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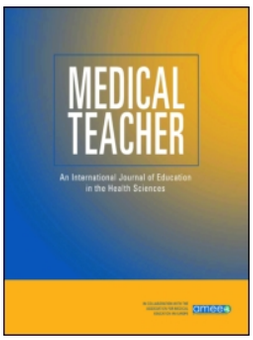

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Medical students' professional identity development from being actors in an objective structured teaching exercise

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ABSTRACT

Introduction: Medical students develop professional identity through structured activities and impromptu interactions in various settings. We explored if contributing to an Objective Structured Teaching Exercise (OSTE) influenced students' professional identity development.

Methods: University clinical faculty members participated in a faculty development program on clinical supervision. Medical students who participated in OSTEs as simulated residents were interviewed in focus groups about what they learnt from the experience and how the experience influenced their vision of learning and teaching. Transcripts were analyzed using the Goldie's personality and social structure perspective model.

Results: Twenty-five medical students out of 32 students involved in OSTEs participated. On an institutional level, students developed a feeling of belonging to the institution. At an interactional level, students realized they could influence the teaching interaction by actively seeking or giving feedback. On the personal level, students realized that errors could become sources of learning and felt better prepared to receive faculty feedback.

Conclusion: Taking part in OSTEs as a simulated resident has a positive impact on students' vision regarding the institution as a learning environment and their own role by actively seeking or giving feedback. OSTEs support their professional identity development regarding learning and teaching while sustaining faculty development.

Introduction

Professional identity in medicine is defined as "a representation of self, achieved in stages over time during which the characteristics, values and norms of the medical profession are internalized, resulting in an individual thinking, acting, and feeling like a physician" (Cruess et al. 2014, 2015). Teachers are challenged to offer both personalized and standardized approaches, as well as formal and informal curricular activities within flexible collaborative learning environments to sustain students' development of professional identities (Wald et al. 2015; Cruess et al. 2016). Several authors strongly encourage faculty development programs to provide teachers with workshops on professional identity in order to raise awareness on the topic and to sustain and regulate professional identity development among students (Steinert 2010, 2012; Cruess et al. 2016). To our knowledge, the use of Objective Structured Teaching exercises (OSTEs) has not yet been tested as a potential educational activity to promote the development of professional identity among students as learners and teachers.

Development of professional identity can occur from both internal and external factors resulting in an ongoing process between psychological development and social interactions/influences (Monrouxe 2010; Jensen and Jetten 2015). Interactions play an important role in professional identity development (Monrouxe 2010; Jarvis-Selinger et al. 2012). Lave and Wenger's community of practice theory acknowledges that, in the apprenticeship trajectory, students' interactions with members of the profession are essential in developing professional identities as students shift from legitimate peripheral participation to full participation in different communities of practice (Wenger 1998). In order to gain competence and reach professional identity development, students are expected to learn the language as well as power relationships and ambiguities related to each role through socialization (Cruess et al. 2015).

Development of professional identity implies adopting successive and multiple identities through distinct and discontinuous stages in a landscape of different practices as

Practice points

Participating in an Objective Structured Teaching Exercise (OSTE) represents a promising activity for the development and sustainment of students' professional identity as learners and as future clinical teachers by:

- Developing a feeling of belonging to the institution as a valuable professional and integrated member of the team.
- Realizing that different styles and skills in teaching impact their own motivation to learn and progress; being an active participant in these interactions enhances learning and increases satisfaction.
- Discovering that errors could provide learning opportunities.
- Recognizing the multiple roles of a supervisor.

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communities arise and disappear (Jarvis-Selinger et al. 2012; Wenger-Trayner et al. 2014). Medical students are learning not only how to become a doctor but also how to be a learner in a particular professional community through participation in various social contexts and interactions (Lave and Wenger 1991; Vagan 2011; Jarvis-Selinger et al. 2012). From such perspectives, moving from the preclinical years to the clinical years represents a major step in the development of students' learner identity. Students find themselves out of place in an unfamiliar environment where they have to learn from patients and people and not from books; they are unsure about how to adjust their learning style in a setting where learning may not be an explicit priority and may compete with provision of safe care; they have to familiarize themselves with new social conventions and constantly adapt to different styles and approaches of different clinical teachers (Jarvis-Selinger et al. 2012; Surmon et al. 2016). Medical students may also develop an identity as teachers as they sometimes find themselves in a teaching role towards peers or other health professionals during the medical training. By participating in such teaching activities, students are stimulated to associate teaching skills with their identity as medical students and future medical practitioners (Burgess and Nestel 2014).

Within the constructivist perspective, some conceptual frameworks and strategies have been proposed to understand and support the process of development of professional identities. Goldie's Personality and Social Structure Perspective (PPSP) model, a social psychology based framework, gives a complete overview of professional identity by combining the three levels through/within which student's professional identity can develop (social, interactional, individual) (Goldie 2012). The social structure level is related to the institutional norms and values organizing social life. Social construction of institutional reality is influenced by what people experience in their professional environment and how they understand the norms and values of the profession. The interactional level is where professionals reproduce, reinforce or question their knowledge and beliefs about the institution and themselves; it represents also a level where they analyze and experiment new ways of interacting with others. The third level is the individual level where reflexivity upon interactional factors influences one's own attitudes and development from personal to professional identity. The sum of these influences ultimately impacts on the identity of an individual (Cruess et al. 2015).

Exploring the development of medical students' identities as learners and teachers, and inviting students to join training activities involving larger communities of teachers may be a promising approach. It may expose students to the challenges and skills needed to be both learners and teachers while providing support for the development of their dual identities in both the clinician and teaching communities of practice (Chen et al. 2017).

The OSTE consists of faculty training activities in which teachers (as learners) perform teaching activities with a standardized student (Sturpe and Schaivone 2014). Such a method offers opportunities for standardized students to discover and reflect on what it is to be a professional as learner or teacher, and to develop their capacities to cope with such professional practice (Gleeson 2010; Wilson et al. 2013).

The aim of this study was to explore whether and how medical students' participation in faculty development OSTEs as simulated residents would stimulate reflection on their professional identity as learners and teachers.

Methods

Design and setting

We conducted a qualitative study as part of a longitudinal faculty development program conducted in five different departments at the Geneva University Hospitals (Switzerland). Eighty (80) clinical teachers from pediatrics, obstetrics/gynecology, psychiatry, hospital internal medicine and primary care medicine departments were trained on how to supervise and give feedback to residents on several clinical topics in a six-month training program (Figure 1). Before and after the training, clinical teachers completed a four-station OSTE.

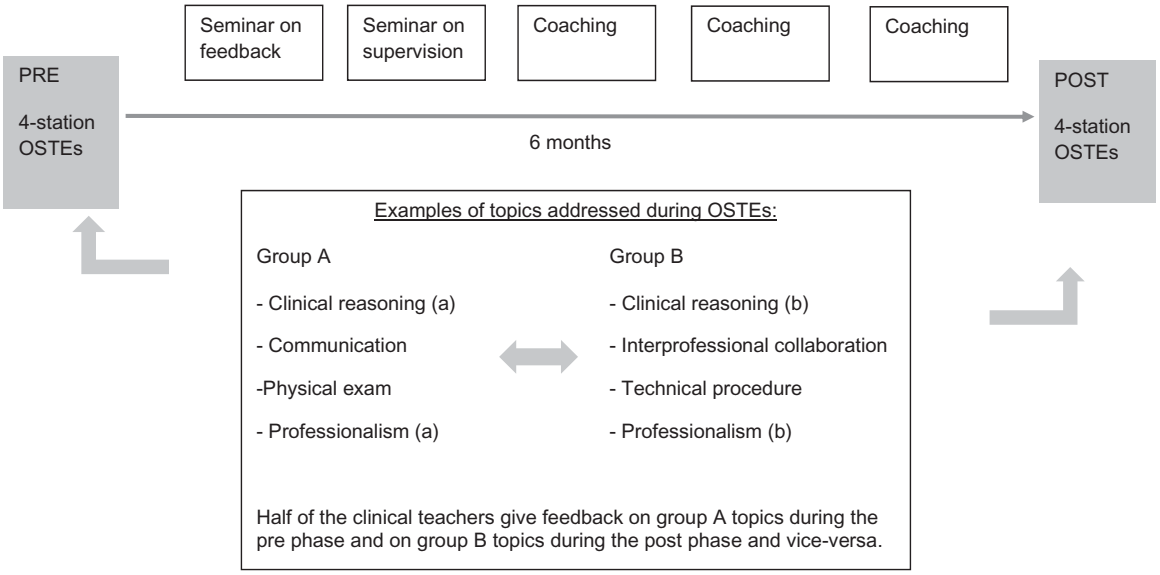

Figure 1. Faculty training program in workplace-based teaching skills.

It consisted of two types of cases: (1) watching videotaped short clinical interactions between a simulated resident and a simulated patient and giving an eight-minute live oral feedback to the simulated resident, or (2) listening to a live case presentation made by the simulated resident and supervising him/her during an eight-minute teaching session. Eight context-specific OSTE stations were developed for each discipline, four for the pre and four for the post-training phases. Topics were the following: two clinical reasoning cases (e.g. case presentation), two professionalism cases (e.g. lack of documentation, value judgments documented in the medical record), one communication case (e.g. breaking bad news, angry patient), one interprofessional collaboration case (e.g. inter-professional meeting, phone call between nurse and physician), one physical exam case (e.g. pelvic examination, abdominal examination), and one technical procedure (e.g. knee infiltration, removal of ascites fluid). The way topics were organized during both pre and post intervention phases are displayed in Figure 1.

Participants

As part of the faculty development program, 4th to 6th-year medical students were invited by email to participate on a voluntary basis in a four-station OSTE as simulated residents. Thirty-two (32) students participated in an average of four stations. They received feedback from 20 clinical teachers from two different disciplines.

Procedure

Before participating in OSTEs, students received the scenarios and watched the videotaped interaction between the simulated patient and the simulated resident. They were different from the simulated residents involved in the videos. The strengths and weaknesses of the simulated resident's performance were discussed in order to raise students' awareness. They were then trained to mimic an average 1st-year resident and give initial standardized answers according to the type of supervision approach adopted by the clinical teachers. At the end of the OSTE and after the clinical teacher left the room, they filled in a questionnaire about the quality of the supervision received and described orally the effective and less effective skills used by the clinical teacher (Figure 2). The oral student feedback was videotaped and made accessible to the clinical teachers during the training as a tool for reflection but not immediately during OSTEs. We wanted students to feel free to express a potentially negative feedback without being embarrassed.

Data collection

In order to explore students' experiences as simulated residents and their influence on the development of their professional identity as learners and teachers, we conducted four focus groups. Use of focus group is known to encourage interactions, stimulate new thoughts and create debate (Stalmeijer et al. 2014). The interview guide focused one main question "What did you learn?" with prompts focusing of clinical content as well as pedagogical process, self and institutional culture following Goldie's three levels. It was preceded by one question ("Why did you choose to participate?") and followed by a last question ("What advice would you give for our next session?"). Focus groups were facilitated by an experienced qualitative researcher trained in medical education (MCA) and a research assistant trained in educational sciences (JDG). Four focus group sessions were audio-recorded and transcribed verbatim. Data were entered into MAXqda Software to facilitate its analysis (MAXqda: qualitative data analysis [program] 2001).

The overall project was approved by the research ethics committee of the University Hospitals of Geneva. It was granted a waiver from complete review by the Ethical Committee of the Canton of Geneva since it did not involve collecting any personal health information (Swiss Federal Council 2011)

Data analysis

Analysis of transcripts followed a mixed inductive and deductive approach (Thomas 2006; Saldana 2011), using Goldie's PSSP framework looking at individual, interactional, and structural factors (Goldie 2012). The research team included one educationalist with a psychology background (MCA), a research assistant trained in adult learning (JDG), and five clinical teachers (HL, NJW, NB, NJP, MN), three of whom are trained educationalists (NB, NJP, MN). Transcripts were first read by all investigators and discussed during four sessions. A preliminary list of codes was generated based on both a deductive approach using the three levels of Goldie's PSSP model and inductive approach based on students' narratives and on literature on professional identity development (Goldie 2012; Cruess et al. 2014, 2015; Wald et al. 2015). Coding categories were frequently questioned and enriched by the different backgrounds of the research team members and their experience with students at different levels of development. Initial coding on two transcripts allowed refinement of the codes and their definitions. After consensus was reached among the research team, the following categories and codes were admitted as potential factors reflecting professional identity

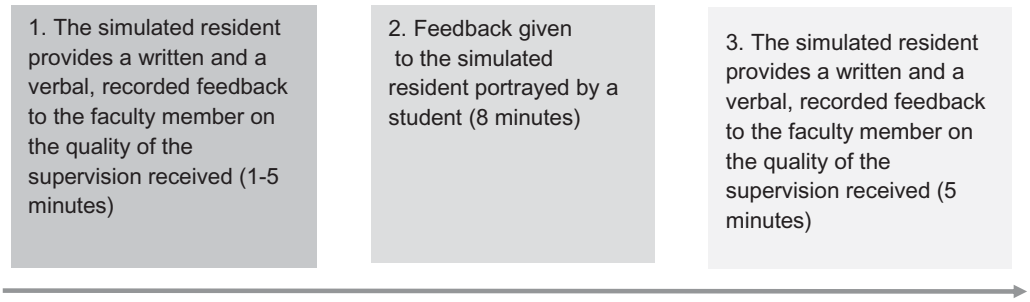

Figure 2. Timeline and tasks of an OSTE's station in the faculty development program.

development as learners and teachers: (1) Institutional level: change of perception of learning and teaching at the institutional level; (2) Relational level: change of perception at the learner-teacher relationship level (3) Individual level: change of perception regarding present and future professional role development as a learner and teacher. JDG' coding was validated by NJP's coding of four transcripts to create a final coding scheme.

Results

Twenty-five students took part in four different focus groups. Socio-demographic data are shown in Table 1 and the composition of the focus groups are presented in Table 2. Reasons to participate to OSTEs were varied. Some students thought that it would be a learning opportunity to improve the quality of their own skills in clinical supervision; others were curious to play the role of the assessor during the OSTE. Most students and clinical teachers had not previously interacted together in the clinical wards

The main results are presented using the three levels of Goldie's conceptual framework.

Institutional level

Students entered further into the medical community of practice

Several students reported that having the opportunity to take part in clinical teachers' training helped them to develop a feeling of being a professional inside the institution and allowed them to enter further into the community of practice:

> "Clearly, I find that boundaries were being abolished as we passed from medical student to simulated resident. We can see how things happen, observing various types of clinical teachers, I found that the sense of belonging became more concrete. And most of all, by participating in this training, we enter, well, we get the feeling of becoming part of the system." (Focus group (FG) 2, line 296)

It also helped them to have a better idea of the role that they could play in the institution and fulfilled a learning gap about how relationships are developed inside the institution.

> "I think that I better understood my function as medical student. Because since the beginning, nobody has ever taught to us how to present a case, how to behave with a resident, a supervisor, or a head of department (…)" (FG4, line 433)

Table 1. Participants' sociodemographic and training experience data.

Sociodemographic and training experience	
Age mean (range)	25 (24–30)
Male *n* (%)	11 (44)
Training year[a] *n* (%)	
4th	3 (16)
5th	8 (32)
6th	14 (56)
Prior pedagogical training[b] *n* (%)	11 (44)

[a]Of a 6-year curriculum.
[b]For example participation to an undergraduate elective program about peer teaching in real clinical practice.

Clinical teachers became accessible

Before taking part in OSTEs, many students perceived their clinical teachers to be omnipotent, highly knowledgeable and not easily accessible. Taking part in their clinical teachers' training reduced the presumed hierarchical frontier existing between themselves and their supervisors. Realising that clinical teachers were also learners and could be fallible made them become more human and accessible.

> "Well what was most surprising for me in this exercise was that, I don't know, it made them human those supervisors who had always been very out of reach. I never dared to approach them or ask them anything." (FG1, line 345)

Students' gained a new role and developed new expectations

Some students felt they had a role to play in the interaction with their clinical teachers. They realized that their place in the institution was not only to learn but also to be useful for the professional development of their supervisors and they gained self-worth through it.

> "I would say that in the wards, there is this image of: "Oh, this is the medical student, the lowest on the food chain" … I think that sometimes, they believe that we have no knowledge and that we will inevitably make mistakes and be incorrect. So I think that we were taken a little bit more into consideration." (FG4, line 448)

As they felt legitimated in their position of learners, they developed new expectations towards their clinical teachers:

> "Without overstating (…), after this experience, I feel I have the right to expect something from them actually. Demanding certain things from them. Being a little bit more learner-centered." (FG3, line 557)

This feeling of gaining a new role and a new place on the institutional level reinforced students' engagement while interacting with their clinical teachers.

Relational level

Impact of medical students' and clinical teachers' attitudes on the quality of the supervision

Most students reported having experienced a diversity of feedback and supervision styles during the OSTEs. The experience facilitated a realization that there was not just one way of performing or behaving and that different skills

Table 2. Composition of the focus groups.

	Participants (*n*)	Female students (*n*)	Year of training	Exposure to topics (clinical reasoning, communication, …)	Exposure to disciplines (medicine, pediatrics, …) for each topic
Focus group 1	6	5	4th (*n* = 3); 6th (*n* = 3)	All	2–5
Focus group 2	6	4	5th (*n* = 3); 5th (*n* = 3)	All	2–5
Focus group 3	9	4	5th (*n* = 3); 6th (*n* = 5) 1 missing	All	3–5
Focus group 4	2	1	5th (*n* = 2)	All	1–2

and attitudes displayed by clinical teachers could have an impact on their own willingness to learn and progress. Moreover, they also realized that their responses to clinical teachers' feedback changed the effectiveness of the feedback itself:

> "I realised that the clinical teachers answered differently according to the tone and the formulation that I used, and I believe that the student is as important as the supervisor in the quality of a feedback." (FG4, line 253)

Students shared the feeling of having to be curious and to develop proactive ways of interacting in order to enhance their learning. They also felt empowered and armed to take the lead of the feedback:

> "We should really try to take the lead in the feedback conversation, to try and provide the direction. It really is the priority of the student to lead the way." (FG4, line 284)

This new proactive image as active learners helped students have a better idea of who they could become and helped to adapt their position as students within their actual working setting.

Individual level

How to cope with discomfort

After having experienced several OSTE stations, students realized that they needed to separate out the teaching style from the content of feedback, especially when clinical teachers addressed errors and that errors could thus be considered as a basis for learning instead of a source of blaming. This new vision of how to deal with errors helped students to admit that even if some clinical teachers were quite directive and unfriendly when giving feedback about students' inappropriate behavior or performance sometimes, the content of what was said was still important to consider for their own progression.

> "And to be able to put some distance and tell oneself: yes, there is a part, something I did wrong but there is also the way the critique was brought up … to be able to separate out things, it helps helped me quite a lot." (FG1, line 74)

How to become a good clinical teacher

Through OSTEs, students realized that being a clinical teacher was about mastering medical, teaching and team-based competencies. Socialization between students and clinical teachers within OSTEs was a way to develop student's understanding of clinical teachers' multiple professional roles and became a source of motivation for their own professional development.

> "Someone who incites us, who motivates us, really a much more dynamic role than I imagined at first. (…) In fact I didn't have the vision of the relationship with the other members of the team." (FG1, line 451)

Finally, students' process of self-reflection also led them to feel the importance of consciously developing their professional identity:

> "For me, what was really good was actually this possibility of playing the part of the resident, and also imagining myself as future supervisor, trying to know what I will want to do myself in this role later on. I think it is very important to always remember this, in order not to forget." (FG2, line 524)

All students were enthusiastic about this experience and thought that it could be extended to the whole institution. However, two concerns were expressed by a few: first, the fear that clinical teachers would not appreciate students' feedback provided at the end of the OSTEs with possible adverse consequences on their professional career; and second, the fear that their role as « average » resident not having the pretend competence level during the OSTE may be confounded with their real competence in real life by their supervisors even though it had been clearly specified to all parts that students' role was simulated.

Discussion

The aim of this study was to explore whether medical students' contribution to faculty development OSTEs as simulated residents would facilitate the development of their professional identity regarding learning and teaching. Our results suggest that taking part in OSTEs as simulated residents had several interesting outcomes for students' development of professional identity according to Goldie's framework. On the institutional level, students developed a feeling of being a valuable professional inside the institution, felt legitimated in their position as learners, and developed new expectations towards their clinical teachers. On the interactional level, students realized that different styles and skills in teaching impacted differently on their own motivation to learn and progress and that they themselves had to develop a more active role in such interactions in order to enhance the learning process and increase satisfaction. On the individual level, students realized that feedback process and content had to be separated. They discovered that errors could provide learning opportunities. It also made them discover the multiple roles of a supervisor.

On the institutional level, integration into a learning and teaching community of practice is valuable for medical students in the development of their professional identity (Wenger 1998). A community of practice is "a persistent, sustaining, social network of individuals who share and develop an overlapping knowledge base, set of beliefs, values, history, and experiences focused on a common practice and/or mutual enterprise" (Barab et al. 2002). Entering the clinical years of training is often reported as a source of major stress for students (Radcliffe and Lester 2003). They are uncertain about their role and what is expected from them (Godefrooij et al. 2010; Surmon et al. 2016). They often perceive that they are "in the way" and that their individuality is not valued (Seabrook 2004; Dolmans et al. 2008). Many premises of the hidden curriculum related to patient care such as "doctors must be perfect" and "hierarchy is necessary" are unfortunately also present in learning processes (Haidet and Stein 2006). From such perspectives, OSTEs seemed to partially contribute to a more positive professional socialization process inside the institution by valuing students' position, increasing their self-esteem, and clarifying what clinical teachers from different disciplines may expect from them in terms of clinical skills and professional attitudes. Finally, by revealing that even experienced physicians are still in a learning process, OSTEs participated in the transmission of important professional values and behaviors such as life-long learning and self-reflection skills (Royal College of Physicians and Surgeons of Canada 2015). In this

type of apprenticeship, students' learning occurs as a process of becoming a member of a sustained community (Lave and Wenger 1991). Integrating OSTEs into the organizational culture may represent a promising way to make workplace-based environments more learner-centered. However, the shift towards more horizontal relations between students and clinical teachers needs to be anticipated and discussed in order to avoid fear and apprehension among clinical teachers. The fact that simulated students play simulated roles should also be specified.

Learning in clinical practice has a great impact on professional development (Park et al. 2010). Several authors have emphasized the importance of role modeling to inculcate professional values, attitudes and behaviors among students and junior doctors (Paice et al. 2002; Cruess et al. 2008). However, learning through role modeling has often been described as informal and opportunistic because clinical teachers are either unaware of what they are modeling or do not stimulate students' reflection (Cote and Leclere 2000; Weissmann et al. 2006; Park et al. 2010; Jochemsen-van der Leeuw et al. 2013). As a result, students are not always aware of negative attitudes and may eventually imitate negative as much as positive behaviors (Jochemsen-van der Leeuw et al. 2013). On the interactional level, being both a feedback receiver and a feedback provider partly transformed students' perception of what impacted on learning. Participation in OSTEs implied for students to actively reflect on clinical teachers' teaching skills and the impact of their own behavior on the quality of feedback. This method may represent an interesting way to promote the construction of professional identity of students as learners and teachers. Indeed, an effective feedback exchange requires not only clinical teachers to master teaching skills but also learners to be active recipients and seekers of feedback (Teunissen et al. 2007; Algiraigri 2014).

Seeking feedback in clinical practice has been reported as a valuable way to guide professional development, particularly when areas for improvement are identified (Delva et al. 2013). However, despite a move toward a "no blame" culture in medical settings, medical errors or poor performance are still experienced as motives for blame by students and residents who report difficulty in coping with their emotional reactions (Wu et al. 2003; Engel et al. 2006; Tevlin et al. 2013). Our results support those found in the literature on the importance of being able to dissociate feedback content from the style of feedback delivery and to demonstrate openness to feedback (Reddy et al. 2015).

Finally, while ensuring that patients receive adequate care is often regarded as the main activity of clinical teachers, students discovered the multiple tasks and roles that clinicians have to endorse, including mastery of teaching and team leading or management skills (Irby 1992, 2014). This enabled them to co-construct a shared understanding about what it could mean to be a clinician and a teacher. Faculty development programs should take into account the motivation students manifested toward this dual role and support the simultaneous construction of clinician and teacher identities early on (Shah et al. 2017).

Limitations

This study has several limitations. First, students' participation was voluntary and it is possible that the selection of highly motivated students might have influenced the findings. It would be of interest to explore whether such perceptions remain similar among a more heterogeneous population of students or when OSTEs are implemented on a larger level, including all students and clinical teachers. The composition of the groups was heterogeneous and did not allow to explore differences in learning according to the level of students' training or prior pedagogical training. In addition, we did not explore which specific OSTE stations had the highest impact on student learning. Secondly, the students' sample was small, although it seemed sufficient, since a point of saturation was reached after four focus groups. However, two additional group discussions with simulated residents were conducted one year later by JdG in order to stimulate students' reflective skills regarding learning and teaching in the workplace. Listening to the focus groups did not bring up any new element and we did not consider useful to further analyze them as we assumed that the point of saturation was reached (Varpio et al. 2017). Future studies, with larger numbers of students at different institutions may help to generalize findings. Thirdly, this study focuses on the influence of OSTE on professional identity development as learners and teachers, but it only represents one among several factors that can help professional identity development among medical students (Wong and Trollope-Kumar 2014; Holden et al. 2015; Wald et al. 2015). Use of Goldie's framework of professional identity development in three levels might have placed insufficient focus on the impact of socialization as the central part of the professional identity dynamic process (Cruess et al. 2015). Finally, the study was conducted in a single university and given the influence of institutional culture and specificities on teaching issues, this element may limit the generalizability of our findings. This is, however, balanced with the inclusion of physicians from 5 different departments in which teaching culture may already be different.

Even though a one-time experience may have a limited impact on professional identity development, OSTEs could integrate well into a larger curriculum to foster professional identity development.

Conclusions

Several ingredients of successful educational strategies such as active involvement in a community of learners and teachers and reflective approaches may have stimulated students' reflection on their professional identity as learners and teachers. If implemented on a large scale, student participation in OSTEs may impact the medical culture by establishing thriving learning environments and by promoting professional values and pedagogical principles and aptitudes such as using medical errors as a basis for improvement, feedback, and reflexivity. Exposing students to experienced clinicians modeling both learner and teacher roles and creating opportunities for students to simultaneously encourage the development of clinician and supervisor identities serve as a strong instrument to foster this dual role.

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Disclosure statement

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The authors report no conflicts of interest. The authors alone are responsible for the content and writing of this article.

Glossary

The Objective Structured Teaching Encounter (OSTE): Initially described in 1992, is modeled on the Objective Structured Clinical Encounter (OSCE), and assesses teaching performance in the same way that an OSCE measures clinical competence (Simpson et al. 1992). A standardized learner, analogous to the standardized patient in the OSCE, performs a scripted role within a common teaching scenario. The teacher interacts with and teaches the standardized learner and then receives feedback on his/her teaching from the standardized learner. A faculty member or trained observer may also observe the session and provide additional feedback or an assessment of competence.

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Trowbridge RL, Snydman LKl, Skolfield J, Hafler J, Bing-You RG. 2011. A systematic review of the use and effectiveness of the Objective Structured Teaching Encounter. Medical Teacher. 33:893–903.

Professional identity in medicine: Is defined as "a representation of self, achieved in stages over time during which the characteristics, values, and norms of the medical profession are internalized, resulting in an individual thinking, acting, and feeling like a physician.

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