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► To cite this version:

Tony Timizar-Le Pen, Claire Marchand, Marie Léocadie, Monique Rothan-Tondeur. Reflective writing: Implementation and learning perception from students and teachers of French nursing schools. *Nurse Education in Practice*, 2020, 49, pp.102921 -. 10.1016/j.nepr.2020.102921 . hal-03493382

HAL Id: hal-03493382

<https://hal.science/hal-03493382>

Submitted on 21 Nov 2022

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Title: REFLECTIVE WRITING: IMPLEMENTATION AND LEARNING PERCEPTION FROM STUDENTS AND TEACHERS OF FRENCH NURSING SCHOOLS

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Acknowledgements : Thanks to Annie COGHLAN for providing language help.

No funding source

Introduction

The purpose of initial nursing education is to develop students' professional skills. Professional skills have a reflexive dimension that is indispensable for their functioning and development (Walker, 1985; Gustafsson and Fagerberg, 2004). Therefore, reflexivity helps to develop learning, self-regulate practices and promote the transfer of skills (Wald and Reis, 2010). Reflective practice can be developed in different ways (Man et al., 2009): explicitation interviews combining sometimes with writing to help nursing students develop their emotional skills while developing their reflexivity (Donnaint et al, 2015), analysis of professional practices in groups, reflection in writing from clinical vignettes, situations experienced or professional questioning (Hwang et al., 2018) and reported by the student or professional in a logbook such as the portfolio. This article focuses on the development of reflexive practice based on the writing of situations experienced (named situation analysis - SA), by French nursing students accompanied by their referring teachers.

Writing would make it possible to reorganize the experience to give it more meaning through taking critical distance (Naccache et al. 2006). A literature review published in Nurse Education in Practice (Bjerkvik and Hilli, 2019) shows that it is a personal development tool that supports the student's professionalization. Thinking skills and awareness of clinical situations seem to have improved. Students focus primarily on self-assessment, their emotions and their ability to cope with clinical situations. Reflective writing remains a difficult exercise, which is often more descriptive than reflexive. The work is facilitated by the teachers' support with detailed comments, building trust, availability and whether they are recognized as qualified by the students. Apart from nurses and teachers, collaboration between students and mixed learning tools contribute to these interactions.

This exercise can be part of an evaluative process but this aspect can reveal a double constraint: forgetting the learning brought by the exercise to satisfy the evaluator's standards (Bibauw, 2010).

Theoretical framework

Two theories support the implementation of SA implemented in France.

For Schön (Schön, 1983), the reflection process is based on two temporalities: in and on action, with the latter allowing for self-learning and the development of professional skills in a retrospective reflection process. This reflexive approach adopts the characteristics of scientific research with the aim of objectivity, control and distancing. The articulation between theoretical and experiential knowledge, two interactive and complementary sources, leads to the process of professionalization.

Lafortune (Lafortune, 2005) highlights the difficulty of taking a meta view of the situation on one's own. This interactive reflective approach enables one to take a critical look at the action, supporting distance learning to question, learn and prepare to transfer. Accompaniment represents support, in line with the professional field of expertise represented by the teacher and tutor. It requires taking into account the different dimensions of "cognitive, metacognitive, affective and social, (...) combines theory and practice, reflection and action in an integrated and complementary way" (Lafortune, 2015, p.11). Reflective practice and its accompaniment form the theoretical framework of the study, schematized in Figure 1.

The theoretical framework shows the benefits on professionalization brought by reflexivity as well as the pedagogical accompaniment necessary to achieve it.

Background

Assistance Publique-Hôpitaux de Paris in France (AP-HP) is the largest university hospital in Europe with 39 hospitals and 35 education institutions, including 16 nursing schools linked to universities (AP-HP, s. d.). The education is divided into equal periods of education time in nursing school (period of theoretical course) and in the professional field (period of practicum). To support the professionalization of students, these nursing schools of AP-HP together defined a common framework, like a guide (Naber and Markley, 2017), to help students develop their reflective practice by writing down situations experienced during these practice periods. A progression is planned over the three years of education with one SA in the first semester and then two per semester. A study conducted in one French nursing schools aimed to show this progression (Garnier and Marchand, 2012). This work is accompanied and evaluated by a referring teacher. For assessment the teacher uses criteria known to the students such as: argumentation of the choice of situation, description, questioning, analysis, self-evaluation and positioning as a future professional. This evaluation is one of the criteria for validating the practicum. If the first version is not satisfactory, a readjustment is requested. However, nursing schools are left autonomous in their teaching and support strategies to help students to write and analyze these professional situations.

As it is carried out in the nursing schools of the AP-HP, this exercise of writing and analyzing represents a significant piece of work that raises questions about its benefits, on the part of students and teachers alike. A preliminary investigation revealed the difficulty of the exercise. Less than half of students perceive the contribution of the exercise to improving their professional practice. The notion of reflexivity itself is not easy to define and the

purposes are also the subject of debate between teachers, between the development of a professional identity construction and initiation to the research process.

While the benefits of reflective writing have been described in the literature (Naber and Markley, 2017; Bjerkvik and Hilli, 2019), no study has been conducted in France to highlight the links that may exist between the way SA are implemented and their effect on student learning, from the point of view of referent teachers and students.

Aims of the study

The objectives of the study were to assess and understand the implementation of the Situation Analysis (SA) in AP-HP nursing schools (initial teaching, accompaniment, feedback and evaluation) as well as their effects on students' learning.

Methods

Design

This study was descriptive using a quantitative approach. It was a multi-centre declarative study using online self-administered questionnaires for students and teachers. For some questions, it has been possible to compare students' and teachers' answers.

Participants

It was directed at the 16 nursing schools of the AP-HP, i.e. 5535 students from semester 2 to semester 6 awaiting the results of the diploma, as well as 266 teachers.

The inclusion criteria were to have experienced the Situational Analysis for students, and to be an accompanier for teachers.

Data collection

The data collection required two questionnaires: one for students and one for teachers. The questionnaires were constructed on the basis of the framework available in each nursing school and on the literature describing the expected learning outcomes from SA (Lafortune, 2005; Naber and Markley, 2017; Bjerkvik and Hilli, 2019). Frequency and agreement scales of the Likert type in four modalities were used.

The student questionnaire consisted of 70 questions including one open-ended question: Student profile description (7 questions), description SA already conducted (20 questions), students' perceptions of the contribution of these SA to their learning (22 questions), frequency of feedback after a SA (1 question), description of the feedback received following the SA: mode and content (9 questions), students' perception of the contribution of feedback to their learning (4 questions), and general questions on situation analyses: usefulness and satisfaction (7 questions including 1 open-ended question).

The questionnaire for referring teachers consisted of 45 questions including 11 open-ended questions : nursing school profile (5 questions), description of the implementation of situation analyses at the school level (7 questions, 4 of which were open-ended), description of the support provided by the referring teacher(s) for SA (8 questions, 3 of which were open-ended), frequency of a feedback after a SA (1 question), description of the feedbacks made following the SA: mode and content (10 questions, 1 of which was open-ended), referent teachers' perception of the contribution of feedback to student learning (5 questions, 1 of which was open-ended), and general questions on the SA: usefulness and satisfaction (9 questions, 2 of which were open-ended).

The questionnaires were tested with 3 nursing students and 2 teachers. Some questions were readjusted to improve the understanding.

The nursing schools were recruited into the study by sending an email to each director. The presentation of the study and the link for the online questionnaires were given by email, via an intermediary. The study took place from March 14 to April 22, 2019. Two reminders were requested.

Ethical approval

A request for ethical authorization was not required for this non-interventional study, without any nuisance or dependency relationship, and validated by the affiliated university. Participation was voluntary and anonymous. The principal investigator processed the questionnaires. The results are presented in such a way that no participants or schools can be identified. The participants were considered to be consenting by completing and returning the questionnaire.

Data analysis

The analysis was divided into three parts. A descriptive part focused on implementation of SA at the level of schools, teachers and students. A second part was devoted to the students' learning by SA according to their perception and that of the teachers referring.

The Likert's scales have been compiled in 2 levels: for frequency (always/often and seldom/never), for agreement (strongly agree/agree and disagree/strongly disagree). For each open-ended question the number of respondents and percentage of respondents for each themes were specified. A thematic content analysis was conducted (Miles et al., 2013).

A third part to highlight possible correlations between implementation modalities and students' perceived learning. A composite score Learning perception by SA was the result obtained by calculating the various contributions previously questioned (working on feelings and emotions, questioning, experiential knowledge development, knowledge development, metacognitive development and self-evaluation, improvement of professional practice and acquisition of an analysis methodology). The modalities never/strongly disagree were scored as 1; seldom/disagree 2; often/agree 3; always/strongly agree 4. The score was obtained by adding the scores obtained for each question. A median score of 60 allowed us to create two modalities for Learning perception by SA: high (60 and above) and low (less than 60). The value of $p < 0.05$ has been kept for statistical significance (chi-square test).

Results

Description of the respondents

All 16 of the nursing schools of the AP-HP participated in the study, with 1525 students (of 5535, 27.6% participation) and 131 teachers (of 266, 49.2% participation) taking part (Table 1). The three years of education were represented in classes of equivalent sizes (on average 27.6% per year). The student population had an average age of 24.3 years (± 6.5 years), was predominantly female (89.3%, 1357/1520), had a pre-school nursing certificate level mainly high school diploma or equivalent (68.3%, 1040/1523). They had previous writing experience that is mainly positive (62.6%, 951/1520). Nursing schools had different organisations and there was on average 22.3 students per referring teacher (± 3.9 students).

Description of the implementation

At the school and the referring teacher levels

On the basis of the common framework relating to SA, pedagogical teams of each school invested different axes about the exercise, in particular with a discussion around the evaluation grid (12 schools/16), expectations and progression (10/16), accompaniment (7/16) or aims pursued (6/16).

According to the teacher, the initial teaching in relation with SA varied depending on the schools: methodological approach (14/16 schools), expectations and progression (11/16), aims and the evaluation grid (10/16), training exercise (6/16), form and exploitation of an example (5/16), others (less than 5 schools).

With regard to the pedagogical aims of this activity, among the 122 teachers who responded to the open-ended question, the main ones were a methodological approach (73%), the adoption of a reflective posture (56.6%), professional development (54.1%), and the development of knowledge (31.1%), self work (13.9%) and writing skills (8.2%).

Initial teaching needed to be repeated for 77.9% of 131 teachers. In additional teaching, teachers gave models of SA (44.3%) or proposed exchange between students (35.9%). Among the 122 teachers who responded about the clarification, they focused particularly on methodology (72.1%) or aims of SA (31.6%).

The implementation has given rise to mixed opinions among 115 teachers. An open-ended question general implementation collected 34.8% of positive elements, like the relevance of the exercise or personalised follow-up of students. Negative elements (23.5%) were also noted like the lack of results achieved despite the additional workload involved. Several means of improvement were evoked (49.6%) like the search for team cohesion (24.3%) or the development of student accompaniment (17.4%).

For 61,4% teachers (of 127), the evaluation grid was rather adapted to their evaluation of SA. To open-ended question, of 85 teachers, 30,6% recognized the usefulness of grid from a methodological point of view and only 5,9% to make the student's progress visible. However, 20% criticized the items of the grid because they were not well enough defined, not adapted (10.6%), too numerous or overly restrictive (9.4%). Some of them (12.9%) opted for a more flexible approach in their use of the grid.

All teachers (131/131) reported giving feedback for each SA (91.6% always and 8.4% often). This feedback contributed to several aims: methodological support (96.9%), participation to new ideas (93.1%), development of skills in practicum (80.5%), and acquisition of new knowledge (77.8%). More specifically, 62 teachers made clarifications on feedbacks contribution: methodological support (48.4%) was a means of encouraging research (19.4%) and improving analysis (14.5%) or self-evaluation (13.9%). It was also an opportunity to support reflection on professional posture (50%) and/or to improve written expression (19.4%).

The treatment time of one SA (reading and elaboration of feedback) was estimated by teachers at 35.3 minutes on average (± 15.3 minutes), that is to say 13.1 hours on average (± 6 hours) to treat all the SA of a pedagogical follow-up group. For teachers, feedbacks included the evaluation result (94.6%), a general comment (96.1%), specific annotations (94.5%), and/or the evaluation grid (77%). Feedbacks were communicated by email (69%), in individual interviews (85.3%) and/or more rarely during a collective time at school (24.3%).

For their part, 86.8% of students reported having feedback (63.5% always and 23.3% often). For them, feedbacks included the evaluation result (91.5%), a general comment (80.2%), specific annotations (74.6%), and/or the evaluation grid (55.7). Feedbacks were

communicated by email (59.7%), in individual interviews (59.9%) and/or more rarely during a collective time at school (26.8%).

At the student level

Students seemed to do the expected number of SA, one in semester 1 and then two per semester. The average time of realisation (reflection, deepening, writing phase) was 6.4 hours (± 3.3 hours) per SA.

Table 2 describes situations chosen by students for their reflective writing exercise. The facts described were authentic for 97.8% of students (80.6% always and 17.2% often). Situations were easy to choose and to write for a short majority of students. They focused more on their own practice than on the practice of other caregivers. Concerning objects of analysis, these were first of all situations that could happen again, then practice to be improved, a search for better understanding of these situations. The choice of an emotionally charged situation was less frequent. To carry out an analysis, students used few human resources. Theoretical resources are more widely used, specially the Internet (93.3%).

Students increasingly used professional and/or scientific literature throughout their education: the use of journals increased from 57% in the first year (276/484) to 70.9% in the third year (383/540), and books from 49.1% (233/475) to 59.3% (318/536).

Of the 1523 students, the most frequently treated themes were about the care relationship with the patient (57.3%), about the care itself (34.5%), situations involving their emotions (28.4%), refusal of care (25.3%), pain (20.3), then with less than 20%: hygiene care, modesty-intimacy and ethics.

Students learning through SA

Student perception of Learning

Table 3 presents students' perception of learning through SA. The most important learning were in descending order: the questioning, the experiential knowledge development, development of knowledge, working on feelings and emotions, improvement of professional practice, acquisition of an analysis methodology, and metacognitive development.

SA's aims were clear to 68.6% of students (1046/1524). They considered that writing was an interesting way for them to reflect on their practicum experiences (67.2%), that SA could be seen as evidence of their learning (66.1%) and that it was useful for their learning (60.4%).

Teacher perception of student Learning

SA aims were achieved for 71.4% of the teachers (90/126). To an open-ended question, 104 teachers justified their response: the quality of the analysis improved over the three years (42.3%), the adoption of a methodological approach linked to a research approach (13.5%) and also an impact on professionalization (5.8%). Some obstacles identified by the teachers included the usefulness of the exercise, which is not perceived by students (16.3%), the difficulties experienced by students in terms of analysis and writing (9.6%), the high workload generated (4.8%) and the lack of a sufficient pedagogical project on accompaniment (3.8%).

Teachers considered that SA was useful for students' learning (94.7% of 131), that writing was an interesting way for students to reflect on their practicum experiences (93.1%) and that it could be seen as evidence of their learning (79.7%).

Feedback contribution in learning for student and teacher

Students considered feedbacks to be encouraging for their learning (83.6%, 1232/1474). Table 4 shows teachers' feedbacks contribution according to students and teachers. For both of them, the most important contribution was in term of methodology (76.1% of student and 96.9% of teachers).

Correlations between learning perception and implementation

There were correlations between the Learning by Analysis score and implementation (Table 5). The perception of learning was high when the pedagogical activity was better understood, when situations were easy to chose and authentic and when there were interactions through the multiplication of human resources. The correlation was stronger when students analysed their own practice rather than that of other caregivers. There was also a correlation between the perception of learning and the students' positive relationship to writing.

Satisfaction

Students' satisfaction

Students were satisfied with 51.4% (of 1525) of the activity as it was conducted. A total of 750 students answered an open-ended question to justify their satisfaction or not. Of these students, 71.9% gave negative comments: SA were an overload of work (28.3%), without usefulness (20.1%), with a negative place in the evaluation of the course (18.3%), a difficult exercise (17.3%), with poor accompaniment (14.9%) or non-learning feedback (7.9%), without freedom of expression (7.1%), without gain in reflexivity (3.5%). There were also

positive comments for 49.2% of them: SA allowed a questioning leading to research (31.6%), to become more professional (15.1%), new knowledge (11.9%), putting thoughts into words (7.3%), with positive accompaniment from teachers (4.7%). Finally, there were proposals to improve implementation for 23.9% of them: making the framework more flexible (13.6%), considering other ways of supporting reflexivity (9.5%), encouraging exchanges between caregivers (1.3%).

Teachers' satisfaction

For their part, teachers were satisfied with 54.2% (of 131) of the activity as it was conducted. A total of 104 teachers answered an open-ended question to justify their satisfaction or not. Among them, 62.5% gave negative comments: SA were an overload of work (27.9%), an exercise poorly understood by the students (20.2%), an activity victim of a lack of investment (19.2%), without achieving the expected effect (16.3%), with too much teacher-dependent accompaniment (10.6%) and a questioning of the evaluation of these SA (9.6%). There were also positive comments for 28.8% of them: SA were useful for the students (25%) in relation to the aims pursued (questioning, research, reflexivity, professionalization) and useful for the teachers (8.7%) for student follow-up. Finally, proposals were also made to improve implementation for 32.7% of them: it would be necessary to rethink support (16.3%), consider other methods to support reflexivity (14.4%), review the evaluation grid (7.7%), and increase exchanges between teachers (3.8%).

Discussion

Using a quantitative approach, this study looks at the different ways in which reflective writing is taught and accompanied in several French nursing schools and the different ways in which students go about doing this exercise. It highlights what French students learn by analyzing situations in writing. This study finds some results of predecessors' research on reflective writing, on several points. It also makes it possible to envisage several improvements in the teaching of SA.

Implementation of situation analysis

The study shows that overall the framework available to schools is being used. Teaching and accompanying practices are linked to the specific development of each nursing school in the common framework. However some aspects are more worked on with students, such as methodological aspects compared with professional development, for example. The initial implementation requires additional, more targeted accompaniment time. Students appreciate it because it is personalized, even if the accompaniment can still be improved according to the teachers. Involvement of teachers contributes to the perception of a better supervision (Ip et al., 2012; Otti et al., 2016).

For students, the objectives are not always clear, which may reduce the impact of the exercise (Naccache et al., 2006). The teachers state that they have discussed the evaluation together more than the pedagogical objectives pursued, while now wishing that team cohesion would be sought. Students reported the workload involved in SA while the literature emphasizes that the representation of an additional workload in a restricted time is an obstacle to the conditions necessary for reflective writing (Naccache et al., 2006; Ip et

al., 2012; Bjerkvik and Hilli, 2019). Especially as other reflexivity methods are also involved. It therefore seems important, as proposed by the students themselves, to combine different methods to work on students' reflexivity (Man et al., 2009).

All parties involved raise the question of evaluation. For more than a third of students, the evaluation grid is not sufficiently clear. For teachers, it mainly evaluates the methodological aspect and would constitute an axis to be reworked in the teacher team as it has been pointed out in the literature (Naccache et al., 2006). The exercise of SA is presented as one of the criteria for validating an practicum. Students and teachers do not perceive it in the same way, even if everyone agrees it should not take too significant a place. The necessary authenticity of situations (Otti et al., 2016) is sometimes compromised to meet the validation criteria, leading the student to format their writing to correspond to what they think is expected, in search of desirability (Bibauw, 2010; Coleman and Willis, 2015). The place of the reflective writing exercise in the evaluation of an practicum is questioned. For Bibauw (Bibauw, 2010), SA can only be formative. If it can make the student's progress visible in their reflection on the action, it may not always be representative of the development of the skills on the practicum.

In this study, feedback is more about form (methodology) than substance (professional practice). It represents a support perceived by students as conducive to positive reinforcement (Bandura, 1997). Some ideas for reflection are present and effective for students (Edelen and Bell, 2011) but they are given after the work is completed, which reduces Lafortune's interactive reflective approach (Lafortune, 2015). Also, students do not often interact with each other and are not frequently confronted with models despite the added value provided by a constructive social context (Van Horn and Freed, 2008; Carter et

al., 2018; Bjerkvik and Hilli, 2019). Although the exercise of SA is professionalizing for students (Gustafsson and Fagerberg, 2004), it is often difficult as shown previously (Otti et al., 2016) and only half of students of this study feel comfortable writing. The exercise is confined to an individual piece of writing. However, to overcome the difficulties of writing, teachers use other media such as the explicitation interview, which facilitates learning (Man et al., 2009).

The exercise does not go beyond the imposed academic approaches (Bibauw, 2010) despite attempts to improve written expression: the personal connection with the school level and previous writing experiences may persist (Bjerkvik and Hilli, 2019).

The choice of situation is easy for half of the students. The situation must be questionable to be analyzed, which also requires the ability to accept uncertainty to pose a problem rather than attempt to solve it (Schön et al., 1983). Their choice is mainly their caregiving practice with a view to skill development and transferability. The most frequently cited situations concern their relational skills (Chen and Forbes, 2014) and their treatment. Less frequently in this study, SA is the opportunity to express and understand feelings and emotions while there is a positive correlation with student learning (Lafortune, 2015; Ruiz-Lopez et al., 2015). To work on these emotions with nurse students may require other methods (Donnaint et al., 2015). In this study, students mainly use theoretical resources and few human resources. However, the study shows a correlation between the use of human resources and the perception of learning.

Students' learning through SA

First of all, students perceive the contribution of SA to questioning their practice and to develop experiential knowledge, in accordance with the principles of Schön's reflexive practitioner (Schön, 1983). Students also report a development of knowledge through research done as shown in literature (Naber and Wyatt, 2014). The improvement of one's professional practice is perceived by students of this study, but does not seem to be a support of identity building for them, contrary to what is found in research studies (Bjerkvik and Hilli, 2019). Teachers could play a more important role through SA : the process of professionalization requires reflection-interaction with others, with a critical look at action and significant feedback for distance (Lafortune, 2015).

The results differ from precedent studies on the possible impact of self-evaluation (Bjerkvik & Hilli, 2019). While the metacognitive dimension seems to be present, self-evaluation through reflective writing is below expectations. Self-evaluation through reflective writing concerns only half of the students questioned in our study. These results can be explained in different ways, such as a lack of critical thinking (Siles-González and Solano-Ruiz, 2016). Teachers should give specific feedback to students on their self-evaluation. This feedback, if well done, allows nursing students to develop their self-evaluation skills (Plakht et al., 2013).

Overall, the teachers note a change in methodology and professionalization to a greater extent than the students themselves. For example some teachers link the exercise to the research process more often than students. For teachers, the methodological component contributes mainly to structuring student's thinking (Lafortune, 2015).

More than the differences in implementation in schools, it is the students' understanding of what is expected that seems to have an impact on their learning. In this way, there is a perception of learning correlated with the clarity of the exercise in its objectives and

evaluation, the student's confidence, the diversification of resources and the investment of feedback by the teachers. This is in line with the various studies that show that learning is promoted by instructive guidelines (Ip et al., 2012, Coleman and Willis, 2015), reflection support (Bjerkvik and Hilli, 2019), with a trusted teacher who allows for scaffolding (Van Horn and Freed, 2008, Edelen and Bell, 2011, Otti et al., 2016, Bjerkvik and Hilli, 2019). When favourable conditions in terms of time, pedagogical supervision, clarity of guidelines and evaluation criteria are lacking, there is an impact on the perception of learning (Naccache et al., 2006; Ip et al., 2012; Bjerkvik and Hilli, 2019). The more the goal of the exercise is understood (clear objectives, perception of usefulness), the more free and easy it is to express oneself on a situation, the more diversified the resources are (especially human), and the more the students will have a perception of learning through reflective writing.

Limitations

The main limitation of this study is the representativeness of the sample facing variations in school size and participation. However, all the nursing schools of AP-HP evaluating reflective writing in a common framework participated in the study. Even if the study was realized in all schools of AP-HP and the used two questionnaires, one for student and one for teacher to ensure complementarities and convergent results, the second limitation concerns the results. They focus on learning perceptions and cannot replace an evaluation of actual learning (Kirkpatrick and Kirkpatrick, 2007). Economic reasons led us to choose self-administered questionnaires as survey tools, with a risk of lower quality responses and closed questions that could hinder the understanding of the complexity of reality (Heerwegh and Loosveldt, 2008). For open-ended questions, only one researcher analysed them, which

limits the validity of the results (Santiago-Delefosse et al., 2016). Another researcher may analyze the units of meaning differently.

Conclusion

The results of the study highlighted varied pedagogical practices and significant learning perceptions among students. The Situation Analysis conducted in AP-HP nursing schools is a reflective writing exercise that seems to encourage students to step back from their care giving practice and contributes to the transfer of skills in other situations. Teachers support reflexivity with well-perceived feedback, but only after a sometimes-difficult writing process. As interactions are part of the learning process, they would benefit from being encouraged as soon as the student chooses the situation. Taking these findings into account in French nursing schools could help to promote collegiality in the implementation of the framework.

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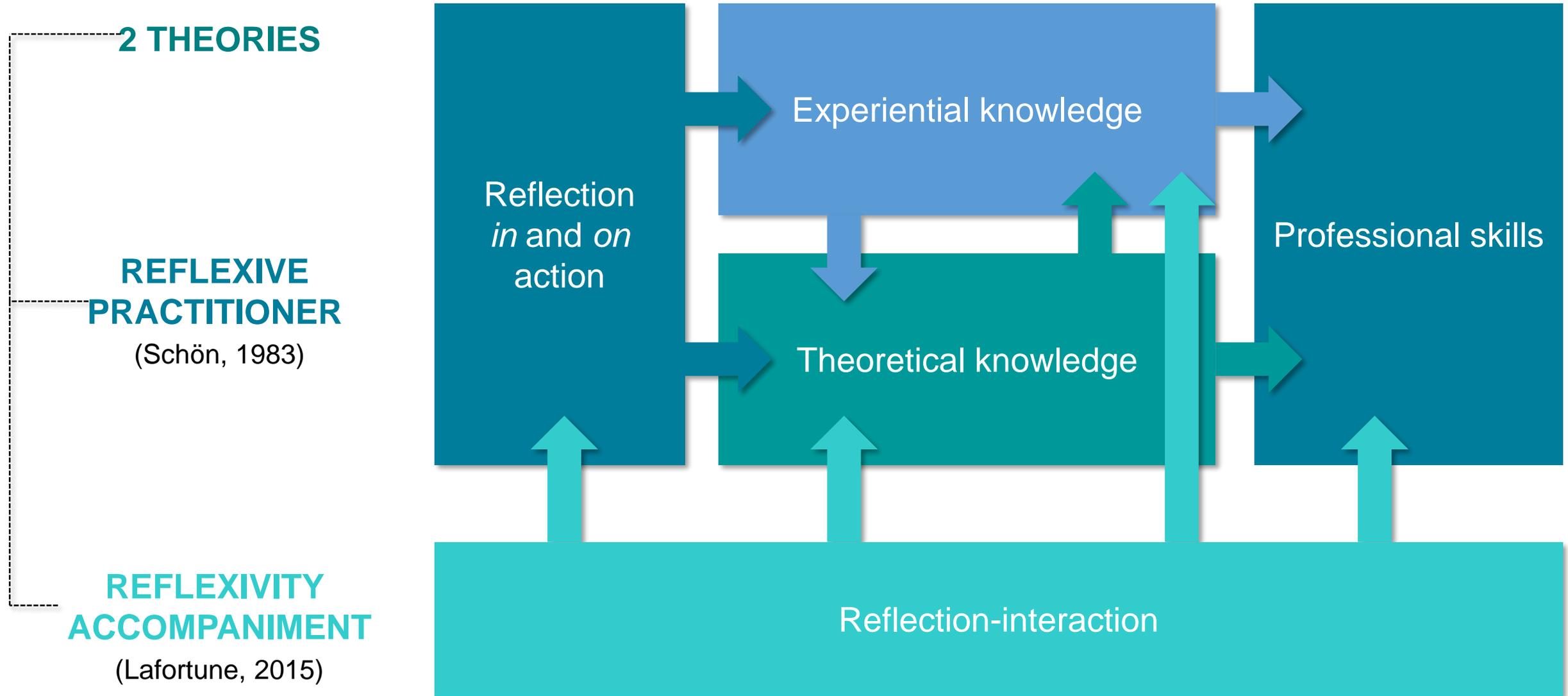


Figure 1: Modeling of the theoretical framework of the study

Table 1 Students and teachers participation in the study, per nursing school

Nursing School	Student participation			Teacher participation		
	n	%	N	n	%	N
NS 01	101	40.4	250	10	76.9	13
NS 02	39	17.1	228	8	61.5	13
NS 03	127	53.1	239	9	60.0	15
NS 04	40	7.8	511	4	17.4	23
NS 05	20	7.2	279	6	54.5	11
NS 06	53	32.5	163	6	54.5	11
NS 07	5	2.4	207	1	12.5	8
NS 08	64	22.5	285	8	66.7	12
NS 09	54	19.3	280	3	23.1	13
NS 10	117	34.3	341	8	44.4	18
NS 11	46	15.3	300	5	35.7	14
NS 12	132	43.0	307	11	68.8	16
NS 13	399	49.8	801	24	70.6	34
NS 14	124	25.3	490	10	45.5	22
NS 15	73	25.3	288	11	73.3	15
NS 16	131	23.1	566	7	25.0	28
Total	1525	27.6	5535	131	49.2	266

The first line shows the participation in the study for Nursing School 1 (NS 01), i.e. 101 students of the 250 students in this school (40.4% participation) and 10 teachers of the 13 teachers in this school (76.9% participation).

Table 2 Description of situations chosen and resources mobilised according to students

	Always/Often		Seldom/Never		N
	n	%	n	%	
Authenticity of situations	1483	97.8	34	2.2	1517
Easy to choose	858	56.3	666	43.7	1524
Easy to write	823	54.0	701	46.0	1524
Subject of analysis of the situation chosen by students					
Their own practice	1324	88.9	165	11.1	1489
The practice of other caregivers	568	38.5	907	61.5	1475
Object of analysis of the situation chosen by students					
A situation that may happen again	1286	87.6	182	12.4	1468
A practice to be improved	1286	85.8	212	14.2	1498
A situation to be better understood	1182	80.2	291	19.8	1473
An emotionally charged situation	839	56.9	636	43.1	1475
Human resources					
Caregivers	491	32.9	1003	67.1	1494
Other nursing students	341	23.1	1136	76.9	1477
Referent teacher	261	17.6	1224	82.4	1485
Teacher in charge of the practicum	176	12.0	1290	88.0	1466
Theoretical resources					
Internet	1410	93.3	102	6.7	1512
Teaching at the nursing school	1083	72.1	420	27.9	1503
Professional and/or scientific publications	960	64.0	541	36.0	1501
Books on the topic	819	55.1	667	44.9	1486
Teaching at the university	821	55.0	671	45.0	1492

Note: N specifies the total number of respondents for each item, n the number of respondents by category.

Table 3 Nursing students' perceptions of learning through SA

	Agree		Disagree		N
	n	%	n	%	
Questioning					
Questioning one's own practice	1344	88.5	175	11.5	1519
Developing a critical analysis of the situation	1248	82.1	273	17.9	1521
Taking a step back	1229	80.8	292	19.2	1521
Experiential knowledge development					
Understanding how the actions performed have influenced the situation	1215	79.7	309	20.3	1524
Understanding new elements <i>a posteriori</i>	1080	70.9	444	29.1	1524
Acquiring new knowledge just by reflecting on the situation	1079	72.2	415	27.8	1494
Knowledge development					
Acquiring new knowledge by research	1291	85.3	222	14.7	1513
Better understanding some of the knowledge seen in the teachings	921	60.6	600	39.4	1521
Acquiring new knowledge through interactions with other caregivers	871	57.8	635	42.2	1506
Working on feelings and emotions					
Understanding feelings and emotions	1028	67.5	495	32.5	1523
Freely expressing feelings and emotions	1003	65.8	521	34.2	1524
Improvement of professional practice					
Improving one's practices in relation to the skills mobilized in the situation	1090	71.8	428	28.2	1518
Better coping with another situation afterwards	1063	69.9	457	30.1	1520
Developing one's professional identity	845	55.5	678	44.5	1523
Acquisition of an analysis methodology					
Structuring one's way of thinking	1094	71.9	427	28.1	1521
Understanding the research process in relation to the final dissertation	886	58.4	632	41.6	1518
Metacognitive development and self-evaluation					
Reflecting on one's own thinking and knowledge	1289	84.7	232	15.3	1521
Being more autonomous in one's learning	956	62.9	564	37.1	1520
Self-evaluation of one's weakness in the internship	899	59.3	617	40.7	1516
Self-evaluation of one's strengths in the internship	827	54.4	694	45.6	1521
Knowing oneself better	745	49.0	775	51.0	1520

Note: N specifies the total number of respondents for each item, n the number of respondents by category.

Table 4 Perception of learning through feedback, by students and teachers

	According to	Always/Often		Seldom/Never		N
		n	%	n	%	
Better understanding of the SA methodology	Student	1110	76.1	349	23.9	1459
	Teacher	127	96.9	4	3.1	131
New ways of thinking	Student	991	67.8	471	32.2	1462
	Teacher	122	93.1	9	6.9	131
Acquisition of new knowledge	Student	819	56.2	639	43.8	1458
	Teacher	102	78.5	28	21.5	130
Skills development	Student	705	48.6	745	51.4	1450
	Teacher	103	80.5	25	19.5	128

Note: N specifies the total number of respondents for each time, n the number of respondents by category.

Table 5 Correlation between Nursing students' perceptions of learning through SA and Implementation

	High learning perception		Low learning perception		N	p
	n	%	n	%		
Understanding of the pedagogical activity						
Perception of writing as a tool to reflexion on the experiences						$p < 0.001$
Agree	710	69.7	308	30.3	1018	
Disagree	80	16.1	418	83.9	498	
Perception of usefulness of the pedagogical activity						$p < 0.001$
Agree	693	75.5	225	24.5	918	
Disagree	100	16.6	503	83.4	603	
Clarity of objectives of the pedagogical activity						$p < 0.001$
Agree	679	64.9	367	35.1	1046	
Disagree	115	24.1	363	75.9	478	
Clarity of the evaluation grid criteria						$p < 0.001$
Agree	568	60.4	373	39.6	941	
Disagree	115	35.8	206	64.2	321	
About the situation						
Authenticity of situation						$p < 0.001$
Always/Often	785	52.9	698	47.1	1483	
Seldom/Never	4	11.8	30	88.2	34	
Easy to choose						$p < 0.001$
Always/Often	566	66.0	292	34.0	858	
Seldom/Never	228	34.2	438	65.8	666	
SA about their own practice						$p < 0.001$
Always/Often	716	54.1	608	45.9	716	
Seldom/Never	63	38.2	102	61.8	63	
SA about the practice of other caregivers						$p = 0.089$
Always/Often	312	54.9	256	45.1	312	
Seldom/Never	457	50.4	450	49.6	457	
Resources						
Caregivers						$p < 0.001$
Always/Often	321	65.4	170	34.6	491	
Seldom/Never	459	45.8	544	54.2	1003	
Referent teacher						$p < 0.001$
Always/Often	176	67.4	85	32.6	261	
Seldom/Never	597	48.8	627	51.2	1224	
Students' relationship to writing						
Previous writing experiences mainly positive						$p < 0.001$
Always/Often	539	57.6	412	43.3	951	
Seldom/Never	252	44.3	317	55.7	569	
SA easy to write						$p < 0.001$
Always/Often	528	64.2	295	35.8	823	
Seldom/Never	266	37.9	435	62.1	701	

Note : A median score set at 60 made it possible to create two modalities for Learning perception by SA: high (60 and above) and low (less than 60); The score of Learning perception by SA has been calculated from previous question: working on feelings and emotions, questioning, experiential knowledge development, knowledge development, metacognitive development and self-evaluation, improvement of professional practice and acquisition of an analysis methodology. For each question, the modalities were scored: 1 for never/strongly disagree; 2 for seldom/disagree; 3 for often/agree; 4 for always/strongly agree. The value of $p < 0.05$ has been kept for statistical significance (chi-square test).