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Collaborative Writing and Self Confidence among Vocational Education Learners

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Abstract

Almost universally, professional development courses combine classroom and real-world training. Students in vocational education have trouble combining the formal explicit information they learn in school with the informal tacit knowledge they learn on the job. There will be an investigation into the role of writing and peer cooperation in articulating conceptual and experiential knowledge during this design research project. At a school for social and health care assistants, 40 first- and second-year students wrote about real-world experiences, shared them with their peers, and participated in written and spoken conversations with their classmates and the teacher. It was made possible for participants to collaborate and write on the web using a wiki, a web-based platform for collaborative writing. Study results indicate that first-year students developed a lot of self-assurance, but sophomores performed less well on a competency assessment. Its collaborative character was also a big hit with students. The discussion focuses on the creation of writing and peer feedback-based learning activities for students to explain their intellectual and experiential knowledge.

Keywords: "vocational education and training, written peer feedback, computer-supported collaborative learning, self-efficacy"

For the most part, professional development programmes include both classroom and workplace training under the direction of a supervisor. All educational levels, from secondary school to college and vocational training (VET) to adult education and lifetime learning, utilise this method. While most students will have some form of job experience, there are a range of methods to make use of it (in terms of duration, articulation with school, conditions, and supervision). Because of the inclusion of a variety of educational environments, students have the opportunity to gain the breadth of information they'll need to succeed in the workplace. A research by Filliettaz (2010) and Tynjälä (2008) demonstrated that this integration does not occur spontaneously and must be arranged during training.

It is possible to teach vocational students to communicate their theoretical and practical training via the use of writing and cooperative situations. Writing may be used as a cognitive tool to assist students abstract and conceptualise practical experience, while cooperation can be utilised to encourage students to move beyond their own personal experiences and generate a genuine communication scenario in professional training.

1. The first step is to do a literature review.

1.1 Accurately communicating how one learns at work and in education.

One's field of expertise requires more than simply knowing what to do, how it should be done, and why; it requires adaptability in the face of new or unexpected conditions (Billet, 2006; Mann, Gordon, & Macleod, 2009). So that they can deal with such novel and crucial circumstances, students need to develop both "hard skills" and "soft skills," which refer to behaviour, communication norms, and other interpersonal skills related to the job (Kumar & Hsiao, 2007). Participation in a professional community shapes one's identity as a professional (Lave & Wenger, 1991). As part of a vocational education programme, students are taught in the classroom and on the job, culminating in a theoretically competent practitioner after they complete their studies.

They are typically juxtaposed rather than integrated since they have to be taught in different places and by means of different methods (Billett, 2001; Filliettaz, 2010). In terms of educational possibilities, internships offered by businesses might differ greatly (Billet, Fenwick, & Somerville, 2006). In the absence of practise or application, it is likely that students will not obtain the greatest benefit from their education. Some students may also

gain knowledge of the theoretical underpinnings of a subject by working on professional projects. Because of this, it is difficult to incorporate a wide range of practise into the classroom without specialised training. Thus, Tynjälä (2008) and Tynjälä&Gijbels (2012) developed an integrated pedagogy model, which describes the numerous forms of information that professionals need to acquire and investigates how to facilitate their articulation in the classroom. Consequently (Figure 1).
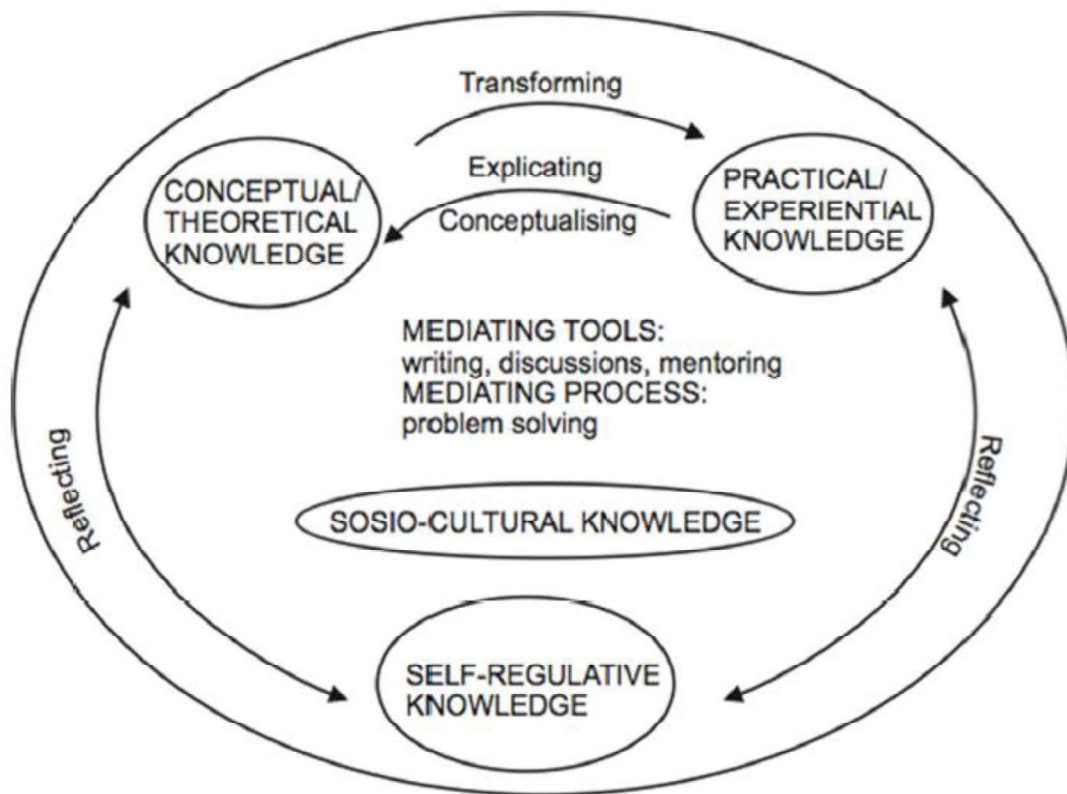

Figure 1. Integrative pedagogy model (Tynjälä & Gijbels, 2012).

Practical, conceptual, self-regulatory, and sociocultural knowledge should not be treated individually in vocational education, according to this paradigm; instead, they should be addressed jointly (knowledge that is embedded in the social practises of workplaces and is learned through participation in these practices). Mediating tools, such as tutoring/mentoring, discussion, and writing activities, should be provided in the instructional setting to support the transformation and linking of practical to conceptual knowledge, while also reinforcing self-regulation and socio-cultural knowledge (through participation in group activities) (by

way of discussions). Writing and collaboration, two key components of this system, are discussed in detail in the next two sections.

1.2 Writing and learning are discussed in detail in Section

When it comes to understanding how writing affects the brain's ability to learn, little systematic study had been done prior to the 1970s. Throughout the ages, writing has been used as a way to help children remember, reflect on, and conceptualise information. New concepts in the text have to be negotiated with long-term memory, according to Hayes and Flower (1980), who showed for the first time that writing involves a negotiation between new ideas created in the text and long-term memory. The authors then outlined two different scenarios, each of which had different consequences for the development of writers' expertise. Two situations have been identified by Bereiter and Scardamalia (1989) as having distinct effects on authors' ability to elaborate their knowledge. Writers in a knowledge-telling context don't go into great detail on the topic at hand; instead, they just communicate what they know. It's more accurate to say that when authors are transforming knowledge, they do so by considering the end goal of their work and then adapting to the surrounding circumstances. When it comes to the idea that the explicit achievement of rhetorical goals is beneficial to knowledge transformation and, therefore, to the process of learning, Galbraith (1999) was critical. It has been proposed by Galbraith (2009) that writing is the result of a two-stage process of discovery: an explicit planning phase to meet rhetorical objectives, and a more spontaneous, less controlled text production phase that leads to the development of understanding through an implicit reorganisation of semantic memory.

It has been widely agreed upon by scholars of cognitive science that writing involves deep processing, which results in conceptual reorganisation of information, abstraction (Olson, 1994), and the generation of new knowledge. There are many conflicting and equivocal findings in the literature about its teaching effectiveness, however (for critical reviews, see Ackerman, 1993; Bangert-Drowns, Hurley, & Wilkinson, 2004). An important factor in Tynjälä's (1998) investigation into the reasons for these seemingly contradictory results was the fact that traditional learning outcomes of writing activities have been evaluated using quantitative testing on recall tasks, with no regard for the quality of higher-order learning that takes place. Learning activities that focus on conceptual and knowledge change, rather than

memory retention, are more likely to provide positive results when students write about their experiences.

According to Tynjälä, Mason, and Lonka, students' past knowledge and views should be taken into account before learning a topic by employing free-writing activities (2001). It's also recommended that students work on solving practical difficulties, as stated by Tynjälä, Mason and Lonka (2001). Lastly, the concept that writing is both an individual and a collective endeavour is reflected in this condition. When teaching writing, Tynjälä (1998) found that the most effective way to accomplish learning objectives was to combine it with oral dialogue and reading. Although planning and implementing collaborative education is a tough endeavour in and of itself, as explored in further detail in the next section, it requires careful consideration of a number of factors.

1.3 Collaborative learning, computer support, and peer feedback are all important components.

Cooperative learning refers to a range of scenarios in which students work together to complete a given set of activities in a scenario that is generally very precise in terms of how the work should be planned and distributed over the period of time (Dillenbourg, 1999). Students are more likely to join in group conversations when they are exposed to collaborative settings, which allow them to demonstrate their own understandings while simultaneously learning from the viewpoints of others (Dillenbourg& Fisher, 2007). It's possible that students will have to alter their concepts if they encounter opposing viewpoints. Some of the students may be able to work out their differences with each other (Suthers, 2006). There are a lot of elements that influence whether or not students can engage in constructive exchanges during cooperative learning, but it has the potential to be a strong learning tool if used correctly (Stahl, Koschmann, and Suthers, 2006). This research into the characteristics that promote the formation of beneficial interactions among students has taken more than two decades, according to researchers in collaborative learning (Scanlon, 2011; Suthers, 2006).

With the development of computer technology and the proliferation of Internet connections, computers have become an important part in collaborative learning research. Computers not only allow students to interact across time and space, but they also allow them to track and

update their work over time. Computer-supported collaborative learning (CSCL) is a unique area dedicated to promoting deep and long-lasting learning by encouraging collaboration amongst peers in computer-supported environments (Puntambekar, Erkens, &Hmelo-Silver, 2011; Spada, Stahl, Miyake, & Law, 2011). Computer-supported collaborative activities have two important elements to consider, as explained in Dillenbourg and Fischer (2007): In order to foster cooperation among peers, the activities must be designed in a way that encourages and facilitates it. An effective activity will require students to interact with others while also giving them all the knowledge they need to manage their interpersonal connections. Individual and group tasks that can be accomplished with computers as well as those that cannot be completed with computers should be included in instructional situations to begin (Dillenbourg&Jermann, 2010).

Peer feedback is one of the many collaborative writing tasks that might be made feasible with the use of computer technology. Many different kinds of peer feedback have been tried and tested to see what impact they have. In order to improve the quality of their classmates' work, students are asked to provide constructive comments and ideas (Gielen, Peeters, Dochy, Onghena, &Struyven, 2010; van der Pol, van den Berg, Admiraal, & Simons, 2008). Peer-assessment activities need that participants evaluate and rate the performance of their peers (De Wever, Van Keer, Schellens, & Valcke, 2011; Gielen& De Wever, 2012; van Gennip, Segers, &Tillema, 2010). Some students may be wary of peer review because they don't want their work to be judged by someone they don't know, or because they question that person's qualifications to perform this task (Kaufmann &Schunn, 2010). In contrast, students' doubts regarding peer criticism may lead them to join in discussions and search for confirmation of statements mentioned in textbooks and other media (Yang, Badger, & Yu, 2006). When it comes to feedback from professors, students seldom challenge or seek clarification from other sources because it is widely regarded as such. According to van Gennip et al. (2010), learners' first hostility toward peer feedback may be caused by a lack of a proper introduction to the method. It becomes easier for pupils to understand and appreciate the activity when they have more experience to this type of evaluation (Dochy& McDowell, 1997). Peer contact has the ability to have a variety of substantial beneficial effects on the learning process in terms of its impact (Davies, 2002). Dochy and McDowell (1997) claim that a

range of strategies can assist in the development of essential abilities such as communication, self-evaluation, observation, and self-criticism.

1.4 Beliefs in one's own ability

As a research objective, this study examines if students may develop comprehensive understanding and convey their intellectual, practical, sociocultural, and reflective knowledge through writing and peer evaluation. An individual's identity and self-beliefs are also anticipated to be developed in this environment, particularly in regards to their belief that they are capable of succeeding. In terms of self-efficacy, it refers to the belief that a person has in their own capacity to carry out the steps necessary to accomplish a certain goal (Bandura, 1997; 2006). This conviction in one's own abilities is considered the cornerstone for self-motivation and self-accomplishment since it gives individuals a sense of control and encourages them to engage in activities like goal setting and strategy selection by monitoring and evaluating themselves (Zimmerman, 2000).

Self-efficacy beliefs may be traced back to one of four main sources, according to Bandura (1997). Achievements in performance management make up the first component. Self-confidence is a direct result of one's own personal practise and experience. If one succeeds or fails at a certain aim, one's perspective of one's own abilities will be influenced by the outcome. The emphasis on the fact that a well-developed feeling of efficacy is not affected by single successes or failures indicates that their impact is more meaningful when they occur early in the learning process or when they occur frequently (van der Bijl & Shortridge-Baggett, 2001). It is possible to identify a second source of self-efficacy through the use of vicarious experiences. In addition to providing examples of successful performance and information regarding the difficulty of the activity, seeing others do a task successfully can boost students' self-confidence. Increasing one's self-efficacy through verbal persuasion is a third and extensively employed strategy. When it comes to convincing health care workers that they are capable of taking on difficult tasks, Van der Bijl and Shortridge-Baggett (2001) write, "verbal persuasion is frequently used." Finally, physiological knowledge is a substantial source of self-efficacy and motivation at the last place on our list. A person's capacity to complete a task will be assessed by examining and interpreting a variety of emotional and physiological aspects, such as stress, fatigue, discomfort, and so on.

Individuals must use information from a number of sources to determine their capacity to perform certain activities. Each of these sources must be given distinct weights when making a judgement on one's or another's ability to accomplish certain activities (Bandura, 2006). In this study, self-efficacy beliefs were viewed as a viable indication for the development of a comprehensive awareness of professional contexts because of their interconnected character.

1.5 The current investigation and research questions

The current study suggests an educational intervention based on Tynjälä's (2008) and Tynjälä and Gijbel's (2008) integrated pedagogy model (2010). (2012). An important part of the goal of this intervention is to help students build a thorough understanding of professional contexts by expressing concepts and practises in a unified manner. As part of a design-based research methodology, the literature has been evaluated for the purpose of developing suggestions for the design of writing and collaborative learning activities—especially peer feedback—for higher education institutions. In addition, in-depth discussions with instructors at the partnering vocational school have been done to identify and address the instructional obstacles that occur when trying to combine theory and practise. As a consequence of the two lines of work, an educational intervention (see 2.2 for more details) that is incorporated into the school curriculum is developed (as shown in Figure 1). One's own writing, written peer criticism, an in-class discussion, and a written individual wrap-up were the main components of the intervention.

Our belief is that writing exercises, when used in conjunction with collaborative activities, can aid students in better articulating their knowledge and comprehension of theoretical, practical, self-regulatory and sociocultural aspects. Writing is meant to aid in the understanding and conceptualization of practical knowledge (Galbraith, 1999). Yang et al. (2006) recommend that students participate in a conversation that exposes them to other people's perspectives as well as their own, fostering the ability to reflect on one's own behaviour and generate new knowledge (Davies, 2012; Dochy&McDowel, 1997). Lastly, students can reinterpret their unique experiences in the context of a collective interpretation with conceptual aid from the teacher through whole-class discussion. As a result, writing acts as a tool for accumulating and storing for future use the communal interpretation of one's own unique experiences (Scardamalia& Bereiter, 1994; 2006).

In order to perform a design study, we came up with a list of questions. If the intervention as a whole fulfils the purpose of thoroughly understanding a professional issue, this is the first question to answer. To attain this purpose, the following outcomes have been examined: A declarative competency exam meant to measure students' capacity to grasp a complicated scenario and behave correctly, as well as their self-efficacy views about the subject matter at hand; It is our view that students' performance on the competence test and their self-efficacy in respect to the problem will increase as a consequence of the intervention and that their general professional expertise will be enhanced by the transfer process. Studying the effects of a complete educational intervention in real-world conditions is the goal of this research project. Writing, peer criticism, and conversation are all components of a larger intervention, thus it will not be feasible to isolate their individual impacts. The second question in this research is to determine the link between students' involvement in the activity and their progress in terms of their understanding of the subject and their perceptions about their own ability to solve problems successfully.. This will be taken into account because recent research (Ortoleva et al., 2013) showed a positive correlation between students' participation in peer comments and their post-test performance.

2. Method

These findings were made possible thanks to funding from the Swiss government, which supported the research conducted out at the Geneva canton's School for Social and Health Care Assistant (ASSC). Children in this school have finished their compulsory education in Switzerland, which lasts until the age of 16. Some of them had prior professional experience, while others had already finished other types of education before commencing this VET programme. The three-year programme for social and health care assistants comprises half of the time spent doing internships in the field. Nursing assistants can work in a number of situations after finishing the training (e.g., hospitals, retirement homes, or home care).

2.1 Participants

To conduct this study, 20 second-year students and 12 first-year students (mean age: 23.3 and 23.3, respectively; SD: 6.02 for the first-year group and 3.18 for the second year group) were surveyed. In the scenario's creation and implementation, two instructors, both of whom were

female, were involved. More than 10 years of experience as nurse practitioners preceded their licensure as teachers.

2.2 Scenario for instructional purposes

According to the teacher, the educational intervention took place in a class dedicated to the articulation of theory and practise. This class mostly consisted of discussing scenarios provided by the presenters, who encouraged the students to analyse the issues using their own life experiences. The professors were dissatisfied with the difficulties they had enlisting the full involvement of the students in the debate.

The scenario that was implemented consisted of three phases that were stretched out across three one-and-a-half-hour learning sessions. Because the sessions were two weeks apart, the full exercise took six weeks to complete from start to finish (not including the pre- and post-tests which were administered in separate sessions). During this time, the students only attended school for general education classes (French, foreign languages, etc.) and were forced to engage in workplace practise four days per week. The third phase of the scenario was somewhat changed for first-year students as part of a design-based research technique after being successfully deployed with second-year students in the prior phase (see details below). These changes were made after taking into account student behaviour as well as observations made by both the researchers and the teachers at the school.

The first portion of the scenario, which comprised writing and getting peer assessment, was dominated by the writing job. Patients' contacts with second-year students and first-year students' washing of a patient were two instances of work experiences that were linked to certain professional qualities. Professors identified these themes as the essential abilities that participants should develop at each step of the learning course. It was suggested that participants write about a key scenario they experienced on the job on their own page on the wiki site (see 2.3). Students were given guidance on how to utilise the critical-incidents approach after learning how to characterise the critical situation they experienced (Flanagan, 1954; Schluter, Seaton, &Chaboyer, 2008). The students were asked three leading questions, which were as follows: (1) What occurred exactly? (2) What were your initial reactions to the situation?

(3) What were the consequences of this specific situation?

After that, each student was asked to give criticism on two of their classmates' written works. According to Kaufmann and Schunn (2010), students were given specific instructions and prompts to prevent the possible issues of peer criticism for those who were inexperienced with it. These instructions and prompts led students through the process of creating constructive critique, as well as accepting and incorporating other people's comments. They were given the following instructions: (1) construct questions (King, 2007); (2) make comments and recommendations; and (3) reflect on any comparable experiences they had; otherwise, they were asked to consider how they would behave in a similar situation (King, 2007). Kuhn, Shaw, and Felton (2000).

At the end of the session, students were instructed to return to their respective wiki sites. In addition, students were asked to: (1) answer to questions provided by their peers; (2) analyse and explain their reactions to others' remarks and views; and (3) assess how they would react to a similar situation if they encountered it again.

To make it simpler to distinguish between the text created at various times throughout the task, students were instructed to use different colours to separate it (Figure 2).

Melinda (M) and Fabio (F) made remarks on the show, which Diana (D) reported on (F)

D1 says, "I am in charge of a schizophrenic patient who lives at home," I have to give her the medication she requires, but she has repeatedly refused to take it and tossed it on the floor, resulting in her behaving violently. She threatens to leap out the window to achieve what she wants, which she has done once or twice before. My attempts to be strict, reframe the situation, and speak to her in a stern but calm manner all failed. Because the situation was so distressing, I had to leave the flat. It terrified me to death that she'd hurt herself and I'd be held responsible."

M: Could you describe the many techniques you tried with her?

My intention was to be firm, reframe the situation, and speak to her in a firm but calm tone... D2: I tried to calm her down by allowing her to express herself by shouting at me, but it didn't work.

M: Could you explain me why she needs your help? Is it your obligation to provide her the meds she needs? Is it really essential to clean her?

The second individual is schizophrenic with cancer, and she is undergoing an incredibly expensive therapy that she is unable to accomplish on her own, and she need assistance with personal hygiene.

F: Have you ever been nervous when caring for this specific patient?

D2: Yes, I was worried that she might hurt herself as a result of my counselling, and that I would be held responsible.

F: Does this patient have any relatives? D2: She is alone; she does not have anyone with her.

M: I suppose I would have behaved similarly, seeking to engage with the patient and questioning as to why she was acting so violently and how she felt when I arrived to care for her. Although I agree it is acceptable to refer her to a doctor, why don't you make an attempt to explain her health conditions and why she need her medications? Always try to maintain a safe space between you and her in case she strikes.

F: I suppose I would have acted similarly, but I would also have sought to engage her family (if she has one) as well as the doctor in the situation. I'd explain the treatment's side effects to her and make an attempt to build a stronger bond with her. I would also make every attempt to collaborate with the patient in order to find appropriate accommodations (e.g. she takes her medicine and you do not bother her with her toilette).

D2: We seek the doctor's aid on a frequent basis. The type of accommodation you describe, on the other hand, is something I would not want to do (if you do, I won't bother you...) since she may take advantage of her circumstances. If she refuses to listen, I shall leave her alone. When she is in severe need of help, she will beg me to accompany her.

The scenario's second part, which included class discussion, was completed during a second session two weeks later. There were no written comments; instead, the teacher moderated an oral conversation that included all participants. Prior to this session, the teacher worked with the researchers to group the students' episodes into thematic clusters, which were then discussed in class the following day. The purpose of the conversation was to find viable answers to the critical issues that the learners had highlighted to the facilitator. Everything was recorded on video.

The third half of the scenario, which took place in a third session and differed for first-year and second-year students, focused on final text development. Second-year students were asked to edit and comment on their own pages, as well as the pages of their classmates, based on what they had learned from the previous semester's writing assignments and spoken conversations with their teachers. Because it was too similar to what they had done in the previous two sessions, first-year students were not required to engage in this exercise.

The distribution of external materials (journal articles, book sections, and video clips) to first-year students was a new addition to this exercise, and it gave fascinating insights into the topics that developed during their episodes and debate. Students were asked to assess the subject matter provided after reading and seeing the material and come to new conclusions about how they would handle the circumstances mentioned by themselves or their colleagues if they were to encounter them in their future practise.

2.3 Material

2.3.1. Materials for the pre- and post-test

Learners were given pre- and post-tests before and after completing the educational activity, and the results were analysed. The following are some of the assessments' findings:

A competence exam is used to assess students' declarative understanding of the professional practise in question (see Appendix A for the pre-test administered to second-year students). For each year of study, one crucial circumstance connected to the technique under research was given: the interaction with patients was explained for second-year students, and the washing of a patient was described for first-year students. Each student had to select one of the seven potential replies and reply to two open questions (explain why you chose this option, and explain what else should be done in this situation). To prevent the learning effect, the pre- and post-tests utilised two distinct cases, but they were structurally equivalent to avoid the learning impact. These exams were given to the students after being developed in consultation with the school's instructors, who ensured that the difficulty levels of the two situations matched to the students' educational levels. The pre-test dealt with how to handle the relationship with a patient and her family after the patient experienced an unexpected problem and felt neglected, while the post-test dealt with how to handle the relationship with

a patient and her family after the patient experienced an unexpected problem and felt neglected.

The competency exam's results were made up of two separate scores that were combined together. The learner's response was given a first score in the multiple-choice question, which was then multiplied by two. The maximum score was given to an option that described a correct reaction and all subsequent actions to be taken; a score of 2 was given to an option that described a correct reaction but was missing one key element; a score of 1 was given to an option that was only partially correct and missed key elements; and a score of 0 was given to an option that described an incorrect reaction and all subsequent actions to be taken.

The academics presented a grid that highlighted eight critical characteristics crucial to comprehending the topic at hand and the measures to be done, which was used to evaluate open questions. The researcher was able to evaluate how many key elements the students had indicated in their replies after analysing their writings and comparing them to the grid (with a maximum score of 8). To test the reliability of the pupils' replies, many independent coders were requested to grade their responses. This was done to guarantee that all open questions were thoroughly investigated. The Spearman inter-rater reliability value was $r = .863$, suggesting a high level of trustworthiness (good agreement). The developers' conflicts of opinion were resolved by reaching an agreement.

Questionnaire regarding self-confidence in one's ability to succeed: This questionnaire measured three dimensions of self-efficacy: professional self-efficacy (covering various aspects of professional tasks), efficacy specific to the competence under investigation (relationship with patients for second-year students and washing a patient for first-year students), and school-related self-efficacy (covering various aspects of school-related tasks) (covering various tasks associated with the school context). A copy of the self-efficacy questionnaire that was given to second-year students at the start and end of the semester may be found in Appendix B. The items in this questionnaire were designed expressly for this purpose in accordance with Bandura's recommendations since they are very relevant to the profession of social and health care assistants, as well as the specific method under study (2006). Teachers cooperated on the preparation of these items to ensure that they were relevant to the practical experience students would have at their places of employment. The

questionnaire's reliability was extraordinarily high across all aspects assessed, according to Cronbach's alpha, including: Professional self-efficacy (5 items, pre-test.93, post-test.93); unique to professional process (5 items, pre-test.92, post-test.94); school-related (5 items, pre-test.92, post-test.94); (4 items, pre-test.87, post-test.94).

Subjective assessment of the instructional scenario: Nineteen questions were asked of students to assess their perceptions of learning through the activity (4 items), perceptions of learning through collaboration (3 items), appreciation of the activity (3 items), appreciation of the collaboration (4 items), appreciation of the wiki platform (3 items), and willingness to reuse it in the future. Objective assessment of the teaching situation: (2 items). All of these items were prepared expressly for this study since they asked very specific questions about how our activity was implemented in all of its varied aspects. Learners were asked to complete a questionnaire using a 4-point Likert scale, with responses ranging from (1) strongly disagree to (2) disagree to (3) agree to (4) highly agree.

2.3.2. The computer-supported environment

Wikispaces (www.wikispaces.com) was used for the activity. Wikis are particularly built to facilitate collaborative writing by allowing access across place and time, the ability to build hyperlinks and new pages, and the ability to trace all changes and their authors (Parker & Chao, 2007). Each student was given an account to use the site during the first session. Each learner had their own page on the site, which allowed them to write about their key occurrence and receive feedback and questions from their peers.

2.4 Procedure

The instructors who participated on the design and execution of the activity explained the three sessions of the scenario a few weeks before the intervention began, detailing the activities planned in each portion and how they would be implemented. They presented the study's lead researcher (the paper's first author), explaining that the action was part of a university research effort. In this context, students' agreement to participate in the study was secured. A 45-minute pre-test session was held during the session preceding the intervention. The competency exam and the self-efficacy questionnaire were given to the students to complete. Following that, the three scenario sessions were held two weeks apart. After the scenario had been fully completed, students were requested to complete a post-test session in

which they were asked to complete the second version of the competency test and the self-efficacy questionnaire, as well as their questions and opinions about the activity.

3.   Results

"As second- and first-year students followed different instructional scenarios, results are presented separately for each class."

3.1   Competence test performance

Because the data did not match the conditions for homogeneity of variance or normality of distribution, the students' pre- and post-test scores were compared using a non-parametric test for related samples (Wilcoxon-Signed Rank test Z).

3.1.1.   Performance of second-year students

Table 1 shows the results of second-year students on multiple-choice and open questions; the n does not equal the total number of participants since only those who attended all of the sessions were included in the analysis. The scores on the multiple-choice exam did not change significantly between the pre- and post-test ($Z = .612$, $p > .05$). There was a marginally significant difference between the pre- and post-tests in terms of open questions ($Z = 1.854$, $p = .0684$), with higher scores in the post-test.

Table 1. Competence test results of second-year students (N=16)

	Pre-test		Post-test	
	M	SD	M	SD
Multiple-choice question (max =3)	2.31	1.25	2.56	0.52
Identification of key elements (max = 8)	3.13	0.96	3.75	1.34

3.1.2.   Performance of first-year students

Table 2 summarises the outcomes of first-year students. The selection of the most suitable reply differed significantly between the pre- and post-tests for the multiple-choice question ($Z = 2.743$, $p.05$). The open questions, on the other hand, did not show a significant difference between the pre- and post-test ($Z = 1.581$, $p > .05$).

Table 2. Competence test results of first-year students (n=12)

	Pre-test		Post-test	
	M	SD	M	SD
Multiple-choice question (max = 3)	0.25	0.87	1.50	0.67
Identification of key elements (max = 8)	3.67	1.16	4.42	1.17

.2   Self-efficacy beliefs

There are three aspects to students' judgments of their skills in a series of activities, and the self-efficacy beliefs questionnaire assessed these perceptions on all three levels. Table 3 shows results for second-year students, while Table 4 shows results for first-year students. Data were neither homogeneous in variance nor normal in distribution, thus the pre- and post-test scores were compared using a non-parametric test for related samples (the Wilcoxon-Signed Rank test).

3.2.1. Results of second-year students

"There was no significant difference between the pre- and post-tests for any of the dimensions observed ($Z = .450$, $p > .05$ across all dimensions)."

Table 3. Self-efficacy beliefs of second-year students (n = 18)

	Pre-test		Post-test	
	M	SD	M	SD
Professional	58.93	18.14	61.31	17.71
Specific to the procedure	70.57	22.97	71.34	20.30
School-related	67.49	16.96	68.99	21.08
Mean of all dimensions	64.72	17.40	66.56	18.27

3.2.2. Results of first-year students

Students' self-efficacy views improved on every parameter examined by the questionnaire, in line with our expectations (professional self-efficacy: $Z = 2.934$; particular to procedure: $Z = 1.961$; school related: $Z = 2.668$), according to the statistical analysis.

Table 4. Self-efficacy beliefs of first-year students (n=11)

	Pre-test		Post-test	
	M	SD	M	SD
Professional	67.64	17.64	84.62	9.51
Specific to the procedure	82.48	16.70	92.83	7.00
School-related	76.82	20.11	92.11	9.15
Mean of all dimensions	76.19	17.28	90.21	7.64

3.3 Participation

The mean amount of words written by each student for each assignment throughout the first phase of the scenario was used to evaluate their overall involvement in written assignments (for both second- and first-year classes). The quantity of words written by students can be used to measure their level of participation in an activity, despite the fact that the number of words does not indicate the quality or meaning of the material (Jermann&Dillenbourg, 2008). Recorded lectures were analysed to determine the percentage of pupils who took part in the oral discussion by counting the number of times each learner addressed the class (see below). Table 5 of this report contains the data. According to both researchers and practitioners, the overall participation of students in writing tasks (M = 545.15 for second year students; M = 389.22 for first year students) was rated highly satisfactory, especially when taking into consideration the researchers' and practitioners' previous experiences with students in this educational path. A between-subject ANOVA was done on their participation in all three phases of the writing assignment to see if there was a significant difference in their results between second and first-year students. Second-year students wrote much more to describe their crucial situation than first-year students, $F(1,32) = 11.123$, $P = .01$, and partial eta-square $= .002$ following an analysis of variance. There was no significant difference between the groups in the peer comments as a consequence ($F(1,32) = 2.561$, $p > .05$). Similar to the results, there was no significant difference between groups in the conclusion ($F(1,32) = .438$, $p > .05$.).

Table 5. Participation in the writing tasks (mean number of words produced) and in the class discussion (mean number of interventions)

	Second-Year (N = 21)		First-Year (N = 13)	
	M	SD	M	SD
Critical incident	247.10	97.52	147.15	58.12
Peer comments	185.43	73.41	146.15	62.55
Conclusion	112.62	78.47	95.92	58.00
Intervention in the class discussion	6.59	5.87	11.40	5.77

Pearson correlation analysis (Pearson correlation) was done between the participation data for the total sample and the multiple-choice question outcomes at pre-test and post-test. Both pre- and post-test scores (r =.584 and r =.459, respectively) were shown to be statistically linked to the quantity of words written in the important episodes (r =.584, p.001 for the pre-test score and p.05 for the post-test score). A correlation between engagement in the comments and competency test scores was not statistically significant at either the pre-test (r =.255; p >.05) or post-test (r =.124; p >.05.) level. For some reason, a negative correlation was found between the duration of the first session's description of the key episode and classroom participation in the oral discussion, with a R=-.435 and p=.002 respectively.

3.4 Evaluation of the activity from the participant's perspective

First- and second-year students' scores in each of the six dimensions examined are shown in Table 6. (four-point Likert items). Overall, all of the ratings were higher than 3, suggesting that the participants had a positive experience with the wiki platform and its collaborative nature. The majority of participants (mean scores below 3) were not confident that they had learned anything from it, yet all other scores were greater than 3.

Table 6. Subjective evaluation of the activity by first-year and second-year students

	Year I (n = 23)		Year II (n = 11)	
	M	*SD*	*M*	*SD*
Learning through activity	2.77	0.70	2.71	0.52
Learning though collaboration	3.31	0.50	3.20	0.36
Appreciation activity	3.43	0.52	3.00	0.54
Appreciation collaboration	3.79	0.32	3.45	0.38
Appreciation wiki	3.53	0.46	3.17	0.58
Willingness to reuse wiki environment	3.40	0.43	3.10	0.49

4. Discussion and consideration of future directions

Although writing can be an extremely effective instructional method for fostering individual knowledge construction (Galbraith, 1999), it is rarely used to foster discussion and collaborative knowledge construction (Scardamalia& Bereiter (1994, 2006), as well as collaborative knowledge construction (Tynjälä et al (2014). This study employed Tynjälä's integrated pedagogical paradigm, which includes writing about a crucial working experience, peer criticism, and class discussion.

4.1 Did the pupils gain any new knowledge as a result of this intervention?

Students' ability to pass a case-based competency exam and their self-efficacy attitudes about the issue should both represent their level of comprehension after this intervention, according to the study's first research question. First-year students increased their capacity to correctly answer a multiple-choice question whereas second-year students improved their ability to recognise the most important aspects of a situation in the post-test findings, which was encouraging (a marginally significant improvement). For this reason, first-year students may differ from their more experienced peers in terms of how well they pick an acceptable reaction to hardship. However, more experienced students may need to work on increasing their ability to explain their judgments and forecast future behaviours. There is a possibility that second-year students have a better grasp of the material because they wrote much more than first-year students. Additionally, the lack of substantial gains in performance might be

ascribed to the brief period of the intervention, which is especially true when conceptual comprehension is involved (Bangert-Drowns et al., 2004).

Only a partial confirmation of our assumptions was found when it came to people's faith in their own abilities to achieve. All indicators of self-efficacy beliefs increased for first-year students, but second-year students' views did not appear to alter. According to Bandura (2006) and Renninger, Hidi&Krapp (1992), it is probable that second-year students had a more solid and accurate picture of themselves that was less prone to change or adjustment in similar contexts. It is possible, however, that the instructional scenario was altered from its first execution with second-year students to its second implementation with first-year students, which might have affected the outcomes. Because the intervention lasted for eight weeks, it's likely that first-year students' self-efficacy improved as a result of their regular professional growth occurring during that time.

4.2 Participation in the study as well as subjective evaluation

Although the results measures were not totally conclusive, students' involvement in the writing tasks was significant throughout the whole exercise. Student involvement and subjective evaluations show that students were satisfied with the instructional scenario created by following the guidelines of Tynjälä et al. (2000) for the design of writing tasks. As a result of Tynjälä's integrated educational paradigm (Tynjälä, 2008), the collaboration phase, which was particularly highly welcomed, was a noteworthy highlight. Experimenting with a real scenario and receiving feedback from their peers is a way for students to expand their learning and generate an abstract vision that can be used for future practise. Furthermore, there was a statistically significant negative correlation between oral conversation participation and written description involvement. It is important to note that this link is based on a large sample of students and implies that students who are more comfortable with writing communication are less likely to be comfortable discussing their professional practise in an oral classroom discussion. In light of these findings, Tynjälä (1998) claims that the most successful technique for conducting writing activities in which all students are included and engage in the learning scenario is a combination of oral and written exchanges and talks. A previous study (Authors, 2013) found no correlation between the competence test score and the number of words produced in the peer commenting phase, but there was an opposite

relationship between the competence test score and the number of words written in the critical incident before and after the test. This might be because more talented students went into greater detail about their critical situation. There were a few problems with this approach, the most obvious being that counting the quantity of words pupils wrote was a sloppy way to gauge their level of interest in the material. If the crucial occurrence is of high quality, as well as students' written remarks, this will give a more accurate image of the student's involvement in the activity. 3).

4.3 Limitations

According to a design-based approach to research, this study had certain drawbacks. However, even though it covered all students in their first and second year of study, this research's sample size (40 students and two teachers) was too small to conduct quantitative data analysis and generalise. This study's design lacks a statistically valid control group, making it hard to infer that the intervention was the only source of the observed increases in learning gains and self-efficacy beliefs and not any other part of their training that took place simultaneously. While they were not enrolled in academic programmes, they were nonetheless compelled to do internships in the workplace over the course of the intervention. If the intervention is regarded as a whole, it is impossible to isolate the benefits of writing and peer feedback from the effects of class discussion and the effects of instructors' interventions with new content and explanation. Secondarily, this is a major negative. Despite the fact that the study's primary goal was to assess the intervention's overall success, the scope of the intervention prevented it from being able to pinpoint the most critical instructional components. To better understand students' written outputs and the conditions under which productive interactions occurred, additional analyses are currently being conducted on the written productions (Dillenbourg& Fisher, 2007; Hämäläinen& De Wever, 2013). 1) A third constraint is related to the tools used, and in particular to the competency of the people who use the tools. Because it was created in real time with teachers, this case-based test is authentic and reliable for instructional purposes only; nonetheless, it cannot be relied upon as a scientific tool. According to Tynjälä et al. (200), writing intervention studies are hindered by the lack of an instrument to quantify complex learning, such as the articulation between conceptual comprehension and behavioural adaptation in a practical scenario. This topic

needs more investigation, with the objective of developing a wide range of evaluation instruments that incorporate both quantitative and qualitative indicators, the reliability of which might be tested prior to the intervention.

4.4 Recommendations for classroom instruction

If you're trying to teach students how to make connections between the classroom and the workplace, we recommend using an instructional intervention that combines individual writing with peer and instructor feedback, embedded in an authentic classroom setting and incorporating discussions and teacher feedback. As a consequence of this study, three recommendations may be made. When students work alone before discussing ideas, it is highly interesting for students and possibly more productive since learners first organise their thoughts through writing before benefiting from the viewpoints of others. (Galbraith et al., 1999; 2009) (Galbraith, 1999). It is based on (Scardamalia and Bereiter, 1994). Another benefit of scaffolding interactions with cues that encourage good dialogue, such as questions, recommendations, and making connections to students' own experiences, is that students are more likely to provide written feedback to one another (King, 2007; Kuhn, Shaw, & Felton, 1997). Third, students and instructors may reap the benefits of computer capabilities such as history monitoring and modification, as well as collaborative features, without having to deal with technological barriers thanks to simple web-based wiki settings. Individual and group writing activities are expected to be studied in the future to better understand how they interact with one another, with the ultimate goal of developing instructional methods that are built on a solid knowledge base of the mechanisms underlying the observed gains in student learning.

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