

Levels of Reflection in Teachers and Family Medicine Residents: A Qualitative Study

Niveles de reflexión en profesores y residentes de medicina familiar: estudio cualitativo

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Summary

Objective: to analyze the levels of reflection according to Mezirow's model in a group of teachers and residents in the Family Medicine specialty in Mexico. **Methods:** a qualitative study was conducted using a Word format questionnaire to collect sociodemographic data, and critical incidents related to teacher-student communication problems. The participants' level of reflection was analyzed based on these incidents. **Results:** the study classified 192 events related to critical incidents, and the participants' reflection levels were determined. 104 events (81.88%) described by teachers, and 45 events (69.23%) by residents were categorized in the first level of analysis, corresponding to non-reflective. 21 events (16.53%) by teachers, and 18 events (27.69%) by residents were situated in the second level: reflective, while 2 events (1.57%) by teachers, and 2 events (3.07%) by residents were classified as critical reflection. **Conclusion:** according to Mezirow's model, the level of reflection in most participants did not lead to changes to favor behavioral modification. These findings suggest the need for additional strategies to promote critical reflection and facilitate attitudinal change in educational contexts.

Key words: Reflective Practice, Critical Incident, Medical Education, Family Medicine.

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Resumen

Objetivo: analizar los niveles de reflexión de acuerdo con el modelo de Mezirow en un grupo de profesores y residentes de la especialidad de Medicina Familiar de la República Mexicana. **Métodos:** estudio cualitativo, se utilizó una cédula en formato Word para recabar datos sociodemográficos, así como incidentes críticos relacionados con problemas de comunicación profesor-alumno, a partir de dichos incidentes se analizó el nivel de reflexión de los participantes.

Resultados: se clasificaron 192 eventos relacionados con incidentes críticos y, a partir de ellos, se realizó un análisis para determinar el nivel de reflexión de los participantes. 104 (81.88%) eventos descritos por profesores y 45 (69.23%) por residentes, fueron ubicados en el primer nivel de análisis que correspondió a no reflexivos, 21 (16.53%) de profesores y 18 (27.69%) de residentes se situaron en el segundo nivel: reflexivos, mientras que 2 (1.57%) de profesores y 2 (3.07%) de residentes se clasificaron como reflexivos críticos. **Conclusión:** de acuerdo con el modelo de Mezirow, el nivel de reflexión, en la mayoría de los participantes, no propició cambios que favorecieran modificación de conductas. Estos hallazgos sugieren la necesidad de estrategias adicionales para fomentar la reflexión crítica y facilitar cambios actitudinales en el contexto educativo.

Palabras clave: práctica reflexiva, incidente crítico, educación médica, medicina familiar.

Introduction

In the field of medicine, there has been persistent criticism of the practice and teaching of this discipline, where a lack of sensitivity, and professionalism

noticeably affects everyone involved in its development: doctors, patients, teachers, students, among others.¹⁻⁴ In response to this issue, the need to address the multiple challenges inherent in medical education through reflective and communicative processes has been recognized.⁵⁻⁹ This approach involves the critical ability to assess our actions, interpret experiences, and ultimately modify behaviors.¹⁰

A pre-requisite for behavioral transformation lies in a previous level of reflection.¹¹ The application of tacit knowledge, and reflection on it during unique, uncertain, and conflicting situations has been identified as a determining factor in the development of a more robust competence in professional medical practice.¹²

This reflective dynamic and the changes are inherent in the nature and focus of each professional discipline. In the field of educational, Mezirow's transformative learning theory stands out,¹⁰ which explores how, through three categories of reflection—1) non-reflectors, 2) reflectors, and 3) critical reflectors—a significant transformation occurs in the learner's frame of reference and thinking, leading to a change in their way of being and acting.

Mezirow argues that the emotions and feelings of the student are crucial; when combined with new and challenging experiences, they lead individuals to critically reflect on the situation they are experiencing.^{10,13} This fosters greater understanding, openness to changing their own beliefs, and ultimately, improvement in performance.¹⁴⁻¹⁶

From a medical perspective, reflection serves as a valuable tool for professionals to recognize deficiencies in their knowledge and skills, particularly

when analyzing their interactions with patients.¹⁷ The promotion of reflection emerges as a fundamental pillar in medical education to shape competent professionals with a realistic, pragmatic, and effective approach.¹⁸

Given this premise, the objective of this study was to analyze the levels of reflection according to Mezirow's model in a group of teachers and residents in the Family Medicine specialty in Mexico.

Methodology

This qualitative study is part of a larger project that analyzes communication difficulties between teachers and students through the description of critical incidents. After obtaining informed consent from teachers, and third-year residents, in the Family Medicine specialty at the National Autonomous University of Mexico (UNAM), who were asked to write about communication difficulties during their teaching and learning interactions in 2021 and 2022. The sample consisted of 70 teachers, and 50 medical residents.

Due to the COVID-19 pandemic, separate 90-minute Zoom sessions were held for both teachers and students. The educational objective of the study was explained, confidentiality of provided information was assured, instructions for anonymous form completion were given, and any questions were addressed. Both teachers and students were given the option of voluntary participation, and one week was provided to submit descriptions of critical incidents via email to the researchers. Alongside incident descriptions, participants were asked to describe aspects related to how they interpreted and resolved the main communication difficulties detected. This information was used to classify participants into different levels of reflection.

For the analysis and classification of reflection levels, researchers met physically to discuss and standardize the information. This was achieved after several sessions of approximately two hours of discussion, eventually independently placing participants in the same reflection level category, according to Mezirow's model (Table 1).

This study adhered to the national and international guidelines related to human research.^{19,20} The protocol was approved by the Ethics and Research Committee of the Faculty of Medicine at UNAM, registration number: FM/DI/010/2021.

Results

Out of a total of 224 events related to critical incidents to determine their level of reflection, 192 met the selection criteria (85.71%). Of these, 127 events were reported by teachers, and 65 events were reported by medical residents (teachers

and residents could report more than one event). The data obtained were classified according to the academic role of the participants.

The study group identified that 104 (81.88%) and 45 (69.21%) events of teachers and residents, respectively, were placed in the non-reflective category. In both groups, the level of habitual action was predominant (Table 1). Premise reflection—where the person reinterprets the current situation so that next time a different course of action will be taken—was present in the smallest number of participants, with only 2 teachers (1.57%) and 2 residents (3.07%) falling within this level of critical reflection (Tables 2 and 3).

Reflection is an essential for decision-making and personal and professional development. Through different levels of reflection, individuals can assess their actions and have a positive impact on their surroundings. In

this context, various situations where reflection played a crucial role in the experiences of teachers and residents are presented.

Level of Reflection: Non-reflective

Habitual Action (Teacher) “A year ago, a student requested her resignation... she felt she was sacrificing time with her family due to the demands of the course... I sat down with her... showed empathy... she recognized benefits and drawbacks, as well as priorities... The student performed better in her hospital rotations and classes, even fostering a supportive environment among her peers.”

Habitual Action (Resident) “During the COVID-19 pandemic, we were tasked with attending to infected patients, providing reports to families, and managing the floor without assigned medical support. Despite informing the management and requesting support, there was an initial positive change. However, over time, the lack of support and communication persisted, leaving us in charge of reports and patient care without institutional backing.”

Thoughtful Action (Teacher) “R2 student missed a shift without prior notice... claimed that an aunt was sick, so she went to check on her. Informed that she must make up for the shift... she refused, thinking her absence was justified. It was explained to her the meaning of attending the shift and acquiring all the knowledge that her patients can provide, skills, and abilities that she would miss by skipping the shift... The resident recognized the importance of hospital attendance, and fulfilled her shift. She understood the importance of being by the patient's side... studying their condition and gaining knowledge. She did not miss a shift again and showed more interest in her patients.”

Thoughtful Action (Resident) “During an oncology consultation, I was ahead

Table 1. Levels of Reflection and Description of Main Characteristics.^{10,13}

Reflection Level	Type of Reflection	Description
Non-reflectors	Habitual Action	Describing an action performed automatically, without conscious thought or concentration; simply narrating the course of events.
	Thoughtful Action	Involves a statement based on existing theoretical knowledge, without consciously processing alternatives or justifying the choice. No interpretation of the reasoning is provided.
	Introspection	Describe thoughts or feelings related to the execution of a task or observation of a critical incident. No comparison is made between the critical incident or previous experiences, and there is no reflection on what happened or what might happen next.
Reflectors	Content Reflection	Participants respond to critical incidents by expressing thoughts, emotions, or actions. They question or interpret their behavior, and determine a course of action.
	Process Reflection	Participants detail how they elaborate their thoughts, emotions, and actions, evaluating them for their effectiveness.
Critical Reflectors	Premise Reflection	Participants analyze the problem thoroughly, considering associated consequences and exploring alternative choices. Through critical reflection, they reinterpret the current situation, seeking to take a different course of action in future occasions.

Table 2. Categorization of critical incidents reported by teachers according to Mezirow's reflection levels.

Reflection Categories	Events Described by Teachers	n (%)
Non-reflectors	Habitual Action	49 (38.58)
	Thoughtful Action	33 (25.98)
	Introspection	22 (17.32)
Reflectors	Content Reflection	13 (10.23)
	Process Reflection	8 (6.29)
Critical Reflectors	Premise Reflection	2 (1.57)
Total		127 (100%)

Table 3. Categorization of critical incidents reported by residents according to Mezirow's reflection levels.

Reflection Categories	Events Described by Residents	n (%)
Non-reflectors	Habitual Action	34 (52.30)
	Thoughtful Action	9 (13.84)
	Introspection	2 (3.07)
Reflectors	Content Reflection	13 (20)
	Process Reflection	5 (7.69)
Critical Reflectors	Premise Reflection	2 (3.07)
Total		65 (100%)

of schedule in delivering documents for surgery to the patient, but she commented that the content was not explained to her... The attending physician reprimanded loudly in front of the patient and colleagues... did not take the time after the patient left to discuss the incident with me... Although I was upset, I chose to remain silent and act as if nothing had happened.”

Introspection Action (Teacher) “It can be frustrating when a final-year student faces difficulties in developing their thesis, showing a lack of commitment to various projects. As a teacher, it is frustrating not to get good results. Realizing her lack of information, I made an effort to explain the

process and highlight the need for greater commitment. Despite sharing her personal challenges and accepting responsibility, she tended to prioritize her problems as justification. Despite the emotional challenge, I was able to overcome the feeling of being harmed by understanding that everyone faces various unresolved situations. The student could have dropped out, but an effort was made to rectify the situation. Now, I wonder if my approach was correct...”

Introspection Action (Resident) “Communication with our specialty coordinator has been distant, on the day of the exam, we were informed an hour and a half before that it would be held in a clinic that is not

our academic headquarters... There was a lot of stress and somehow complaints about not notifying us in time, so we arrived late to the exam... this happens frequently. Honestly, I'm at the point considering remain silent and feeling that they only do what suits them to avoid being present and not doing what they properly have to do...”

Reflective Incidents

A significant percentage of cases involved levels of content and process reflection. At the content level, participants expressed thoughts and actions, questioning, and choosing a course of action. At the process level, they detailed how they elaborated their thoughts, evaluating them for their effectiveness.

Some teachers expressed reflective analysis to develop strategies that promote more assertive interactions with their students when giving instructions politely and respectfully. They also saw an opportunity for their own learning by changing the meaning of seemingly inattentive behaviors by residents.

Content Reflection (Teacher) “A second-year student was labeled by his peers as ‘lazy’... Upon investigating his family life, I discovered several crises that were causing distractions as a resident... I encouraged him to pay close attention and put in effort towards his activities... The student never changed his ways... I tried to approach the student in many ways to change his attitudes, but he was not interested in improving.”

Content Reflection (Resident) “In the emergency department, I was asked by the attending physician to perform an electrocardiogram on a stable patient. However the only available machine was being used by an intern in the shock area. Despite explaining the situation and offering to perform the procedure as soon as it became

available, the attending got upset. He urged me to use my hierarchy, arguing that the intern had no priority. Defending the priority of patients in the shock area, the attending expressed his dissatisfaction, labeling me as 'non-functional,' and stating that he did not want me to continue in the service. Despite the situation, I decided to stay, fulfilling my responsibilities, and delivering consistent performance. Although I received congratulations in the end, I did not agree with his perspective and treatment."

Process Reflection (Teacher) "Upon receiving the group, a third-year resident had a reputation for being 'rebellious and difficult to follow orders.' Although he was in a comfortable rotation in psychiatry, he refused to attend his next service. I chose to write a courteous letter, acknowledging that students are adults and emphasizing the importance of respect in daily communication... I learned that persistence is the best way to achieve goals. I am learning not to take anything personally."

Process Reflection (Resident) "During my rotating in Obstetrics and Gynecology in the labor surgery area, I had an attending who referred to me as 'Hey,' it bothered me so much that I didn't pay attention and flat out ignored him, causing me to be uncomfortable and not working properly during the shift... I decided that if I felt uncomfortable, I should speak up and express my discomfort, so during the next shift, I informed him of my preferred was of being addressed... This led to him addressing me by my name."

Premise Reflection

Premise reflection focuses on a thorough analysis of the problem, considering its consequences, and exploring alternatives, eventually leading to changes in action and behavior modification. The following event exemplifies this type of critical reflection.

"When we began the Gynecology rotation, we were ignored because we were from the Family Medicine department. They had a poor impression of family physicians; we discussed with fellow residents that we had to set a good example so that they always spoke well of family physicians... We began placing subdermal implants in patients to facilitate their discharged, as gynecologists were unwilling to perform this procedure we never refused to work... At the end of the residency, plaques of recognition and gratitude were given by floor supervisors to the graduating family physicians." - Resident.

Discussion

Mezirow's theory of transformative learning is crucial for understanding how individuals process and learn through critical reflection when new experiences challenge their pre-existing cognitive structures. This is particularly relevant in medical education, where healthcare professionals, by critically reflecting on their approaches and beliefs, can undergo changes in their perspective and clinical practice, leading to a significant improvement in the quality and effectiveness of the care they provide.

However, the categorization of reflections from both professors and residents, shows a significant prevalence of non-reflective events. The results suggest that many participants describe their actions without analyzing their surroundings when interacting with peers and professors. This implies a lack of conscious reflection on their own actions and those of others, limiting the possibility of change when facing problems.

On the other hand, when analyzing content and process reflection, different scenarios emerge where events are not ignored or autonomously responded to. Instead, there is a sufficient level of

analysis to interpret thoughts, emotions, or actions in critical situations. However, this could be a precursor to encourage and carry out a deeper reflection on the content of their experiences.

Regarding critical reflection, the results suggest an opportunity to promote a more detailed analysis of how both professors and residents develop their thoughts, emotions, and actions regarding problems that may arise during the teaching-learning process. This includes considering alternatives that can guide future actions to reverse perceptions or unwanted aspects that impact learning.

Regarding narratives, each story presents different nuances in how participants approach and evaluate specific situations. At a non-reflective level, participants show a lack of deep consideration of the implications and impact of their actions. However, some stories demonstrate a greater willingness to analyze events, as seen in the case of the resident who addressed discomfort with a preceptor in Gynecology and Obstetrics. They described how they approached the issue and achieved a change in treatment.

In the resident's narrative about the Gynecology rotation, reveals a reflective premise. Here, participants analyze the problem of being ignored for being from Family Medicine, consider the consequences, and explore alternatives (placing subdermal implants). This analysis ultimately leads to a positive change in perception towards family physicians.

The results show how many participants were at different levels of reflection, which has implications for postgraduate education. Since medical residency is a transformative process that prepare residents to face complex and constantly evolving challenges.²¹ These findings reinforce the need to adapt and

strengthen residency programs, to ensure comprehensive and effective training for healthcare professionals. This will prepare them for competent and reflective practice in a dynamic medical environment.¹⁻³

Furthermore, this research shows that more experienced professionals demonstrate a greater level of reflection than their younger colleagues.²² This finding emphasizes the urgent need for educators to actively promote reflection on their teaching practices, recognizing their ability to directly influence student development.

Finally, the lack of reflection may be due to the intrinsic challenge of recalling and verbalizing reflection on routine processes that repeat unconsciously in daily practice. This phenomenon highlights the complexity of transformative learning, underscoring the importance of cognitive maturity in this process.²²⁻²⁴ These findings demonstrate the need for specific educational strategies to promote active reflection, especially in professional environments where habitual actions may hinder conscious reflection.

Limitations in the present study include recall bias, which may have influenced the alignment of collected events with actual occurrences. Additionally, the study's qualitative nature enables us to approach events that are relevant to the study population, but it lacks external validity.

Conclusion

Most events reported by participants were non-reflective incidents. This suggests an urgent need to promote critical reflection in the analyzed educational context. The ability to deeply reflect and consider the underlying premises in everyday situations is essential for improving communication, resolving conflicts, and fostering a healthier en-

vironment in both educational settings and medical practice.

Authors' Contributions

I H-T: Conceptualization, development, analysis, and discussion of results, and article writing. ON P-A: Analysis and discussion of results. LF R-H: Development, analysis, and discussion of results, and article writing.

All authors approve the publication of this manuscript.

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Conflict of Interest

The authors declare no conflicts of interest.

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