Articles

The teacher in active methodologies and the nuances between teaching and learning: challenges and possibilities

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This article addresses teacher education and practice of health professionals from the Brazilian National Health System (SUS), based on social-interactionist theories and active teaching-learning methodologies. After a qualification process, the professionals became teachers in a specialization course in the area of health as part of their specialization in educational processes in health. The teachers developed reflective narratives about their teaching practice for their course completion essays. A sample of 10 essays representing 50% of the universe was submitted to a thematic content analysis. The analytical categories "teaching practice in active teaching-learning methodologies" and "perspectives for health professionals' education" revealed that active methodologies favored the development of critical and reflective capacities and contributed to the transformation of SUS.

Keywords: Teachers. Active learning. Teaching. Professional practice.

Educating professionals according to an innovative perspective that integrates theory and practice and favors the transformation of reality in a significant way has been a challenge to education in post-modern societies[1].

In Brazil, with the publication, in the beginning of the 21st century, of the National Curricular Guidelines (DCN) for undergraduate programs in the area of health, education has been revised based on an amplified view of the health-disease process, considering the individual in their social, economic and ethnic-cultural context. To achieve a singularized, non-fragmented education process, it is necessary to reconcile the general guidelines with specific demands deriving from diversity and with needs generated in the education setting. Other aspects that must be considered are new capacities for competence-oriented curricula, the use of innovative teaching-learning technologies, and teaching-service integration[2].

In the interface between general and specific and in view of the challenges to promote contextualized education based on active teaching-learning methodologies, the role of teachers becomes strategic and represents a critical factor in the development of competence-oriented educational initiatives.

Despite the low investment in teachers' pedagogical education in view of the new requirements of this function, the educator's role has undergone transformations throughout the years, particularly in an attempt to meet the new emerging demands of post-modern societies.

Rethinking teacher education

One of the main challenges in teacher education concerns a shift in the focus of the teaching-learning process: from the teacher to the students' learning needs. This change was envisioned at the end of the 18th century, implemented in isolated experiences at the end of the 19th and beginning of the 20th centuries, and transformed into a trend in the last decades of the 20th century[3].

The objective of the present investigation is to examine the teaching practice in innovative postgraduate initiatives connected with the qualification of health professionals in the context of the Brazilian National Health System (SUS). This study aims to present challenges and possibilities to the teaching practice considering the new nuances of teaching and learning processes in competence-oriented initiatives, which integrate theory and practice and use active teaching-learning methodologies.

In view of this new context of teaching, the teacher's role in relation to contents and active teaching-learning methodologies represents the problem to be investigated. With the shift of the focus of the teaching process from the teacher's knowledge to the identification of students' learning needs, challenges and achievements of the teachers' action need to be investigated. Particularly, the teachers' mastering of the contents to be taught to students and their action as a high-quality source of information are aspects loaded with tension in the development of new teaching practices.

The context and methodology of the investigation

We chose a postgraduate education initiative with a socio-interactionist nature that uses active teaching-learning methodologies in order to investigate whether teachers

find it necessary to master specific cognitive contents and in what way adherence to or the level of knowledge about the methodologies interfere in the teacher's action.

The investigated initiative was part of the Program of Support to the Institutional Development of SUS (PROADI) from 2012 to 2014 and was developed in a partnership between the Ministry of Health, the National Council of Health Secretaries (CONASS), the National Council of Municipal Health Departments (CONASEMS), and the Sírio Libanês Hospital[4]. Health professionals of SUS in ten Brazilian capital cities participated in this pedagogical education initiative, characterized by a social-interactionist approach.

The characterization of the investigated pedagogical qualification was obtained from printed material and electronic media[4]. The educational process that was carried out can be considered an initiative that articulates theory and practice, developed in two movements. The first one was a professional improvement course that lasted 180 hours, in which the health professionals learned about active teaching-learning methodologies. This course was mainly based on simulation activities in which the participants played the role of teachers, under supervision, in controlled and simulated situations[5]. The second movement lasted 480 hours and its purpose was the practice of teaching in postgraduate courses in clinic management[4].

The teaching practice investigated in this study was developed by the SUS professionals who passed the improvement course. It was supervised by experienced teachers in the development of integrated curricula, who were called "learning managers". The SUS professionals became teachers in postgraduate courses, and their practice was supervised by learning managers. These teachers, also called learning facilitators, participated in planning activities, in facilitation activities with students of specialization courses in clinic management, and in reflection activities on the teaching practice[5]. These movements occurred in two education waves that can be seen in Figure 1.
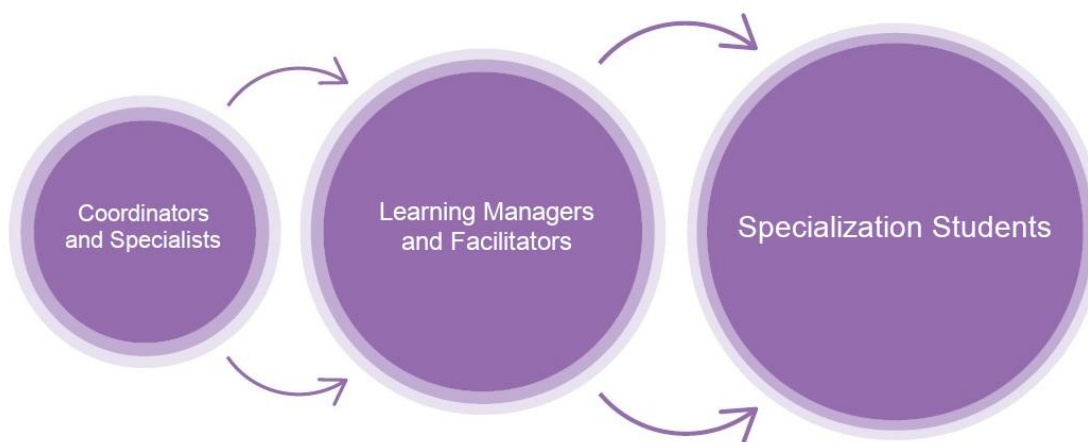

Figure 1. Representation of the education waves

Source: Translated from Processos educacionais na saúde[5] (p. 14)

Thus, the teachers' pedagogical education consisted in these health professionals' participation in: (i) an improvement course targeted at their qualification in active teaching-learning methodologies; (ii) facilitation activities as teachers of a specialization course in the area of health; and (iii) reflection activities about the experienced teaching practice, mediated by other teachers who are specialists in the educational area. The certification of the teachers' performance in the activities of facilitation and reflection on their practice conferred on them the title of specialists in educational processes in the area of health.

Both in the improvement course and in the Specialization, the teachers' pedagogical qualification was guided by a competence profile[6-8] that defined the selection of knowledge and practices[5]. The educational technologies that were used combined: (i) an active teaching-learning methodology triggered by real or simulated problems, called Constructivist Spiral[9]; (ii) an interactive learning methodology grounded on interprofessional collaboration and on the application of knowledge[10], called team learning; (iii) artistic educational actions targeted at the articulation of rationalities and emotions[11], known as educational journeys; (iv) workshops for the application of educational tools and devices; (v) portfolio meetings to supervise singular learning trajectories; and (vi) formative and summative assessments, based on criteria constructed from the competence profile[5].

The portfolio, as an educational action developed in face-to-face and distance meetings, represented a critical process of production of materials related to the teaching practice and reflections made on the learning trajectories. These materials, although presenting a broad degree of diversity regarding the process of creation and the nature of the productions, included reflective narratives written by the learning facilitators as products to be shared and analyzed[5].

We consider that narratives are reflective documents constructed from a certain educational experience to organize and give a singular meaning to reports, studies, theorizations, associations, feelings and values built in the practice of teaching. According to Bruner[12], narratives reflect the perspective of the individuals who construct them and translate desires, interests and knowledge.

The reflective narratives were included in the facilitators' course completion essays and were the source of information used in this investigation. Course completion essays are public documents provided by the certifying Institution. Of the twenty facilitators - two from each of the ten participating capital cities -, a convenience sample of half of the essays was defined. The ten selected essays, one from each capital city, were obtained by means of a random draw. To preserve subjects' identity, the works were coded T (teacher) and numbered from one to ten.

The essays were analyzed through the application of the thematic modality of the content analysis technique[13]. The emerging themes were: (i) Teaching practice in active teaching-learning methodologies and (ii) Perspectives for health professionals' education.

In relation to teaching practice in active teaching-learning methodologies, the following meaning units were found: the social-interactionist perspective; construction of knowledge and practices; emotions in the process of learning how to learn.

In relation to perspectives for health professionals' education, the meaning units that were found revolved around: (i) theory-practice integration and resignification of the practices.

The learning facilitator's action in the social-interactionist perspective

This meaning unit revealed the importance teachers give to the role of learning mediator or facilitator in small and/or large groups of students. According to them, this role can focus on the promotion of a balanced participation of the members, on the construction of an inclusive atmosphere, on qualified hearing and respect for differences and for students' previous knowledge, and on stimuli to the development of critical and reflective thought.

In the constitution of this role, different testimonies emphasize that there is not one single manner to facilitate learning; there are ways that, depending on the context, on the people, on the educational action to be mediated and on the educational intentionality, require the mobilization of different capacities.

> [...] I realized that being a facilitator of the teaching-learning process with active methodologies is much more challenging than I could imagine. (T08)

> [...] the process of change in education brings countless challenges, among which breaking with crystallized structures and with the traditional education model [...]. (T03)

According to the teachers, the power of inertia hinders the openness to new types of learning, as teachers' previous knowledge and the traditional teaching practice, which is already rooted, function as ready responses that prevent reflections and the construction of new meanings.

> [...] requires of the facilitator a change in posture to perform a reflective work with the student, demanding the facilitator's willingness to research and also to supervise and collaborate with the student's critical learning. (T04)

> This was a moment of anxiety on the part of both students and teachers. The expectancy of starting a course with the magnitude of what was proposed to us was huge. A mixture of feelings was in the air: curiosity, uncertainties, doubts, the will to meet expectations, to conquer the expected and the unpredictable, to succeed. (T08)

Hoffmann[14] argues that, according to the social-interactionist approach to education, the learning process promotes the construction of identities, values, knowledge, practices and cultures that characterize the societies in which we live, through the interaction between teacher and student and between them and the world. The trajectories constructed in these interactions sometimes go their separate ways and, "other times, come cross each other, but move on in the same direction"[14] (p. 46).

The interaction between subjects who learn and objects to be known is mediated by the teacher in the role of facilitator, as they guide their educational action based on students' learning needs and questions, instead of directing it based on their (the teachers') knowledge and questions. Openness to dialog and problematization based on students' previous knowledge were mentioned as differential elements in relation to traditional teaching, which focuses on the transmission of information. Dialog was considered a resource that enables a continuous exchange and construction of meanings by means of language. Freire[15] highlights that "teaching demands availability for dialog", which is the space where the subjects open themselves to the world and to others, inaugurating "with their gesture the dialogic relationship in which they confirm themselves as uneasiness and curiosity"[15] (p. 113).

> [...] dialog functions as a potentializer in the search for solutions and enables collective work. The rescue of the word and of hearing potentializes change. (T08)

According to Freire[15], it is in language, in communication, in the interaction with the other that the simultaneous movement of teaching and learning takes place, as "socially and historically, women and men discovered that it was the process of learning that made (and makes) teaching possible"[15] (p. 26).

One of the testimonies reveals different examples of the shift that is necessary to the practice of facilitation oriented to students' learning needs:

> [...] I learned that I can hear and I don't necessarily need to answer immediately, so that I can assimilate better what will come next... I also learned to hear only, without the need to answer. I learned to wait for the right moment... I permitted myself to observe more than judge. I learned to accept that I still need to improve in terms of hearing diverse opinions, different from mine, and having patience and tolerance to hear respectfully. I learned that I can learn everyday when I am willing to. (T05)

> It is important to bear in mind that this movement requires maturation, as it is a daily, living and dynamic learning of knowledge construction. (T08)

The teacher's role in the construction of knowledge and practices

It seems that the competence profile guided the teachers' qualification process and contributed to the construction of knowledge and practices by the students of the clinic management course in which the facilitators developed their teaching practice. The concept of competence used here refers to the meta-capacity for mobilizing resources in different contexts to successfully solve problems of the professional practice[6,16].

> [...] competences that are essential for someone to be a facilitator [...] for example, patience, knowledge, ethical respect for the student's personal process

and demands, knowing how to welcome, create bonds with and motivate the student [...] criticize with affection and be patient with the learning rhythm of each individual, giving them time to build their reflection and action path. (T04)

Although the competence profile that guided the facilitators' qualification reinforced that they must act in a problematizing way towards students, some testimonies highlighted the facilitator's interaction with contexts and contents explored in the clinic management course.

[...] in the perspective of continuing to build learning in order to support the specialization students, it was necessary to deal with the contents in a contextualized way, which required that I should investigate the reality and reflect on it. Therefore, learning in this course means interaction with texts, enabling us to work with the experienced reality. (T08)

Therefore, we believe that the provision of comprehensive care starts with the organization of the work processes in primary care, where assistance must be multiprofessional, complying with guidelines like user embracement and the binding of patients, in which the team is responsible for the provided care. (T02)

The technique of SWOT analysis integrated the methodologies of strategic organizational planning; it must be applied before the strategic formulation of action. (T05)

Although mastering specific contents of clinic management was not required of the teachers due to the presence of specialists that fulfilled this function and to the competence profile expected of the facilitator, the interactions between students and facilitators and the supervision of the educational activities enabled the facilitators to be in contact with the specific themes/contents of clinic management. This contact was reflected in the narratives that composed the course completion essays, revealing an area of competence that had not been included in the facilitator's profile but maintained, to some extent, a relationship to the working routine of these facilitators.

In my work as Director of Management and Health Policies of the city in which I live, the participation process has become much more effective because we have articulated all the planning actions with assistance, surveillance and institutional relations, with aligned programs and, moreover, with validated proposals, considering a more efficient clinic management that strengthens an assistance model based on comprehensive care and services. (T09)

In this sense, it is clear that the action of teaching is directly related to the action of learning and that, in the interaction process between students and teachers, knowledge and practices are reconstructed and amplified. Thus, the construction of new meanings

occurs in action, by means of interactions powered by dialog and problematization[17]. The interactions resulted in the development of knowledge and practices that went beyond the competence areas established in the Competence Profile of the Learning Facilitator. Therefore, the teachers could have experiences and construct practices in the educational area as facilitators, at the same time in which they participated in the problematization of knowledge about clinic management, due to the scope and focus of the educational activities they facilitated.

The fluidity of emotions during the learning process

The meaning unit related to the development of emotions had a relevant presence in the investigated course completion essays. Among different capacities reported by the facilitators, the highlight were the relationships established between students and teachers. These relationships were revealed by means of emotions, which were highly valued by the teachers.

> We learned how to learn, how to re-signify our practices, actions and emotions. From now on, what was "the art of teaching" has become "the art of learning how to learn". Thus, we are responsible for the formation of a critical and reflective conscience, and the student's leading role is valued in its totality. In this way, we will be able to contribute to the promotion of their autonomy. (T08)

> Being able to produce a course completion essay (TCC) with the emotion experienced in the learning period, in a time of constructing reciprocal knowledge with the other, [...] is an experience that expresses and enables, in its practical form, the richness of learning and its evolution in search of knowledge. (T07)

Different testimonies attributed to the constructivist spiral methodology[9] and to the educational journeys[11] the exploration articulated between reason and emotion. This articulation, according to the teachers, enabled the amplification of critical conscience and the development of greater intellectual independence and autonomy to learn.

According to Maturana[18], rationality is the expression by means of which we justify or deny desires, intentions and preferences. This dimension is intrinsic to the process that produces knowledge and culture. According to this author, we live in a culture that undervalues emotions and overvalues reason, in a desire to say that we, humans, are distinct from the other animals because we are rational beings. Even though we are rational, emotions are body dynamics that specify our form of acting in the world, and verbal or non-verbal communication is an important resource that expresses emotions and feelings. It is through language and conversations that human beings, despite their differences, can build consensuses that transform reality.

We, as human beings, are complex units formed simultaneously by the biological, psychical and social dimensions. Considering these dimensions in the teaching-learning process enables the emergence of a complex thought that joins the parts, instead of separating them[19]. Authors like Mourthé et al.[11] suggest strategies to power

the integration of reason and emotion into educational actions. These authors explore the simultaneous development of capacities for using the scientific method and for identifying and understanding the emotions that underlie our choices and preferences, even when we are making science. Recognizing the values, emotions and preferences that are the foundations of our rationalities help us to access and understand previously established cognitive schemes, allowing to problematize and re-signify them.

As health professionals experience situations in their working routine that involve patients' physical and emotional suffering, the teaching of strategies that enable to welcome and explore emotions was highly valued in the facilitators' testimonies. This finding shows the importance of spaces where professionals can reflect on the emotions involved in situations and in the assistance.

The educational actions developed in the facilitators' qualification offered this type of activity as a constitutive part of the qualification process. In these activities, each professional was stimulated to express their emotions and rationalities in a given situation. Thus, the exploration of one's own emotions and the respect for the other participants' expression of emotions and feelings in the qualification groups tend to favor the circulation and fluidity of emotions. This activity is considered as important to the teacher's development as mastering new educational technologies.

Integrating theory and practice

Different narratives analyzed here stated that health and education are integrated fields in care and professional education practices. In this sense, fragmentation in disciplines, separation between theory and practice, and lack of articulation between the worlds of work and education represent curricular organization models that must be overcome.

> The increasing volume of scientific knowledge makes it more and more difficult for traditional methodologies to be able to educate a professional who meets the needs of the current world. (T01)

> I envisaged here the possibility of finally finding ways to try to contribute solutions in such a difficult relationship as that of teaching and service. (T02)

We believe that education is historically and socially constituted and that the learning process is intersubjective and social; therefore, the utilization of integrated curricula and active methodologies values interdisciplinarity, the contextualization of knowledge, previous knowledge, students' learning needs, and the capacity for learning throughout life[20]. These ideas were found in the majority of the narratives analyzed here. Some of them attempted to build bridges between the health professionals' education and their action in real work settings.

> Active teaching-learning methodologies are an important resource in the movement of changing the current healthcare model. (T07)

Active methodologies take into account students' and teachers' preexistent knowledge to subsidize the construction of new knowledge. Thus, learning becomes meaningful. In this sense, understanding phenomena instead of memorizing contents arbitrarily was emphasized, in a movement where new elements were associated with what the subjects already know. As a result, learning re-signifies beliefs and focuses on scientific evidences and best practices.

Some narratives disclosed the importance of identifying learning gaps by formulating learning questions and searching for new information in the scientific literature, in light of practice situations considered relevant in the professional action.

> [...] creation of teaching situations that promote the professional's contact with reality; reflection on problems that generate curiosity and challenge; availability of resources to research problems and solutions; identification and organization of hypothetical solutions that are adequate to the situation; and application of these solutions. (T07)

Curiosity and the desire to discover function as forces that drive learning, so that subjects get involved and become responsible for searching for information and sharing new knowledge[15].

> Active methodologies encompass new forms of teaching and learning and of curricular organization in the perspective of integrating theory/practice, teaching/service, disciplines and health professions. In addition, they aim to develop the capacity to reflect on real problems and the formulation of original and creative actions capable of transforming social reality. (T05)

Many narratives approach the Constructivist Spiral[9] as an active teaching-learning methodology that produces individual and collective reflection movements, with recognition of preexistent cognitive structures, deconstruction and reconstruction of knowledge, unbalance of the mind, and stimulus to search for new knowledge, with development of autonomy and protagonism for the transformation of society.

> The teaching-learning process was represented through the constructivist spiral, symbolizing different educational stages as "articulated movements that feed each other". (T02)

> [...] breaking with the traditional form of teaching and learning, stimulating a participatory management by the main actors of the experience and the reorganization of the theory-practice relationship. (T01)

Teaching and learning in a context of articulation between theory and practice was considered, by the teachers, an extremely powerful strategy. This combination, according to the facilitators, brought new perspectives to the teacher-health professional, requiring specific pedagogical skills to mediate the interaction among students and support the discussions each individual brought from their practical

context. Thus, teaching was considered an interpersonal, intentional movement, grounded on communication and stimulated by a teacher who triggers knowledge or know-how[21].

> The know-it-all teacher must give way to a teacher who is willing to learn, and the obstacle teacher will become a teacher who is an agent of innovation. (T03)

The transformative power of the re-signification of practices

A set of testimonies was grouped around a meaning unit related to the transformative power of the educational initiative analyzed here.

> [...] I believe that the objective of looking for professional education is that the person can instrumentalize themselves for a practice of self-transformation, transformation of the others and of the context in which they live. (T05)

> [...] I realized how much I grew as a professional and as a person, how valuable the interaction was, both with the specialization students and in the permanent education meetings with the other facilitators. (T08)

> As I conclude this essay, many feelings emerge: The feeling of longing for a year that, at first, seemed to be challenging, but, as it passed by, was transformed into a lot of learning. The conviction that I discovered a new way, reflective, motivating and with no return. (T06)

Different narratives attributed the power of dissipating insecurities and producing displacements to the constant reflections and exchanges between facilitators and learning managers. This highlights the interactions produced in the teachers' permanent education processes, characterized by reflection on the teaching practice. The reflections were invariably accompanied by changes in practices.

> [...] therefore, there was the need to deconstruct certain presuppositions and experiences, in order to develop new competences, in the facilitation of learning [...] (T04)

> [...] because it is a living construction process of the personal and professional growth of everyone involved, in such a way that the subjects of learning start to strip themselves of the "condition of certainties" and put on knowledge construction and exchange. (T08)

> [...] frequently puts the facilitator before unpredictable situations, new and unknown, demanding that facilitators and students truly share the process of construction (and not only that of reconstruction and reprocessing) of knowledge. (T04)

Dealing with uncertainty and unpredictability started to be considered a capacity that teachers who use active teaching-learning methodologies should develop. According to Morin[22], "it is necessary to navigate an ocean of uncertainties in the midst of an archipelago of certainties"[22] (p. 86). Recognizing that the educational process is unfinished allows the facilitator to construct their competence profile simultaneously with the students' construction of competence, in spite of the specificities of each educational background. Furthermore, it allows that the subjects involved in these qualifications internalize new knowledge and practices to such a degree that they become part of their daily lives, independently of their previous education.

Final remarks

Rethinking teacher education based on reflective narratives deriving from the facilitation of groups of specialization students showed that, in a social-interactionist education, there is the possibility that teachers and students consider one another a legitimate subject in the construction of knowledge and practices. This process tends to increase tolerance for diversity, include different perspectives, and favor the production of changes and the transformation of reality.

In addition to this more general aspect, it was possible to perceive that, in some dimension, the facilitators that participate in learning processes with integrated curricula and use active methodologies end up incorporating certain concepts even when the explored contents are not part of their previous repertoire nor of the competence profile of facilitators.

The analyzed testimonies indicated the power of an initiative that, by means of qualification waves, represented a concrete expression of theory-practice integration. The teaching practice was the axis of the teachers' qualification. Thus, the articulation between the facilitation practice in a specialization course in clinic management and the reflection on this practice by means of a specialization course in educational processes in the area of health points to the multiplying capacity of this kind of qualification in the format of waves, as well as its potential for constructing new meanings.

A qualification that promotes reflection on practice, characterized as a permanent education process for teachers, ends up being extended beyond an educational initiative, becoming part of the working routine in the area of health. These spaces can activate the critical and reflective capacities of groups of teachers-health professionals, representing an investment in the subjects, in their relationships, and in the qualification of the services or institutions in which they work.

Only permanent education processes will be able to face some of the challenges found in this investigation, which reflect limitations both of education and of the organization of health work, like: (i) undergraduate courses that do not explore the competence area of health education as inherent in the professional profile: (ii) low utilization of teaching methodologies that stimulate reflection on practice and development of critical thought; (iii) fragmented care practices produced by disarticulated teams with little space for dialog; (iv) healthcare centered on and organized around assistance to disease.

In the educational initiatives studied here, these challenges were faced by means of a qualification process oriented towards students' learning needs, considering these professionals' context of health work. The teaching practice grounded on social-interactionist theories and on active teaching-learning methodologies promoted a teaching-learning process grounded on the teacher's mediation between the subjects who learn and the objects or contents to be known. This practice, according to Freire[15], transforms students and teachers, as "[...] the person in charge of education is being formed or re-formed as he/she teaches, and the person who is being taught forms him/herself in the process and [equally] teaches while he/she is formed"[15] (p. 25).

Authors' contributions

Ellys Marina de Oliveira Lara, Valéria Vernaschi Lima and Juliana Delalibera Mendes were responsible for all the stages of the work. Eliana Claudia Otero Ribeiro and Roberto de Queiroz Padilha participated in the final review of the manuscript.

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