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Reflective Practice

International and Multidisciplinary Perspectives

ISSN: 1462-3943 (Print) 1470-1103 (Online) Journal homepage: www.tandfonline.com/journals/crep20

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To cite this article: Monique M.J. Engelbertink, Jordi Colomer, Kariene M. Woudt- Mittendorff, Ángel Alsina, Saskia M. Kelders, Sara Ayllón & Gerben J. Westerhof (2021) The reflection level and the construction of professional identity of university students, Reflective Practice, 22:1, 73-85, DOI: 10.1080/14623943.2020.1835632

To link to this article: https://doi.org/10.1080/14623943.2020.1835632

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REFLECTIVE PRACTICE
2021, VOL. 22, NO. 1, 73–85
https://doi.org/10.1080/14623943.2020.1835632

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The reflection level and the construction of professional identity of university students

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ABSTRACT

To strengthen students' professional identity (PI), it is vital to give reflection a central place in higher education. The aim of this study is to determine the extent to which students reflect on five components of PI (self-image, self-esteem, task perception, job motivation and future perspective) and at what reflection level. Twenty-five reflection narratives from Spanish and Dutch students from five different study programmes were qualitatively analysed and quantitatively evaluated to find out about students' identifying and self-assessing PI components. The results indicate that PI components were clearly recognizable in the reflection reports and could be classified using one of the four levels of reflection with high inter-rater reliability. About 40% of the students achieved the critical reflection level on one or more PI components. Reflecting on the five components of PI, with the aim of achieving the level of critical reflection, can be a useful guide for students.

ARTICLE HISTORY
Received 12 June 2020
Accepted 6 October 2020

KEYWORDS
Level of reflection; higher education; professional identity; identity; critical reflection

Introduction

In today's complex and dynamic labour market, professionals can position and profile themselves in terms of achieving a professional identity (PI), shaped in time and space in different contexts (Trede et al., 2012). A main objective of higher education is to train students to become professionals with an individualized, but socially contextualized PI (Trede et al., 2012).

In this study, we assume that PI is a complex construct that is deeply rooted in personal and individual concepts (Ryan & Carmichael, 2016). A well-developed PI can improve students' confidence in their decision to work in the profession, it increases their self-awareness about the way in which they act professionally, and it reinforces their commitment to the profession which can lead to professional success (Hanna et al., 2019;

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Supplemental data for this article can be accessed here.

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Kelchtermans, 2009; Ryan & Carmichael, 2016). In addition to this individual component, a strong PI means that professionals are connected to their professional group and the society. It deals with an understanding of disciplinary knowledge, acquisition of professional skills and commitment to the professional group (Crocetti et al., 2013; Ryan & Carmichael, 2016). To develop this social component of PI, students must master the values and norms of their profession (Trede et al., 2012). Many researchers are concerned about how students can develop a strong PI, but much is still unclear as to how this can be enhanced (Trede et al., 2012).

One skill that is essential for the development of PI is reflection (Körkkö et al., 2016; Trede et al., 2012). Reflection connects new experiences with existing knowledge and skills in relation to the student's profession. This can give meaning to their experiences and lead to insights regarding their PI (Alsina, Ayllón, & Colomer, 2019). It is therefore vital to promote programmes that foster ethical and reflective professional practices (Trede et al., 2012). The assessment of reflections can be categorized at four levels: descriptive writing, descriptive reflection, reflection and critical reflection (Alsina et al., 2017; Kember et al., 2008). At the description level, students do not show that they are thinking about alternative professional actions, the possible consequences of their professional conduct or the added value of taking a different perspective. The students reflect on issues without proving understanding of the concept or theory that underlies the issue. By contrast, critical reflective students make value judgements, specifies ideas and focuses on hypotheses about the context and the profession, and implement new action plans and substantiated learning goals (Alsina et al., 2017). Reflection can be seen as a means to strengthen PI, with students being encouraged to reflect at a *critical* level in order to transform their perception of professional development. It is therefore interesting to study to what extent students succeed in reaching the level of critical reflection.

There are multiple studies that examine the level of reflection of students. Körkkö et al. (2016) analysed 13 student portfolios, written over the 4–5 years of their studies. At the start of the study programme, these trainee teachers mainly reflected on themselves and had limited understanding of their profession. Later on, they were better able to compare theory and link it to practice, and knew how to ask critical questions, although some students still remained stuck at the descriptive reflection level. This observation is in line with other studies (Gadbury-Amyot et al., 2019; Roberts & Stark, 2008; Whitaker & Reimer, 2017). The quantitative study by Roberts and Stark (2008) among medical students showed that, on average, students did not grow in their self-reflection or insight. Whitaker and Reimer (2017) found that, of 161 social work students, only 15% described all four categories that the researchers had defined as critical reflection: description + analysis + confrontation + reconstruction. Students rarely formulated alternatives to existing policy when this was actually warranted; consequently, the emancipatory goal of reflection was not achieved. Gadbury-Amyot et al. (2019) operationalized critical reflection using five skills, corresponding to five levels of reflection: reporting, responding, relationship, reasoning and reconstructing. Their research also showed that only 15% of dental students achieved level 4, and only one student (out of 102) achieved level 5. Lastly, Authors analysed narratives from fourth-year pre-service teachers. They came to the conclusion that the professional developmental process cannot be pre-planned and that critical reflection emerges when students are aware of professional instruction, through inter- and intrapersonal inquiry, through argumentation or by transforming the professional knowledge and their own situation.

Although this research is sometimes difficult to compare due to various operationalizations of reflection levels, it can be said that few students seem to achieve the critical level of reflection. Furthermore, as mentioned above, reflection can be seen as a means of strengthening the PI of students. Thus, it is useful and necessary to investigate how students reflect on their PI. For this, it is needed to have a clear operationalization of PI and discuss what is known so far about students' reflection on several components of PI.

Professional identity

Based on teachers' career stories, Kelchtermans (2009) distinguished five components that together form a PI: self-image, self-esteem, task perception, job motivation and future perspective. These components are often investigated in quantitative research and seen as an important part of PI (Hanna et al., 2019). Below it is discussed, what these components entail and how they have been examined in the few qualitative studies that do exist.

Self-image comprises the way in which professionals regard themselves: using their own perception as a basis, but also being influenced by how others regard them (Kelchtermans, 2009). Sutherland et al. (2010) distinguished various steps in the development of a self-image: first developing your own self-image, then being seen by others as a starting professional and then developing professional sub-identities that later become a whole. They showed that first-year postgraduate students of a Master of Teaching Program made initial attempts to establish a self-image of themselves as teachers. Lanas and Kelchtermans (2015) focused on the content of the reflection process in narrative essays: students in teacher training viewed their development of a professional teacher as a growth in personality, rather than a growth in skills.

The second component of PI is self-esteem (Kelchtermans, 2009). This component addresses the question 'how well do I do my job?' related to emotions: 'do I feel that I can handle this job?' This deals with how a professional values his professional actions; as with self-image, this is partly determined by how others regard them. However, the feedback from others is always filtered and reinterpreted, and the professional chooses whose opinion he deems important (Kelchtermans, 2009). Paterson et al. (2002) analysed 35 portfolios of final-year occupational therapy students and discovered that confidence, as part of the core identity of becoming a professional, emerged as the third most frequently mentioned theme (out of a total of 17).

The third component, task perception, indicates what professionals consider to be their tasks and duties. It includes moral considerations and the values and norms of professionals, which may clash with their formal responsibilities (Kelchtermans, 2009). Related skills are: negotiating, navigating, persuading and managing working conditions. Kunhunny and Salmon (2017) showed that clinical research nurses need more clarity in what their roles should be. Kelchtermans (2009) indicates that a lack of clarity about the role can confuse a professional's feeling that he is doing a good job.

The fourth component – job motivation – examines the reasons for choosing a certain profession, continuing in it or stopping it. Job motivation can increase or decrease during a career, depending on various internal or external factors (Kelchtermans, 2009). In an interview study, social work students specified that their personal values provided the motivation for them to choose a master of social work. It also motivated them that their personal identity corresponded to the acquired PI (Osteen, 2011).

Finally, the fifth component – future perspective – comprises how professionals see themselves in the coming years and how they feel about it (Kelchtermans, 2009). How they look back on their past and forward to the future varies from moment to moment, and therefore this component typifies the dynamic character of an identity (Kelchtermans, 2009). Some teacher trainees will reflect more on their current student role, while others will prefer to consider their future role as teachers without taking their current identities into account (Marín et al., 2018).

The previous studies each used a different research method such as interviewing, portfolio analysis, reflection reports or narrative essays. Yet they all show that the identity of the students is often the starting point for reflecting on their PI. So, theory shows that the five components of Kelchtermans (2009) are important in gaining greater insight into the construction of PI. However, there is a lack of research focusing on the reflection level of students when they consider the different PI components. What we do know is that when it comes to self-image, first-year postgraduate students do not reflect on the highest reflection level (Sutherland et al., 2010). The current research examines students' level of reflection on the five PI components and focuses on the operationalization of the level of reflection. The latter as an addition to the existing operationalization (Kember et al., 2008). These aspects have not been analysed jointly. The insights will enable improvement of reflection education and research (Trede et al., 2012).

Research questions

RQ1. How can reflection levels be distinguished in the components of PI in general?RQ2. To what extent and at which reflection level do students of several educational programmes reflect on the five components of PI?

Method design

Reflection reports are analysed to qualitatively answer RQ1 and quantitatively answer RQ2. Most study programs involved the Rubric for Narrative Reflection Assessment (NARRA rubric) as a reflection tool (Alsina et al., 2017). This rubric invites the student to reflect on a meaningful situation in four parts: the current situation (including the value judgments and emotions of the student); the previous views that the student has acquired; an inquiring process; and transformation.

Context and participants

In order to ensure that the scope was as broad as possible, we decided to include students of different educational programmes, in different study years, with different reflection methods and of different countries. Specifically, the research took place at two universities. Four courses participated from a university in the northeast of Spain: bachelor degree courses in biology (Bio), preschool and primary education (PPE), physical education (PhysEd) and mathematics teacher education (MathEd). From a university of applied sciences in the east of the Netherlands, a social work (SW) course participated. Due to the size of the reflection reports (mean 3.5 pages; range 2–10), we performed the analysis on 25 reflection reports. Table 1 shows the context and characteristics of the students whose reflection reports were analysed.

Table 1. Context and characteristics.

Education	Study year	Number of reports (total N = 25)and gender	Number of lessons	Worked with AUTHORS rubric	Worked with 5 components of PI	Assessment (reflection report)
Bio	4th year	N = 5 4 female	One- to- one and collective tutorials, 4 in total	No	No	Formative
PPE	4th year	N = 3 3 female	8 lessons, each of 1.5 hours	Yes	No	Formative
MathEd	2nd year	N = 3 3 female	8 lessons, each of 1.5 hours	Yes	No	Formative
PhysEd	4th year	N = 4 3 female	8 lessons, each of 2 hours	Yes	Yes	Formative
SW	2nd year	N = 10 8 female	8 lessons, each of 1.5 hours	Yes	Yes	Summative

Bio = biology, PPE = preschool and primary education, MathEd = mathematics teacher education, PhysEd = physical education, SW = social work. NARRA = Narrative Reflection Assessment rubric.

From each participating educational programme, reflection reports were selected randomly from the participating classes regardless of gender or grade obtained (convenience sampling). Only in the case of the Bio and SW program, the gender balance is representative of the entire research population.

Content of reflection method

Fourth-year Bio students were given an assignment to foster the development of transversal professional competences (Colomer, Vila, Salvadó, & Casellas, 2013). Students' reflective narratives focused on the compilation of a competence portfolio. Didactic support was given by a tutor.

The curriculum contained a Reflective Practice Seminar for the students of PPE and MathEd. This seminar was designed to achieve the critical reflection level. The contents of the seminar were aligned with elements of the NARRA rubric (Alsina et al., 2017).

The fourth-year pre-service teachers of PhysEd were taught in collaborative and reflective methods (respectively, six seminars and two seminars). During outclass activities, each pre-service student participated actively in an experimental pre-service teachers' group, and the group as a whole came up with nine cooperative activities to be implemented with primary school pupils. They constructed their narratives using both the written and the oral communications of the components of PI (Kelchtermans, 2009) and the NARRA rubric (Alsina et al., 2017, 2019).,

The Dutch social work students were given eight reflection lessons Four lessons were devoted to autobiographical reflection, using the method 'Tell your story' (Engelbertink, Wijering, Bohlmeijer, & Westerhof, 2019) and four lessons were devoted to critical reflection.AUTHORS. The students received written explanations and depending on the teacher, also oral explanations of the PI components (Kelchtermans, 2009).

Procedure

All students could voluntarily consent to having their reflection reports used in our research. Each report was anonymized, so that only the gender and the study course were included as characteristics. Fictional names were assigned to the reflection reports.

Data analysis

Each reflection report was analysed on the extent to which the student reflected on one or more components of PI. The assessors (the first and second author) used the description of the five components of PI from Kelchtermans (2009). All fragments that responded to one of the PI components were classified on one of the four reflection levels. To assess the level of reflection for the five components, the assessors drew up the following qualification, based on Kember et al. (2008) and Authors:

Non-related: The student doesn't mention the PI component or the content of reflection is not related to this PI component.

Descriptive writing: The student formulates the PI component and determines it as his focus of reflection.

Descriptive reflection: The student reframes the PI to fit it into his previous knowledge.

Reflection: The student evaluates different alternatives and integrates them into new settings and revised perspectives about his professionalism according to the PI component.

Critical reflection: The student transforms his ongoing professionalism into new social, cultural and political reflections according to the PI component.

Analysis was performed in three rounds. In round 1, three reflection reports (two from Spain and one from the Netherlands) were translated into English by the two assessors and also scored by them. The inter-rater reliability was measured using Krippendorff (2011) (Table 2). Then, the two researchers discussed each other's scores and reached consensus on what each student's reflection level was for each component of PI. They consulted their own research team to coordinate further. The inter-rater reliability was 'substantial' for self-esteem and job motivation and 'almost perfect agreement' for self-image and future perspective. For the task perception component, it was only 'moderate': extra attention was devoted to coordinating the assessment of this component. For round 2, seven new reports were analysed and coded (three Spanish and four Dutch). The inter-rater reliability was again measured, and was 'substantial' to 'almost perfect agreement' for all five components (Table 2). Just as in round 1, the scores were discussed afterwards and the researchers reached a consensus. In the third round, the first two authors scored the reflection reports that belonged to their own country (10 Spanish and five Dutch reports), based on the experiences of rounds 1 and 2.

Results

RQ1 four reflection levels

In this section, we report on how the four reflection levels can be characterized in the components of PI in general (RQ1). Appendix 1 contains quotes from the reflection reports that correspond to the four levels discussed below (due to the size of the quotes, it only include the quotes of two PI components). At the *descriptive writing* level, students become aware of the PI component, and this is straightforwardly described. The description remains at the level of one-liners and factual summaries, and no questions are asked that would reveal a visible learning process. For example: '*And, finally, I would like to*

Table 2. Inter-rater reliability score (Krippendorff's alpha).

	Round 1	Round 2
Self-image	1.0	1.0
Self-esteem	.78	.95
Task perception	.44	.71
Job motivation	.73	1.0
Future perspective	1.0	.86

highlight that the placement has helped me think about my future and to trace out the path I would like to follow' (8 Bio, future perspective).

At the *descriptive reflection* level, students reframe the PI component to square with their previous knowledge. Student fit the component to what others think or how others behave. They also formulate their own opinion and try to explore this opinion. However, this process is not very inquisitive, and the learning process is not described. For example: '*This is the most rewarding work I have ever done. This is very important to me because then you know what you are actually doing*' (4 SW, job motivation). This student formulates an insight, but does not delve any deeper to analyse his thoughts, feelings or actions.

At the *reflection* level, students evaluate different alternatives and integrate them into new settings and revised perspectives about their professionalism. They look back on an event, formulate different alternatives and indicate what they have learnt from the event and formulated desired future desirable behaviour. There is often reflection on the team dynamic, on the values and standards that students had, and on the extent to which these correspond to the organization. At this level emotions are not only described (I felt proud) or analysed briefly (I often feel insecure in large groups) but the emotions are linked to thinking and acting, but also broadened to the professional group (social workers have an increased risk of developing burnout). Students might also wonder whether the learning outcome fits their desired PI. At this level, they will also indicate what this component might look like for the entire professional group – e.g. how a professional generally grows or what the world would look like if all professionals set this goal. For example: '*. . . A good teacher is one who innovates and aims to improve their educational practice on the basis of a realistic training paradigm; in other words, a person who understands learning as the link between learned experiences and theoretical knowledge. They are not satisfied with merely watching, but instead aim to contrast their observations without losing sight of theory . . . .*' (9 PPE, task perception).

Finally, we look at the *critical reflection* level and at the extent to which this is mirrored in the various PI components. Students will compare their investigative process with that which is contained in a professional code and theory. They will look to the past and at how they have developed their PI. Including the development that a team or professional group has undergone. Furthermore, students will indicate more concretely and in more detail how their thinking, feeling (emotions) and behaviour have changed and how this has affected one of the PI components. Students are aware of their emotions and how this can influence their actions and they have multiple strategies to deal with these emotions, exploring the relational level in addition to the interpersonal level. During the analysis, it was noticed that in view of all four reflection levels, the reflection on emotions could be improved because it is often missing in the reflection reports. Additional, students will

describe how they will improve their future actions. The progression to new social, cultural and political reflections is central. For example: '… *The research-action seminar, too, has helped me a lot, for example: before, when something did not work, I withdrew it for some time and after a few months I put it back. Now I have changed, I am generating more questions. Why does not it work? What could I do?*' (18 MathEd, self- esteem).

RQ2 the five components of PI and the reflection level

In this section, the results of RQ2 are presented ('To what extent and at which reflection level do students of several educational programmes reflect on the five components of PI?'). Table 3 shows the number of fragments that relate to one of the components and their reflection level. If the student did not reflect upon a certain component, it is scored as 'not related'. Otherwise, it is scored on one of the four reflection levels. Each report has therefore been assessed on all five components. On the PI components of self-image, self-esteem and task perception, students generally reflected at level 3 'reflection'. Regarding job motivation and future perspective, students mainly reflected at the level of 'descriptive reflection'. In addition, the components that were reflected on most often were task perception (92%) and self-esteem (84%).

The average reflection level of the student's report is then calculated in the following manner. For example, a student has reflected on three components. Each component was scored on one of the four levels of reflection (for example: task definition level 1, self-confidence at level 3 and work motivation at level 3) and the average level was calculated across components (in this example 7: 3 = 2.3, so an average level just above reflection level 2). Taking their reports as a whole, the majority of the students (60%) reflected at the third reflection level. Only one student (4%) achieved an average of the fourth critical reflection level (Table 4).

Finally, we have analysed the results from Table 3 per student and his specific study program (see Appendix 2). Results show that 10 out of the 25 students (40%) reach the level of critical reflection on at least one of the five components of PI. One of those 10 students reached critical reflection on three components; four students on two components; and the remaining five students on one component.

Discussion and conclusions

Until now, little is known about whether (and how) students reflect on various components of PI, and at what level this occurs. Our results might provide a more precise direction than before in developing the necessary strong PI for students in higher education. Regarding RQ1, it was possible to distinguish four levels of reflection with a large degree of interrater reliability for each of the five components. With each

Table 3. The five components of PI and the reflection level.

	Not related	Descriptive writing	Descriptive reflection	Reflection	Critical reflection	Total components
Self-image	11 (44%)	1	2	9	2	14 (56%)
Self-esteem	4 (16%)	4	6	9	2	21 (84%)
Task perception	2 (8%)	3	4	9	7	23 (92%)
Job motivation	8 (32%)	6	9	1	1	17 (68%)
Future perspective	7 (28%)	2	9	3	4	18 (72%)

Table 4. Number of components and average level.

	Number of reflection reports divided by level				
Study programme (N)	Level 1 Descriptive writing	Level 2 Descriptive reflection	Level 3 Reflection	Level 4 Critical reflection	Average number of components of PI in reflection reports
Bio (5)	1	1	3	0	3.0
PPE (3)	0	0	3	0	3.3
MathEd (3)	1	2	0	0	4.0
PhysEd (4)	0	2	1	1	3.3
SW (10)	0	2	8	0	4.3
Total 25	2 (8%)	7 (28%)	15 (60%)	1 (4%)	3.7

Bio = biology, PPE = preschool and primary education, MathEd = mathematics teacher education, PhysEd = physical education, SW = social work.

component divided over the four levels of reflection (Appendix 1), it was possible to describe in detailed each level of reflection, thus providing greater insight (see result section). This could help teachers enhance the reflection level of their students and can be seen as an addition to Kember et al. (2008). Furthermore, reflecting on emotions might be the key in achieving critical reflection (Zembylas, 2014). We noticed that reflecting on the level of reflection and critical reflection goes hand in hand with reflecting on emotions. Professional choices are influenced by emotional attachment, and relationships are associated with the experience of (contradictory) emotions (Zembylas, 2014). Moreover, reflection on emotions takes place in an introspective way regarding relational, social and political aspects (Kelchtermans, 2009; Zembylas, 2014). We advise to build reflection education per study year, to gradually improve the students' critical reflection level combined with the five components of PI. The starting point for reflection should always be a meaningful emotional experience of the students themselves (Alsina et al., 2017) and explicit attention is paid to the already acquired qualities of the students.

As for RQ2, our study shows that on average students reflected on three components (i.e. self-image, self-esteem, task perception) at the level of 'reflection' (level 3); and on average on two components (i.e. job motivation and future perspective) at the level of 'descriptive reflection' (level 2). 40% of our students showed that they could reflect on one or more PI components at the highest critical level of reflection, but only one student reflected at the highest level for all PI components. In contrast to other research, these findings suggest that students did not remain stuck at the descriptive reflection level (Gadbury-Amyot et al., 2019; Körkkö et al., 2016; Roberts & Stark, 2008; Whitaker & Reimer, 2017). This suggests that distinguishing between PI components gives a more fine-grained picture of the reflection skills of students. It might not be necessary to reflect on all components in one reflection report and to reflect on all components at the highest level. For example, in a report a student may refer to procedural rules that apply in the workplace on the task perception component (descriptive writing), but in the same report reflect on the level of critical reflection regarding the components self-confidence and job motivation.

Limitations and future research

Our research provides guidance on how teachers can shape reflection education with the support of five components of PI in which four levels of reflection can be clearly distinguished.

However, this study is exploratory in nature. Follow-up research might focus on larger numbers of reflection reports, so that a more detailed analysis can be made that looks at factors such as: study programme, assessment, teaching style, gender and age. The question raised by this research is the influence of the different courses on the reflection on the various PI components. Although there were many similarities in the reflection lessons of the five study programs (Table 1), there were also some differences such as the use of the five components of PI. Consistency in this would have increased the validity and reliability of our results and is recommended for future research. In addition, the type of study could also play a role in the way in which students reflected. For example, biology students may interact less with people on a daily basis than the other students. This may have brought about limitations on reflecting on the self-image. More research is needed to gain insight into this. We recommend longitudinal research to investigate how students develop in the level of reflection. Through this study, we have attempted to demonstrate that reflecting on the five PI components, with the aim of achieving the level of critical reflection, can be a useful guide for students in raising awareness and developing their PI.

Disclosure statement

No potential conflict of interest was reported by the author(s).

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Compliance with Ethical Standards

Informed consent was obtained from all individual participants included in the study.

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Appendix 1.

Component 2 Self-esteem

Refection level	Quote
Descriptive	Only when I previously organize the activity, I carry it out, and as a result, I come to project myself as a future teacher. That's when I feel more satisfied (11 PhysEd).
Descriptive reflection	While I initially felt unsure about doing my placement in Cape Verde, now, after the stay, I think I feel confident about doing my final degree project anywhere in the world (2 Bio).
Reflection	I also started to doubt whether I had made the right decision by. . . .(. . .) These were all questions I asked myself and in the end it became a vicious circle in my head that I could not get out of. (. . .) When I look back, my decision still feels right (22 SW).
Critical reflection	During this year I realized, that the realization of the reflexive practice seminar has given me many new apprentices. I could see that before I worked, my performance was more practical and now I see that it is necessary to reflect on what I am doing and contrast it with the theory. The research-action seminar, too, has helped me a lot, for example: before, when something did not work, I withdrew it for some time and after a few months I put it back. Now I have changed, I am generating more questions. Why does not it work? What could I do? (18 MathEd)

Component 5 Future Perspective

Reflection level	Quote
Descriptive	And, finally, I would like to highlight that the placement has helped me think about my future and to trace out the path I would like to follow (8 Bio).
Descriptive reflection	In the future I would probably follow my colleague's advice in situations like this. See the student and his behavior separately (22 SW).
Reflection	The aspects I think should be strengthened to face my future as a teacher are some of the following: to find more resources that are effective when dealing with the group- class (. . .); to become more communicative (. . .) - To learn more about the methodologies and techniques of teaching and evaluation (20 MathEd).
Critical reflection	It is with this kind of practice, based more on active methodologies, where I, the teacher, can see myself as a future teacher: I mean when we ask what percentage of professional practice should be active, reactive and maybe reflexive. I think that including a critical reflexive component on our own activity can help improve the activities and strategies developed on a day-to-day basis at school. I imagine that, in schools, decisions like this are often taken collectively by staff. But being able to have training in this really does help (3 PPE).

Appendix 2.

Distribution of fragments related to reflection levels of students (N = 25).

	Not related	Descriptive	Descriptive reflection	Reflection	Critical reflection
Self-image	2-3-6-7-8-13-14-16-17-18-19	15	11-25	1-4-10-12-20-21-22-23-24	5-9
Self-esteem	4-9-10-17-	6-11-19-23	2-3-5-12-15-20	1-7-8-14-16-21-22-24-25	13-18
Task perception	16-19	12-17-18	1-2-20-24	3-6-8-11-14-21-22-23-25	4-5-7-9-10-13-15
Job motivation	8-9-12-13-14-15-23-25	3-6-7-10-17-19	1-4-11-16-18-20-21-22-24	5	2
Future perspective	1-10-12-14-16-17-25	6-8	2-5-9-11-18-19-21-22-23	7-20-24	3-4-13-15
Total of unique students	**19 (76%)**	**12 (48%)**	**18 (72%)**	**18 (72%)**	**10 (40%)**

BIO PPE PhysEd MathEd SW