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Subject-Integrated Teaching for Expanded Vocational Knowing and Everyday Situations in a Swedish Upper Secondary Health and Social Care Program

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Abstract

The aim of this study was to explore what subject-integrated teaching of vocational subjects, ethics and health care, contributed with in terms of vocational knowing. The case study was ethnographically inspired and followed a group of students (16+) and their teachers in a Swedish Health and Social Care Program while they worked with a theme unit called Death for two weeks in autumn 2012. Data comprised observations, field notes, and audio recordings of the planning and teaching of the theme unit, informal discussions with teachers and students, handouts, a theme booklet, and student assignments. Analysis was based on concepts related to cultural historical activity theory, especially emphasizing rules, tools, actions, operations, and contradictions. Results showed three major objects emphasized in the teacher–student interaction and the tools chosen to support the subject-integrated teaching activity: vocational knowing related to vocational ethics, to everyday ethics, and argumentative skills. Manifestations of contradictions in the form of dilemmas related to the examples that teachers copied from a textbook. As these examples were mainly contextualized in everyday situations, and there are no formal ethical guidelines for nursing assistants on which teachers could rely on, teachers' narratives were used to complement these examples. Students' argumentative skills were emphasized and related to personal situations, in which ethical arguments for justification in vocationally relevant situations were made unclear.

Keywords Subject-integration · Vocational knowing · Upper secondary level · Vocational education · Cultural historical activity theory

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Introduction

The integration of subjects is not a new issue. On the contrary, it has been discussed since the seventeenth century (Comenius and Kroksmark 1999; Kilpatrick 1922; Edwards 2017). Generally, the issues have been whether to organize the educational content in relation to subjects (discipline-based curricula) or in relation to projects or real-world problems (curricular integration) where various subjects contribute to understanding the world. Another issue has been whether cognition or experience is the main basis for learning and development in children. Originally, these discussions were mainly related to basic education. In the late twentieth century, such issues were discussed in higher education, for instance, in relation to methods such as problem-based instruction and learning (Flinck and Liljedahl 2000; Silén 1996; Wilkie and Burns 2003) or the case method (Barnes et al. 1994; Shulman 1992). These issues have also been of specific interest to professional higher education, for instance nursing (Lindberg 2005; Lindberg-Sand 2003). Integration has been forwarded as an approach in which a content is revisited, facilitating in the development of an in-depth understanding of that content (Harden 1999, 2000). In upper secondary level of vocational education and training, subject-integration has been a recurrent recommendation in the Swedish curricula in 1972, 1994, and 2011, linked to the overarching educational aim of the program. For the Health and Social Care program, in 1972, the aim was professionally directed, and recommendations on integration were made in relation to the vocational subjects, while general subjects were secondary. However, in 1994, the aim expanded to also include academic advancement, leading to the promotion of general subjects in an integration between general and vocational subjects. In the current curriculum from 2011, the vocational subjects are yet again promoted in integration, as the aim relates to professionalization and academic advancement within Health and Social Care (Christidis 2014; Wärvik and Lindberg 2018). These changes concerning aims and recommendations on integration, illustrate the historically various attempts on balancing or overcoming the separate focal points in vocational and general subjects, which are of either professional or academic character. These changes also illustrate a strengthened collaboration between education and the labor market, in which present societal demands concerning expertise and work force influence the structure and content of vocational education and training (Berglund 2009; Lindberg 2003; Lundahl and Sander 1998). Even though recommendations on integration in curricula of 2011 concern integration between different subjects, this study focuses on the integration of the same group of subjects, that are of vocational character. Two vocational subjects were particularly attended to, the subject ethics, that has been applied in various theoretical and vocational programs, and the subject of health care, that has been designated to the Health and Social Care program.

Formal recommendations on integration have been present in the curriculum since early 1970s, however, this does not correspond with the research field. It wasn't until the beginning of the twenty-first century the number of Swedish studies (Lindberg 2016, 2017) focusing on didactic issues in upper secondary level of vocational education and training (students 16+) increased in line with international research trends (Bynner and Parsons 2006; Choy et al. 2018; Rauner and Maclean 2008; Stenström

et al. 2009; Teräs 2017). Altogether, the studies were characterized by didactical considerations in vocational education, such as simulation, supervision, contextualization of science, technology, engineering, and mathematics (STEM), numeracy and literacy, collaboration between school and workplace, and development of curricula. Studies on integrated teaching, focused on the integration of general subjects and vocational subjects (Alkema and Rean 2014; Bragg and Reger IV 2000; Mackay et al. 2006; Perin 2011; Perkins 2009; Watson et al. 2001). General subjects may be described as theoretically-based and historically developed within a school context, and vocational subjects, as content originating from a vocational context with a practice-based character, and that has undergone a re-contextualization (theorization) to a school context. This study adds the perspective of integrated teaching, specifically in the upper secondary Health and Social Care program, to the didactical research scope that flourished in the beginning of the twenty-first century, offering in-depth understanding of the value and outcomes of *vocational knowing* for future nursing assistants by the integration of vocational subjects. Vocational knowing can be described as a type of knowledge linked to professional requirements in terms of experience and culture, and may be socially situated (Berner 2010), while *general knowing* is linked to requirements for societal participation, i.e. everyday life, and academic advancement.

The educational trajectory for nursing assistants in Sweden is connected to the expansion of medical care and hospitals, to the requirement of a greater number of workers, and specifically the need for competence within nursing care. Until 1957, there was no formal education for nursing assistants, instead, work-based learning was the main path to such work. Preceded by short (eight week long) courses in 1958, formalized education—where school and work were integrated—was implemented for healthcare assistants. The format of training changed over time and became even more formalized in a school context (Gaaserud 1991; Herrman 1998). Prominent changes were made in conjunction to curricula 1972 and 1994, where the program for upper secondary level nursing assistants was extended from two to three years, and in which vocational subjects and general subjects were equally distributed.

To exemplify the historical transition, in the 1970s national curriculum for upper secondary level nursing assistants' program, the main two subjects were nursing practice and nursing theory, in which the latter involved modules on anatomy, physiology, microbiology, hygiene, social medicine, health care and nursing, elder care, and psychological aspects of nursing (Skolöverstyrelsen 1971). The courses totaled 1100 h per year in the two-year program. The curriculum that included nursing theory was an integrated curriculum. In the two later curricula from the 1990s (Skolverket 2006) and 2000 (Skolverket 2011c), the vocational subjects in the nursing program were divided into smaller subjects, ranging from 30 h to 205 h. A complementary analysis of the subject of ethics between curriculum 1972, 1994, and 2011, showed that ethics had, from no credits in 1970 to 30 credits in 1994, expanded to 100 credits in the curriculum of 2011. As there is no explicit explanation for this development in formal educational documents, a hypothesis based on the analysis is that the subject was once a shared content in all vocational courses, but now comprise a course of its own. Thus, the expansion of credits is because ethics has undergone a process of concentration, which depicts its actual comprehensiveness. A conclusion on the historical transition is that

the conditions for different kinds of teachers' collaborative work have been undermined by administrative changes in vocational subjects, in relation to changes of aims, time allocation, labeling, and content since 1994 (Lindberg and Wärvik 2017). This is a contradictory development to the increased societal demands of expertise and competent work force, which, to be achieved, are surmised to require beneficial preconditions in the educational context.

This study focused on what the integration of two vocational subjects, ethics and health care, contributed with in terms of vocational knowing. Cultural historical activity theory (CHAT) was used as theoretical perspective for studying human activity, understood as complex, dynamic, and transformative, contributing to the individual and collective development, and defined here as subject-integrated teaching – a teaching activity. To clarify, subject-integration signifies “Work with [the] content of two or more subjects that are linked to a theme, a question, a problem or a number of basic skills” as suggested by Fogarty (1991), Mazzeo et al. (2003), and Perin (2011) synthesized to this understanding in Christidis (2014, p. 104). In CHAT, discerning the object of the activity is essential, as the object motivates the activity (Engeström 1995; Leont'ev 1978). In addition, historical, and sociocultural aspects are significant to consider for a whole understanding of the teaching activity that is attended to.

The purpose of this study was to explore what vocational knowing was made available in the integration of vocational subjects, in a Swedish upper secondary Health and Social Care program. For this, a CHAT-perspective was used as theoretical basis. The research questions are the following: **a)** What is the teachers' object for subject-integrated teaching between vocational subjects? **b)** What is made available for students in terms of vocational knowing in subject-integrated teaching?

Previous Research

Previous research connecting to the research scope of this study “subject-integrated teaching for vocational knowing”, representing higher-level education (Chipchase et al. 2007; Sullivan-Catlin 2002; Weiss and Levison 2000), and upper-secondary-level of vocational education and training (Hiim 2017) share the general notion of vocational knowing as made available in integration between school and workplace, conditioned by organizational factors, and enhanced by teachers' experience from the vocation. These previous studies include research questions about the relevance of the vocational education and training-curriculum and teaching for the development of vocational knowing. The subject matter is approached from a descriptive (Weiss and Levison 2000), thematic (Chipchase et al. 2007; Sullivan-Catlin 2002), and philosophical point of view (Hiim 2017), in which the latter attends to Schön in terms of reflection in action and to Habermas in terms of communicative action (Habermas 1984; Schön 2017). Three studies specifically address the issue of integration as dependent on the individual teacher and point to organizational obstacles for a wider implementation in the curriculum (Chipchase et al. 2007; Hiim 2017; Sullivan-Catlin 2002). All studies bring forward clinical experience and interdisciplinary collaboration as a necessary and complementary part of teaching, for the development of vocational knowing and for

the students' future profession. Also, they bring forward examples of integration, while arguing for the necessity of enabling authentic vocational conditions to be properly and more evidently contextualized in teaching in a school setting. In addition to these main lines identified by previous research, the present study adds a line that presents the integration of vocational subjects, which positions the present study in the research field of vocational education and training.

Specifically, this study differs from previous research in that it focuses on the activity of integration of vocational subjects in a classroom context, on upper secondary level nursing assistants' education and training. The use of CHAT for this, further elaborated in the next section, is also sparsely represented in the current research field. Organizational conditions for integration has not been an issue in this case, as they were already fulfilled by the incorporation as a school concept. Conclusively, the conditions and context for integration here contribute with an additional perspective on how authentic vocational conditions may be achieved.

During the search, two review articles were found, one by Dahle et al. (2002) on undergraduate medical education and the other by DeBourgh and Prion (2012) on pre-licensure nursing education. These review articles highlight the integration of vocational subjects for vocational knowing, in line with the present study, but on higher-level education nursing. Dahle et al. (2002) presents experiences from a curriculum integration between clinical medicine and basic science, implemented over the last 15 years. The review concludes that integration enhances in-depth learning of biomedical principles, and that these positive outcomes outweigh the time and effort put in organizing integration. DeBourgh and Prion (2012) present integration of vocational subjects through varied teaching strategies, such as online case solving, simulations, and literacy-related assignments, for making available vocational knowing in relation to patient safety. Both review articles stress the importance of curriculum integration for the development of vocational knowing, such as clinical reasoning and judgment.

Altogether, previous research focus on certain aspects of integration that involve conditions for the performance, and the connection to students' future profession. The integration of vocational subjects for vocational knowing, explored by focusing on the activity itself, seems to be a neglected issue. This qualifies the present study as an important contribution to research within vocational education and training.

Theoretical Framework and Analytical Concepts

In CHAT, human activity is object-oriented, motive-driven, and maintained, as well as developed, within a sociocultural and historical context (Engeström 1987). The object of an activity is its *motive*, which gives the activity a certain direction (Leont'ev 1978). Human activity involves a complex systemic interplay of rules, tools, chains of operations and actions, as well as contradictions (Engeström 1987). Complex activities, such as education, may have multiple motives, some of which may be contradictory (Engeström 2006). Motives may be discerned through an analysis of the activity and its dynamics (Leont'ev 1978). Subject-integrated teaching could be described as a teaching activity where the object, in principal, is students' encounters with real-world

problems (Beane 1995; Tanner and Tanner 1980; Wraga 1993). The object of subject-specific teaching could be defined in the following words of Beane as “a specialized set of techniques or processes by which to interpret or explain various phenomena” (Beane 1995, p. 617). However, most studies within the field relate to compulsory education with the main purpose of education for future citizens, whereas this study reported here concerns vocational education, which is surmised to have a more specific or distinct object related to the two integrated subjects. In subject-integrated teaching similar learning objectives are grouped, and the core content of these objectives is highlighted by the choice of a theme, and then related to students’ future professional responsibilities. Subject-integration of vocational subjects enables a teaching and learning content that is vocationally contextualized, i.e. meaningful and adequate for students’ future profession.

In this article, the theoretical understanding of an activity and the concepts (tools, rules, actions, operations, and contradictions) chosen for the analytical work draw upon interpretations proposed by Engeström (1987), Ilyenkov (1977), and Leont’ev (1978). Note that Engeström’s interpretation of the activity system as analytical unit is not adopted here, instead selected concepts from the activity system are used (Engeström 1987; Engeström and Miettinen 1999). The understanding of activity in this article follows Chaiklin’s (1993), Engeström’s (1987), and Leont’ev’s (1978) interpretation of an activity as dynamic and in constant movement. Here, theoretical focus is on the teaching activity referred to as subject-integrated teaching.

Contradictions within the activity, can be described as a deviation from the script (Engeström 2001). The deviation/s may require a type of solution, a re-interpretation (of a rule, division of labor), or a local innovation (a new tool, a rule). A contradiction may also be the sign of the need of change of some aspect of the current activity (Ilyenkov 1977; Engeström and Sannino 2011). By identifying empirical examples on the management of contradictions, the object of the activity may be discerned (Engeström 2001; Engeström and Sannino 2010; Leont’ev 1978).

Data analysis was performed through a relational reading of empirical data with a primary focus on the following concepts from CHAT: tools, rules, operations, actions, and contradictions (Engeström and Miettinen 1999). Secondly, the concepts division of labor, multivoicedness, and participant agency supported the analytical procedure, providing additional clues to directions in teaching and the object of activity (Engeström and Sannino 2010, 2011). The overarching aim of the empirical analysis was to discern the object of the activity, by following the direction of the movement within the activity (Davydov et al. 1983; Engeström 1987; Leont’ev 1978). In principle, a collective activity can be discerned through identifying individual goal-directed actions that, in turn, consist of observable operations. An activity is driven by a social motive, and work conditions have an important impact on how the activity is carried out (Leont’ev 1978). The concept division of labor refers to the two teachers representing different vocational subjects: nursing care, ethics, and social care. The character of the teachers’ leadership, as traditional or as a facilitator, was analyzed in terms of what space was given for the participants to act within the activity. Teachers’ and students’ relation and participation in teaching may

help discern teachers' object for subject-integration and what vocational knowing is processed and thus made available.

Material and Methods

Subject-integrated teaching in one school in Sweden, hereafter called North School, was followed ethnographically during autumn 2012 in a second-year class in the Health and Social Care program, for the duration of a theme unit called Death. North School is an independent school with approximately 130 students in the Health and Social Care program. Swedish upper secondary schools are facilitated by municipalities, county councils (only health and social care), or independent actors (Swedish: *fristående skolor*). The latter are run by individuals or institutions of various kinds (commercial companies, non-profit organizations, or religious communities). However, all are fully funded publicly through a voucher system (Arreman and Holm 2011). The Health and Social Care program recruits predominantly female students with multicultural backgrounds. Subject-integrated teaching has been practiced since the school was established in 2008. The subjects in the program are structured in thematic units. A theme can comprise two or more subjects, vocational and general subjects, only general subjects, or only vocational subjects. Each theme is constructed by the teachers of the subjects involved and compiled in a theme booklet, used to structure teaching. The teachers who constructed the theme unit were responsible for the introduction, examination, and student evaluation. In this case, one of the teachers was a nurse, and the other one was a social worker. Both had vocational teacher education.

The school was strategically selected (Cohen et al. 2017), because of its systematic work with subject-integration, meaning that integrated teaching of two or more subjects was in the majority of scheduled time (Christidis 2014). An exception was made for the subjects English and Mathematics, due to requests from the students. The reason for choosing the second year was that the students had time to adjust to subject-integrated teaching during their first school year, as the students came from different schools and had varied experience with integrated teaching. Another reason was to avoid longer periods of work-based learning, which usually took place during the third year of the program and entailed interruptions of teaching in school. Subject-integration was organized in theme units that ran for a number of weeks. The themes were set by teachers comparing what goals from different course syllabuses that matched in terms of similarity in content. The theme unit was selected based on the criteria that vocational subjects had to be included in the integration, and also that the theme would be performed within the delimitation of time for data collection, which was set to autumn 2012. Theme unit Death was a choice that fulfilled both criteria. In comparison to a previous case study on integration, theme unit Death was shown to be representative for the content that may be integrated (Christidis 2014).

This study was ethnographically inspired and based on the format of a case study (Denscombe 2010; Yin 2009) of a theme unit called Death, in which ethical and

Table 1 Overview of material from the theme unit Death analyzed for this article, with descriptions of material type and the amount of each material type

Material type	Amount of material
<i>Theme unit Death</i>	<i>A total of 2 weeks' duration (10 school days, 26 h of teaching)</i>
Observations and field notes	On teaching - 4 days, approximately 17.5 h On planning of theme unit – 1 occasion, 1.5 h
Sound-recording	On teaching - 4 out of 10 school days, (a total of 5 h, 19 min, 59 s) On planning of theme unit – 1 occasion, 1.5 h
Texts from teaching	1 Theme booklet (3 pp.) 1 PowerPoint presentation on Ethics and life issues (9 slides) 1 PowerPoint presentation on Health Care and Ethics (9 slides) 1 (teacher constructed) handout on ethical values and dilemmas (4 pp.) 1 (teacher constructed) handout – a compilation of terminal care principles (2 pp.) 1 (teacher constructed) handout – questions on terminal care, a case, and reflective questions (3 pp.) <i>Funeral home - Study visit – 2 brochures</i> <i>Independent student group – 3 appreciation notes (5 × 10 cm)</i>
Student texts	1 student group – questions on terminal care (1 p.) 2 case descriptions (2 pp. and 1 p.) 1 ethical dilemma (3 pp.)

The material in italics was not included in the analysis for this article, as judged non-relevant

Teacher-constructed material was developed in collaboration between teachers engaged in the theme unit Death

healthcare subjects were integrated. This case study comprises field-notes on observations from teaching, audio recordings from teaching, and on two vocational teachers planning of the theme unit Death. Also included were notes on informal discussions (small talk during breaks and teaching) with teachers and students, handouts, a theme booklet, and student assignments produced during the unit. The research material from theme unit Death is presented in more detail in Table 1.

The theme unit Death comprised objectives mainly concerning aspects of ethics, from syllabuses for the subjects Ethics and life issues (Skolverket 2011a), and Health and Social Care 2 (Skolverket 2011b). The theme was developed by two vocational teachers in collaboration that were also responsible for the teaching of the unit. The content was related to central ethical concepts, such as autonomy and integrity, ethical dilemmas, crisis management in patient care, and death from an ethical, cultural, and medical point of view (terminal care). The unit was taught during two subsequent weeks.

Teaching during the unit included lectures, such as teacher presentations of ethical concepts and ethical reasoning models, but also discussions based on handouts (teacher- and student-constructed appreciation notes from members of an independent student group), teacher examples from their vocational experience or other prefabricated

examples, study visits (an exhibition of human anatomical models and a funeral home), group and individual work with the teacher present in the classroom as facilitator. The reasoning models comprised here of basic guidelines for ethical justifications derived from utilitarianism and deontology (Glover 2006).

Analytical Procedure

All material was text-based and analyzed with selected concepts from CHAT (tools, rules, actions, operations, contradictions) in a relational reading. The manner of reading was supported by the understanding of human activity as of systemic connections, of dialectical and intertwined character (Davydov et al. 1983; Leont'ev 1978). The analytical procedure is hereby accounted for.

In the first step, the material was analyzed to identify tools and rules in integrated teaching. As the object cannot be observed directly, the identification of tools and rules provided indications of the object(s). Tools indicate what is possible to do in the classroom and comprised copied material that made reading, writing, and discussing possible. Rules indicate what the students can do with the assignments connecting to ethical dilemmas in the theme unit, and comprised formal rules (national regulations), local rules (in the theme booklet on subject-integration), and informal rules (actions in teaching).

The analysis of tools concerned what tools were present in the teaching activity, how they were used, and for what purpose. These aspects helped discern the beginning and the end of a teaching action, as well as the link between actions, the change of purpose in handling a tool, and the goal of an action. Rules were analyzed through an analytical table modified from Österlind (2006) that proposed differentiating and categorizing the character of the working process in the classroom, and the results on knowledge content. What teachers emphasized as important in classroom work was interpreted as teacher expectations for the methods students used to learn and manage the content, as well as the content acquired, as opposed to methods developed and content acquired by students without any teacher influence. These aspects helped identify rules and norms within the specific activity, their management of classroom work, and influence on the knowing made available.

In the second step, deviations from the script (which is the intended course of action), such as the need for a new tool, a re-interpretation of a rule, or a deviation in the division of labor, were analyzed as manifestations of contradictions. To better understand the implicit messages in these contradictions, categorizations proposed by Engeström and Sannino (2010, p. 7) were used:

contradictions may appear as emerging latent primary contradictions within each and any of the nodes of the activity system, as openly manifest secondary contradictions between two or more nodes (e.g., between a new object and an old tool), as tertiary contradictions between a newly established mode of activity and remnants of the previous mode of activity, or as external quaternary contradictions between the newly reorganized activity and its neighboring activity systems. Conflicts, dilemmas, disturbances and local innovations may be analyzed as manifestations of the contradictions.

The categorizations helped identify the character of the contradictions in the integrated teaching activity. In relation to data, contradictions were identified in the discrepancy among written information, oral information, and actions in relation to the theme unit and the teaching of it. Engeström and Sannino (2011) highlight linguistic cues that indicate management of manifested contradictions. These distinctions aided the analytical work in terms of discerning manifestations of contradictions. In addition, the process of managing these contradictions discerned the object of the activity and thus, the motive.

In the third step, with the help of tools and rules, operations were discerned in terms of routines and repetition. In addition, tools and rules, together with manifestations of contradictions, helped discern actions made visible in the solution and requirement of re-interpretation, in which the existing routines were shown to be insufficient.

Results

The first part of the results section introduces the planning and teaching of theme unit Death and is followed by the analytical results. Vocational knowing concerned medical privacy and terminal care, as well as argumentative skills related to justifying decisions regarding dilemmas.

Description of Subject-Integrated Teaching

During the planning of theme unit Death, the teachers modified the theme booklet that was based on syllabuses from 1994 (in line with the new 2011 syllabuses for upper secondary level education). The examination was modified after previous student evaluations and based on teachers' preconceptions of the capacity of the current student group.

Theme unit Death was introduced to the students in terms of structure and content, such as course objectives, grade criteria, examination, and deadlines. All this information was summarized in the theme booklet. During the introduction, students were provided with examples linking the course objectives to the healthcare profession and given the opportunity to ask questions.

During the following lesson, the students were introduced to ethical models and concepts related to professional and everyday contexts. Then, a handout of eight ethical dilemmas was distributed. Initially, the dilemmas were read individually by the students. During subsequent lessons, the ethical dilemmas were discussed in the whole class. The handout was complemented by additional ethical dilemmas, of which one involved the discussion of alternatives to and outcomes of a transportation route across a stream. After the whole-class discussions, the students responded to the dilemmas individually in writing, considering all aspects given during discussions. Student papers were handed in to the teacher for assessment.

During this theme unit, the students processed issues of ethics and death also based on other material. For instance, a handout with questions on death was first discussed in student groups in relation to personal experiences. The same questions were then

discussed in the whole class and put in a professional context. Another example was appreciation notes that students found on their desks one morning, distributed by a youth group. The notes were used in the following lesson for a discussion of issues concerning self-esteem and criticism. In addition, a representation of a funeral home visited the class, and the students made a study visit to a human anatomical exhibition. Both activities were used as a springboard for further ethical discussions on death, organ donations, and terminal care. The theme unit ended with the examination comprising a role-play in which the students acted out an ethical dilemma.

Ethics and Death in the Contexts of Health Care and Everyday Situations

A handout on eight ethical dilemmas, seven everyday (concerning work mostly in relation to offices, family, or both) and one medically oriented, served as the primary formal tool. The handout was used in discussions that were directed by the teacher based on student questions, answers, and comments. This process was observed to create a type of perspective change. According to observations of teaching, discussions could be repetitive when the students could not deliver new input in the subject matter. Thus, teaching was complemented with an informal tool that comprised the teachers' experiences from the vocation, which introduced other ethical dilemmas. This kind of situation was interpreted as a manifestation of a contradiction to which the teacher had found a solution. An example of the solution was the teachers' transitions in teaching from everyday ethical examples to vocational examples. The following is an excerpt from the observation notes, in which one of the vocational teachers shared her experience with the students from her work in an emergency department:

Teacher: I was working the dayshift in the emergency department when a young boy, age five, was brought in from a car accident. He was in desperate need of a blood transfusion, but his parents opposed the transfusion because of their religion. I thought, what to do now?

Student: Doesn't the doctors' oath of conduct precede all else in this case?

Teacher: You mean the Hippocratic Oath? Does it really? Look it up on Google and read it for us.

These additional examples directed the students to a more specified healthcare context when the formal tools failed to do so. In the example above, one of the students commented on the ethical code of conduct for caregivers, which was used to help introduce the rest of the student group to the subject matter. The teacher referred to the Hippocratic Oath for further investigation. After reading the oath, the teacher highlighted the aspect of religion in the example, which affected the caregiving situation. The following is an example from an audio recording that illustrates the students' further processing of the ethical dilemma:

Teacher: Consider that this family has a deep belief, and you have to be respectful, in the same way that you would want your decisions to be valued if you were in a similar situation.

Student 1: Of course, you have to consider culture and religion, as it is a part of the patient. It is an ethical issue for all individuals...

Student 2: This is tricky... Can't you use the law in this case?

Teacher: Do we have a law that can override the wish of a patient?

Next, the teacher changed focus from the Hippocratic Oath to religion, and after input from a student (Student 2), yet another aspect of the ethical dilemma was added. Students' input was noted on the whiteboard. The ethical dilemmas remained unanswered by the teachers. Instead, students were encouraged to continue the discussion after school hours. According to an informal conversation with one of the vocational teachers, their role was to facilitate students in their learning process.

During another session, the students were given a handout with questions on death, related to the students' experiences of death, both private and professional. The handout was one of the tools used for integrated teaching. The students were assigned to discuss the issue in pairs. The following is an excerpt of an audio recording of the oral instructions the teacher gave the students for this assignment:

Teacher: We are going to further discuss these questions in class in the afternoon session...Until then, I want you to answer these questions in pairs and note your answers. This concerns a personal ethical standpoint. What do you do if you think death is a very scary thing, and you do not want to work with people dying? How can you deal with death if you work in a healthcare department, and one of your patients dies?

Student: Then I choose not to work on such a healthcare department [where death can occur].

Teacher: Death can occur in all areas of health care...Is it then okay to ask your colleague to take over because you cannot deal with death? Do you know now what you are supposed to do now?

In this example, the teacher attempts to explain the purpose of the assignment. It is the most verbally visible indication of the goal of the action introducing the students to a new understanding of ethics and death in accordance with a healthcare context. This goal of action was interpreted as an indication of the object of the subject-integrated teaching activity.

Argumentative Skills

The development of argumentative skills was discerned in the actions of integrated teaching, and related mainly to everyday situations, and a few medically-oriented

examples, that were brought forward by the handout. Argumentative ability involves identifying dilemmas and being able to motivate one's choices of action (in this case, argue for the actions taken within the nursing context, that represent the caregiver and the patient). The following is an excerpt from audio recordings during teaching in the theme unit Death in which the students were encouraged to share their reasoning regarding an ethical dilemma of an everyday situation, that dealt with a fictional girlfriend and her jealous boyfriend. The sequences in italics are commented on in brackets and further elaborated in the text that follows the quote:

Teacher: Tell me [encouragement of sharing individual opinion] how you reason [encouragement of individual argumentation] when it comes to this dilemma ... Why do you lie [suggestion trigger] for your friend's sake? Is it because he [refers to friend's boyfriend] can get aggressive? Did the rest of you [invites other students to share opinions and creates room for knowledge exchange] think the same?

Student 1: I would [personal opinion] lie if it was what she really wanted, but I would try to persuade her to get help or to talk with her boyfriend because it isn't healthy [relating medically] to be in a relationship where your partner is so jealous.

Student 2: I would do the same... However, if someone asked me how I would react if my boyfriend went out with his ex-girlfriend I, too, would get mad [subjective relation to dilemma]

In the excerpt above, the teacher uses communicative tools to enhance the students' formation of their arguments, such as encouragement, suggestions, and invitations. For the specific dilemma, several aspects were considered, promoting a problematizing line of thought. This was made evident when the students initially delivered one kind of answer that helped the friend avoid her boyfriend's anger (Student 1). Then another student (Student 2) offered a new aspect by positioning herself as the girlfriend. As a facilitator, the teacher provided the students with suggestion triggers to stimulate them in considering different aspects in relation to the issue. This was performed by repetition of students' answers, posing the question *why*, and requests for clarification of subjective and objective perspectives to the dilemma, as well as providing students with suggestions for the development of argumentation.

One of the ethical dilemmas in the handout concerned a hereditary disease in a patient that affected close relatives. The patient's doctor was, due to medical privacy, prohibited from contacting relatives for information and recommendation of screening for the disease. An example of a student argumentation in writing revealed different aspects that had been previously considered during the discussions in the whole class. Sequences where the aspects are identified are marked in italics in the quote and commented on in the following brackets:

If I was the doctor [a caregiver's aspect], I wouldn't contact the patient's relatives, because I could lose my job [professional implications]. I don't think that it's my responsibility. It's the patient's responsibility to inform her own relatives

[responsibility put on patient, related to area of professional responsibility]. As a doctor, I am obligated to preserve professional privacy and patient trust [professional ethics]. For this argument, I am leaning on confidentiality that derives from the ethics of the medical profession [theory-based argument]. Informing others about sensitive information can make people offended [emotional implications]; therefore, I chose not to disclose anything. This question can be discussed back and forth [emphasizes that there is more than one solution]. However, I would encourage my patient to be responsible and tell her relatives about the disease [caregiver's aspect; extending responsibility to include the patient's relative].

The aspects referred to in the argumentation of the ethical dilemma connected the caregiver, the patient, and the medical profession regarding areas of responsibility, formal implications, as well as ethics. Additional aspects that were forwarded comprised medical theory (such as the issue of confidentiality in the Hippocratic Oath), an emotional stance that concerned human behavior in general, and the ambiguity of one correct solution to the ethical dilemma. These layers of aspects highlighted the aspects that the students had attained through the individual as well as the collective argumentation in subject-integrated teaching. As the examples mainly related to the everyday context, the students' were instructed to develop their own (personal) arguments and listen to those of others. Thus, any specific concepts that related to a basis for ethical justification of arguments were not used. For instance, in the discussion of the Hippocratic Oath during teaching, there was a vague reference to the oath but no clarification of a specific kind of ethical justification. Thus, the argumentative skills were mainly related to everyday situations whereas the vocational aspects were de-emphasized.

Discussion and Conclusion

The ethical dilemmas in the teacher-constructed handout, which comprised of copied text from course textbooks, related to everyday situations rather than to the vocation. However, complementary examples brought in to teaching, comprising of teachers' experiences from the vocation, made available ethics and ethical dilemmas as a relevant aspect of vocational knowing. Teachers' experiences from the vocation functioned as secondary experiences, for the students. These may be described as a borrowed social experience for the envisioning of a situation or an event for what the students have no individual experience of (Vygotsky 1987, 2004). Consequently, teachers experience from the vocation was shown to be of significance for the integration of the two subjects' health care and ethics, in accordance with the ethical direction of the learning objectives the theme unit comprised of. Three objects for subject-integrated teaching were discerned: ethics for everyday situations, ethics as a vocational concern, and argumentative skills in relation to an everyday context. In this case, subject-integrated teaching of vocational subjects expanded the notion of vocational knowing to include general knowledge produced within a vocational framework.

In comparison to a previous Swedish study (Christidis 2019) the integration of vocational subjects also led to an expansion of vocational knowing, which then concerned vocational literacy in terms of understanding and developing a nursing-

like language. An enhancement of vocational knowing through the integration of vocational subjects was also the result of studies on higher-level education presented in two review articles, concerning nursing (DeBourgh and Prion 2012) and medicine (Dahle et al. 2002). In comparison with other Swedish studies (Berglund 2009; Christidis 2014; Lindberg 2003) where subject-integrated teaching was performed between vocational and general subjects, the results showed that vocational knowing was expanded by the contribution of general subjects. In the case study presented here, only vocational subjects were integrated, and results showed that general knowing for everyday situations was also made available, through these vocational subjects. Previous international studies (Chipchase et al. 2007; Hiim 2017; Sullivan-Catlin 2002; Weiss and Levison 2000) mainly focused on the integration between school and workplace. They argued for enabling authentic vocational conditions to be properly contextualized in the school setting, which, in this case, was enabled by teachers' experiences from the vocation.

The use of CHAT in this study enabled an approach on integrated teaching, considering the teaching activity's sociocultural and historical context, and approached in regard of its complexity, its dynamic and transformative character by focusing on concepts systemically intertwined (Leont'ev 1978; Chaiklin 1993; Engeström 1987; Ilyenkov 1977). Teachers' pedagogical choices in the teaching activity were considered as significant for the results on vocational knowing. An example of this, presented in the section of "Argumentative skills", was the process of perspective-change that was managed by the teacher as facilitator, and that helped the students build their arguments in relation to an everyday situation. However, in previous studies, the teaching activity was approached from particular aspects, which means that a specific content had been chosen for integration and then evaluated (Chipchase et al. 2007; Dahle et al. 2002; DeBourgh and Prion 2012; Hiim 2017; Sullivan-Catlin 2002; Weiss and Levison 2000). Thus, the complexity of the subject matter has not been equally considered, meaning that an in-depth perspective on subject-integration has not been possible to highlight.

Teachers' contributions to teaching of their experience from the vocation were proven significant for directing the ethical relevance towards nursing and argumentative skills. Experience from the vocation is required for specific eligibility in the vocational teacher-training programme in Sweden (SeQF 2016). Many health-care categories may apply to teacher training, for instance social workers, dental hygienists, nurses etc. After basic training, every health-care category is certified for teaching in the subjects that correspond to their workplace experience. However, there is variation within the same health care category, for instance nursing assistants share basic professional responsibilities of nursing care, but they differ by the workplace specialty. These differences make the vocational teachers' experiences unique. In teaching here, the choice of context, be it health care or everyday situations, directed whether argumentation as a part of vocational knowing was made available for the students. The character of argumentation differs qualitatively between the healthcare context and the everyday context in terms of the actual content, the choices that are argued for, and the professional responsibilities.

In teaching, the teachers referred to ethical guidelines for nurses and for medical doctors. This was, for instance, shown in the example of the Hippocratic Oath and the following discussions of argumentative character. For the teachers with a nursing

background, ethical guidelines for nurses became visible in the examples they shared with their students in teaching. As the issue of everyday situations dominated in teaching, aspects of vocational knowing became prominent only through the shared examples. These examples related to nurses' responsibilities, however, rather than to nursing assistants' responsibilities. Teachers' experience from the vocation has also been shown to influence teaching, not only in terms of content, but also concerning expectations on students and attitudes towards students (Eliasson and Rehn 2017). In a recent study by Christidis (2019) in which four vocational subjects were integrated, with ethics among these, teachers' contribution of their vocational experience to teaching strengthened the ethical aspects in relation to a health care context. The teachers' considered ethics as essential in all teaching, not only as a teaching and learning content, but also as a specific mind-set transforming student attitudes and used for approaching various issues of professional and everyday character.

In Sweden, there are no specific ethical rules for nursing assistants which contributes opaqueness concerning this aspect of vocational knowing (Aromäki and Mouna 2009). As a contrast, in Finland there is transparency in terms of existing formal ethical rules for nursing assistants. The Finnish guidelines (RF 2015) highlight ethical principles in relation to work, such as equality, respect for humanity, justice, and responsibility, and an individual's right to make his or her own decisions. In higher level of nursing education, Park's (2009) study on legal requirements for nursing education in five US-states (North Carolina, California, Florida, New York, highlighted that the integration of ethics with other vocational subjects positioned ethics secondarily to the other subjects. Ethics was not properly defined, and often related to actions within the professional context. These results illustrate that ethics is usually incorporated in professional responsibilities and may thus require to be concretized in relation to workplace-examples. Thus, teachers' examples from the vocation in this case study played an important part in bringing forward ethical content from both subjects integrated.

The content in this subject-integrated teaching activity can be said to represent a continuum ranging from a focus on the personal context, where one is expected to be able to argue for one's ethical standpoints and listen to others' arguments, to the workplace context (any workplace) and further on to focus on a specific vocational context. However, when approaching the vocational context, the teachers relied on other professionals and their ethics. Thus, the issue of ethics as vocational content for nursing assistants was made less prominent compared to ethics for other health care professionals.

Previous studies emphasize the integration between education and workplace as a significant component of the teaching and learning content, for reasons of meaningfulness and authenticity. These studies also stress the importance of overcoming organizational obstacles for the enhancement of collaboration between educational activities, including clinical- and work-based settings (Chipchase et al. 2007; Hiim 2017; Sullivan-Catlin 2002; Weiss and Levison 2000). Here, organizational conditions were secured as integration was part of the school concept. However, collaboration between supervisors and the school has not been developed (Andersson 2018). This implies that the vocational link in teaching was dependent on teachers'

input of experiences from the vocation, that enabled the students to adopt these as secondary experiences as they did not have any experience of their own to connect to. The formal tools provided in the school context were not enough alone to make a significant connection for vocational knowing, and for fulfilling the intended curriculum.

In conclusion, subject-integrated teaching of vocational subjects was shown to expand the notion of vocational knowing, going beyond what knowing is made available by each subject alone. Hence, the results highlight visible, as well as neglected aspects of vocational knowing, that apply to an everyday and to a vocational context.

Compliance with Ethical Standards This article followed the ethical rules stipulated for research in the social sciences by the Swedish Research Council (Stafström 2017).

Conflict of Interest The authors declare that they have no conflict of interest.

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