewpoints seemed to get saturated, and no more viewpoints came up into the analyses of the last interviews. Thus, it could be concluded that it was a sufficient sample size in this context. Furthermore, there were both male and female participants and the teachers represented diverse fields in the university. Further studies are, nevertheless, needed to validate the findings on a broader scale and in other contexts. For example, the results should be explored more in terms of quantitative research methods.

Further research, especially in terms of how the flipped classroom approach can support a connection between theory and practice as well as broadening research in students' own reflection and self-regulation of their learning is necessary. Hence, the flipped classroom approach and integrative pedagogy in supporting students' expertise should be studied further. Regarding integrative pedagogy as an aspiration to incorporate important components of a learning environment in terms of developing students' expertise [17], it would be interesting to examine this model in terms of the flipped classroom approach in order to better support the development of students' working life skills.

5. Conclusions

Teachers identified both general working life skills and field-specific skills. Furthermore, field-specific skills, i.e., skills that students in their field need when they graduate and transfer to working life, were mentioned most often. Teachers recognized, especially, ways of working

(such as collaboration) and tools for working (information literacy) as being skills that students need. Skills included in ways of thinking, such as critical thinking or learning to learn, were rarely reported.

Results also showed that teachers saw that a teaching and learning environment utilizing the flipped classroom approach supported the development of students' generic skills. Teachers identified, for example, that the flipped classroom approach supported active learning and that students had an opportunity to participate in learning activities during face-to-face lessons. Furthermore, teachers utilized collaborative learning that enabled the development of collaboration and communication skills. Teachers identified that working life connection, for example competence demonstration or collaboration with companies, supported the development of students' working life skills. Furthermore, the flipped classroom approach appeared to release time for teaching and learning methods that supported students learning of generic skills, such as applying knowledge in authentic cases and projects.

Author Contributions: Conceptualization, S.V. and L.H.; methodology, S.V. and L.H.; validation, S.V. and L.H.; formal analysis, S.V. and L.H.; investigation, S.V.; writing—original draft preparation, S.V.; writing—review and editing, S.V. and L.H.; visualization, S.V.; funding acquisition, L.H. All authors have read and agreed to the published version of the manuscript.

Funding: This research was funded by the Ministry of Education and Culture DigiPeda Flipped learning project [Grant no. OKM/199/523/2016] and Työpeda project [Grant no. OKM/280/523/2017].

Acknowledgments: We thank the university teachers who were willing to contribute to the research, Team Ameba of the University of Eastern Finland for fertile collaboration, and Susanne Hallberg, Antti Ronkainen and Jenni Kankaanpää for their help in collecting and transcribing the data.

Conflicts of Interest: The authors declare no conflict of interest.

References

1. Badcock, P.B.; Pattison, P.E.; Harris, K.L. Developing generic skills through university study: A study of arts, science and engineering in Australia. *High. Educ.* **2010**, *60*, 441–458. [CrossRef]
2. Klegeris, A.; McKeown, S.B.; Hurren, H.; Spielman, L.J.; Stuart, M.; Bahniwal, M. Dynamics of undergraduate student generic problem-solving skills captured by a campus-wide study. *High. Educ.* **2017**, *74*, 877–896. [CrossRef]
3. Legget, M.; Kinnear, A.; Boyce, M.; Bennett, I. Student and staff perceptions of the importance of generic skills in science. *High. Educ. Res. Dev.* **2004**, *23*, 295–312. [CrossRef]
4. Pitman, T.; Broomhall, S. Australian universities, generic skills and lifelong learning. *Int. J. Lifelong Educ.* **2009**, *28*, 439–458. [CrossRef]
5. Tynjälä, P.; Slotte, V.; Nieminen, J.; Lonka, K.; Olkinuora, E. From University to working life: Graduates' workplace skills in practice. In *Higher Education and Working Life: Collaborations, Confrontations and Challenges*; Tynjälä, P., Välimaa, J., Boulton-Lewis, G., Eds.; Elsevier: Amsterdam, The Netherlands, 2006; pp. 73–88.
6. Murdoch-Eaton, D.; Whittle, S. Generic skills in medical education: Developing the tools for successful lifelong learning. *Med. Educ.* **2012**, *46*, 120–128. [CrossRef]
7. Binkley, M.; Erstad, O.; Herman, J.; Raizen, S.; Ripley, M.; Miller-Ricci, M.; Rumble, M. Defining twenty-first century skills. In *Assessment and Teaching of 21st Century Skills*; Griffin, P., McGaw, B., Care, E., Eds.; Springer: Dordrecht, The Netherlands, 2012; pp. 17–66.
8. Voogt, J.; Roblin, N.P. A comparative analysis of international frameworks for 21st century competences: Implications for national curriculum policies. *J. Curric. Stud.* **2012**, *44*, 299–321. [CrossRef]
9. Jones, A. Generic attributes as espoused theory: The importance of context. *High. Educ.* **2009**, *58*, 175–191. [CrossRef]
10. Virtanen, A.; Tynjälä, P. Factors explaining the learning of generic skills: A study of university students' experiences. *Teach. High. Educ.* **2019**, *24*, 880–894. [CrossRef]
11. Barrie, S.C. Understanding what we mean by the generic attributes of graduates. *High. Educ.* **2006**, *51*, 215–241. [CrossRef]
12. Tynjälä, P.; Välimaa, J.; Boulton-Lewis, G. Higher education and working life: Collaboration, confrontations and challenges. *Adv. Learn. Instr. Ser.* **2003**, *46*, 147–166.

13. Bailey, C.P.; Minderhout, V.; Loertscher, J. Learning transferable skills in large lecture halls: Implementing a POGIL approach in biochemistry. *Biochem. Mol. Biol. Educ.* **2012**, *40*, 1–7. [CrossRef]
14. Flores, Ò.; Del-Arco, I.; Silva, P. The flipped classroom model at the university: Analysis based on professors' and students' assessment in the educational field. *Int. J. Educ. Technol. High. Educ.* **2016**, *13*, 21. [CrossRef]
15. Jamaludin, R.; Osman, S.Z.M. The use of a flipped classroom to enhance engagement and promote active learning. *J. Educ. Pract.* **2014**, *5*, 124–131.
16. Jensen, J.L.; Kummer, T.A.; Godoy, P.D.D.M. Improvements from a flipped classroom may simply be the fruits of active learning. *CBE Life Sci. Educ.* **2015**, *14*, ar5. [CrossRef] [PubMed]
17. Tynjälä, P.; Virtanen, A.; Klemola, U.; Kostiainen, E.; Rasku-Puttonen, H. Developing social competence and other generic skills in teacher education: Applying the model of integrative pedagogy. *Eur. J. Teach. Educ.* **2016**, *39*, 368–387. [CrossRef]
18. Crebert, G.; Bates, M.; Bell, B.; Patrick, C.J.; Cragnolini, V. Developing generic skills at university, during work placement and in employment: Graduates' perceptions. *High. Educ. Res. Dev.* **2004**, *23*, 147–165. [CrossRef]
19. Singh, P.; Thambusamy, R.X.; Ramly, M.A. Fit or unfit? Perspectives of employers and university instructors of graduates' generic skills. *Procedia Soc. Behav. Sci.* **2014**, *123*, 315–324. [CrossRef]
20. Nykänen, S.; Tynjälä, P. Työelämätaitojen kehittämisen mallit korkeakoulutuksessa. *Aikuiskasvatus* **2012**, *32*, 17–28. [CrossRef]
21. Cooper, N.; Forrest, K.; Cramp, P. *Essential Guide to Generic Skills*; Blackwell Pub.: Malden, MA, USA, 2006.
22. Kember, D.; Leung, D.Y. The influence of the teaching and learning environment on the development of generic capabilities needed for a knowledge-based society. *Learn. Environ. Res.* **2005**, *8*, 245. [CrossRef]
23. Kember, D.; Leung, D.Y.; Ma, R. Characterizing learning environments capable of nurturing generic capabilities in higher education. *Res. High. Educ.* **2007**, *48*, 609–632. [CrossRef]
24. Jääskelä, P.; Nykänen, S.; Tynjälä, P. Models for development of generic skills in Finnish higher education. *J. Furth. High. Educ.* **2018**, *42*, 130–142. [CrossRef]
25. Gilboy, M.B.; Heinerichs, S.; Pazzaglia, G. Enhancing student engagement using the flipped classroom. *J. Nutr. Educ. Behav.* **2015**, *47*, 109–114. [CrossRef] [PubMed]
26. González-Gómez, D.; Jeong, J.S.; Rodríguez, D.A. Performance and perception in the flipped learning model: An initial approach to evaluate the effectiveness of a new teaching methodology in a general science classroom. *J. Sci. Educ. Technol.* **2016**, *25*, 450–459. [CrossRef]
27. Hao, Y. Exploring undergraduates' perspectives and flipped learning readiness in their flipped classrooms. *Comput. Hum. Behav.* **2016**, *59*, 82–92. [CrossRef]
28. Khanova, J.; Roth, M.T.; Rodgers, J.E.; McLaughlin, J.E. Student Experiences across multiple flipped courses in a single curriculum. *Med. Educ.* **2015**, *49*, 1038–1048. [CrossRef] [PubMed]
29. O'Flaherty, J.; Phillips, C. The use of flipped classrooms in higher education: A scoping review. *Internet High. Educ.* **2015**, *25*, 85–95. [CrossRef]
30. Lee, J.; Lim, C.; Kim, H. Development of an instructional design model for flipped learning in higher education. *Educ. Technol. Res. Dev.* **2017**, *65*, 427–453. [CrossRef]
31. Nouri, J. The flipped classroom: For active, effective and increased learning–especially for low achievers. *Int. J. Educ. Technol. High. Educ.* **2016**, *13*, 33. [CrossRef]
32. Mok, H.N. Teaching Tip: The Flipped Classroom. *J. Inf. Syst. Educ.* **2014**, *25*, 7.
33. Ballantine, J.; McCourt Larres, P. Cooperative learning: A pedagogy to improve students' generic skills? *Educ. Train.* **2007**, *49*, 126–137. [CrossRef]
34. Foldnes, N. The Flipped classroom and cooperative learning: Evidence from a randomised experiment. *Act. Learn. High. Educ.* **2016**, *17*, 39–49. [CrossRef]
35. van Vliet, E.A.; Winnips, J.C.; Brouwer, N. Flipped-class pedagogy enhances student metacognition and collaborative-learning strategies in higher education but effect does not persist. *CBE Life Sci. Educ.* **2015**, *14*, ar26. [CrossRef] [PubMed]
36. Al-Zahrani, A.M. From passive to active: The impact of the flipped classroom through social learning platforms on higher education students' creative thinking. *Br. J. Educ. Technol.* **2015**, *46*, 1133–1148. [CrossRef]
37. Låg, T.; Sæle, R.G. Does the flipped classroom improve student learning and satisfaction? A systematic review and meta-analysis. *AERA Open* **2019**, *5*, 2332858419870489. [CrossRef]

38. Moffet, J.; Mill, A.C. Evaluation of the flipped classroom approach in a veterinary professional skills course. *Adv. Med. Educ. Pract.* **2014**, *5*, 415. [CrossRef]
39. Pekkarinen, V.; Hirsto, L.; Nevgi, A. The role of emotions and social reflection in developing as a university teacher. Unpublished work. (submitted for evaluation).
40. Braun, V.; Clark., V. Using thematic analysis in psychology. *Qual. Res. Psychol.* **2006**, *3*, 77–101. [CrossRef]
41. MacFarlane, A.; O'Reilly-de Brún, M. Using a theory-driven conceptual framework in qualitative health research. *Qual. Health Res.* **2011**, *22*, 607–618. [CrossRef]
42. Miles, M.B.; Huberman, A.M. *Qualitative Data Analysis: An. Expanded Sourcebook*, 2nd ed.; Sage: Thousand Oaks, CA, USA, 1994.