Crossroads experiences for promoting self-authorship of clinical medical students: A qualitative survey

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Abstract:

BACKGROUND: The capacity of self-authoring one's own beliefs, identity, and relationships is core to many expected outcomes of future health-care professionals. Students' personal and professional development for self-authorship can be promoted by the variety of developmentally effective "crossroads" experiences that they encounter. Identifying the characteristics of the crossroads experiences in clinical rotations can provide a foundation for medical educators to provide an environment that can foster self-authorship.

MATERIALS AND METHODS: A cross-sectional qualitative survey was conducted using a researcher developed semi-structured questionnaire which had three open questions and asked medical interns to describe their internship experiences that stimulated their thinking along the self-authorship dimensions of identity, relationships, and ways of knowledge acquisition. Data were analyzed using Braun and Clarkes' thematic analysis method.

RESULTS: The survey was completed by 167 medical interns (response rate: 83%). The key features of significant crossroads experiences and their effects were created into six themes: Experiences by being respected and validated; experiences by involvement in patient management; experiences by participation in interactive learning environments; experiences by participation in authentic clinical work environments; experiences by the observation of professional behaviors; experiences through the uniqueness of different specialties.

CONCLUSION: Authentic experiences of patient management in the real world of clinical settings with a high interactive environment have the potential to promote interns' self-authorship development. Educators can support learners by respecting and validating their capacities and by role modeling of professional behaviors.

Keywords:

Internship, personal development, professional development, self-authorship, thematic analysis

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Introduction

Medical graduates work in a complex and uncertain environment across a variety of professional and personal situations. Graduates have to consider different factors in their clinical decisions, such as best evidence, the patient's condition, and access to resources, and to also share their decisions with patients and colleagues. Graduates also have to demonstrate professional behaviors and manage the different external influences on their own personal well-being.[1,2]

Modern definitions of medical professionalism are built upon three main domains which include a variety of components.[3] The domains include clinical competences (such as procedural skills and effective communication), humanistic qualities (such as respect and honesty), and reflective capacities (such as the ability of deep thinking about one's experiences, beliefs, and practice).[3] Medical

professionalism requires students to achieve a cognitive maturity for understanding the contextual and uncertain nature of knowledge, to develop an integrated personal and professional identity based on an internal sense of self, and to engage in mature relationships which considers the needs and perspectives of others.[4]

A challenge for all medical educators is how to develop the different facets of professionalism in students and this requires an understanding of how students develop during their time at medical school.[5] A useful development theory is self-authorship theory,[4,6] which refers to the individual capacity for making decisions that are based on having developed their own internal formation of personal identity and beliefs, including the nature of knowledge and construction of relationships.[7] Medical students sometimes encounter the negative role models and behaviors in clinical education that conflict with their own personal and professional values, which are core to their identity and beliefs, but self-authored students are better able to evaluate these behaviors, overcome external pressures and act on their own.[8,9] Self-authorship has also been suggested as a useful theory to study the development of skills that medical students need to adjust and succeed in competency-based curriculums that required self-directing educational experiences.[10]

The concept of self-authorship was first described by Kegan as the fourth phase of his personal development theory. He described how individuals developed a personal worldview over time by making meaning from their experiences. Each meaning making episode was constructed of three integrated dimensions including epistemological (how do I decide what to believe), intrapersonal (how I view myself), and interpersonal (how I construct relationships with others).[11,12] In a longitudinal study of college students and graduates, Magolda identified the journey of self-authorship development in adults that progressed from relying on external authorities, such as parents and teachers, to self-authoring one's own life based on his/her internal meaning making of values that influenced their beliefs, identity, and relationships. The stimulus for student development in this journey was identified as being a series of "crossroad" experiences.[13] These experiences are an essential developmental opportunity since they create a conflict between their own developing worldview and their encounter with a real-life world situation. Research has found that students resolve this conflict by reflection on their own worldview; sometimes, this reflection will produce a change in one or more dimensions of self-authorship, but on other occasions, there is no change.[13] This change in personal world view, or self-authorship, informs the students on how they will make decisions for their own future lives.[7,13] For example, students may be surprised through discussing a topic with people from a different cultural background. This experience could be a crossroad experience, forcing students to reflect on the cultural influences on their personal epistemological, intrapersonal, and interpersonal worldviews.

The development of self-authorship is a challenge for educators since a variety of environmental and contextual factors can provide developmentally effective experiences for students.[14,15] Magolda and King proposed the learning partnerships model (LPM) as a pedagogy for self-authorship development in higher education by considering these influences on development.[16] The LPM challenges learners by providing a range of different crossroad opportunities, especially by encounters with authentic experiences, and by providing a supportive context that respects the learners' developing worldview.[16] Several researchers have used LPM to intentionally creating crossroad experiences to promote self-authorship through various curricular and co-curricular contexts, such as orientation programs,[17] internship programs,[18] advanced pharmacy practice experiences,[19] and service-learning.[20] Clinical clerkships or internships for medical students can provide unique opportunities for experiential learning of real experiences that automatically reflect complexities,[16] making them ideal settings for creating developmentally effective crossroad experiences. Identifying the characteristics of these experiences can inform medical educators how to design and plan rich curriculums that facilitate the personal and professional development of all students.

The aim of this study was to identify the key features of the most significant medical student internship crossroad experiences and their potential for developing self-authorship.

Materials and Methods

Study design and setting
A cross-sectional qualitative survey was conducted in one of the medical science universities in Iran. The medical degree curriculum of the university consisted of four phases including basic sciences (5 semesters), introduction to clinical sciences (1 semester), clinical clerkship (4 semesters), and clinical internship (4 semesters). Clinical student interns can practice under supervision through four major speciality rotations (internal medicine, pediatrics, surgery, and gynecology) in the first two semesters and then proceed to minor rotations (such as psychiatry, dermatology, and ophthalmology) in the third semester. Each rotation was offered by different training hospitals and interns could select the minor rotations at the beginning of their

internship. Finally, in the last semester, placements occurred in the primary health-care centers.

Study participants and sampling

The population of the study was 201 interns who had completed at least all their major rotations and were in their minor internship rotation. The cross-sectional survey was conducted by distributing hard copies of questionnaires among the interns in August 2019. Several interns were on the leave and the electronic file was sent to these students. Only two interns could not be contacted in any way.

Data collection tool and technique

A semi-structured questionnaire for collecting qualitative data was developed based on Braun and Clarke's[21] recommendations for the structure of qualitative questionnaires. The main recommendations are the use of broad open-ended questions related to the key areas of interest and the encouragement for respondents to provide detailed answers. The questionnaire was piloted by five interns who were in the last semester of their internship. They were asked about the clarity of questions and structure of the form. The first and third author revised the questionnaire to ensure that the questions were appropriate. The final questionnaire had three open questions aligned with the three dimensions of self-authorship and asked interns to describe their thought-stimulating experiences during the internship, to explain their effects, and to name the hospital/ward where the experiences occurred [Table 1]. It also included demographic questions about age and sex.

Ethical consideration

The study was approved by the university ethics committee. The participant information sheet stated that returning the questionnaire indicated their informed consent to participate in the study. The participants' rights to anonymity, confidentially and retrospective withdrawal were also stated. All responses were anonymous.

Data management and analysis

Demographic data were analyzed using descriptive statistics. Braun and Clarke's[22,23] six phasic method for thematic analysis was used to analyze the qualitative data which includes familiarization with data, generating initial codes, searching for themes, reviewing themes, defining and naming themes, and producing the report. The first author typed the interns' written responses and checked the typed version to ensure that there were no transcription errors. Coding was conducted in a systematic manner across the entire data set using qualitative analysis software MAXQDA 2018 (Berlin, Germany, VERBI Software. Available from maxqda.com). The first author actively read through

Table 1: Open questions of the questionnaire

Dimensions of self-authorship	Questions in the questionnaire
Intrapersonal question	a. Experiences of which major internship rotations made you think more about yourself and get a better understanding of yourself? (For example, experiences that have caused you to think about things like these: What kind of person am I? What do I like? What is more important to me in life? What am I looking for in my life? How do I want to be my life in the future? Which career is better for me?) Please describe the experiences which have caused you to think about such things completely with the name of the hospital/wards. Write your thoughts completely and explain how those experiences influenced on your thoughts? b. What was your conclusion finally and why did you come to this conclusion?
Interpersonal question	a. Experiences of which major internship rotations made you think more about your ways of interactions with professors, residents, interns, patients, and other colleagues in the hospital? Please describe those experiences completely with the name of the hospital/wards. Write your thoughts completely and explain how those experiences influenced on your thoughts? b. What was your conclusion finally and why did you come to this conclusion?
Cognitive question	a. Experiences of which major internship rotations made you think more about your ways of acquiring the knowledge you needed and learning new things? (e.g.: experiences that have caused you to think about things like these: what should I do when I encounter issues or problems that I don't know the answers? Where do I get the information I need? On what basis should I trust the information resources (or do not trust)? How should I resolve the contradictions between the information resources? How and on what basis should I make the final decision?) Please describe the experiences which have caused you to think about such things completely with the name of the hospital/wards. Write your thoughts completely and explain how those experiences influenced on your thoughts? b. What was your conclusion finally and why did you come to this conclusion?

the responses several times to familiarize herself with data and then developed codes inductively and at the semantic (explicit) level. These initial codes were discussed with third author to reach consensus on a list of codes and their relevant data. Subsequently, the first author examined the codes and their associated data for similarity, differences, and relationships to create the initial themes by sorting the codes into more meaningful or larger patterns. All researchers reviewed, modified, and revised the themes to reach the consensus that the themes represented the meanings in the data set and appropriately answered the research question. The researchers also reviewed and agreed on the appropriate definitions and names for each theme, and the final report of the analysis which was primarily prepared by the first author.

Trustworthiness of the study

The following proceeding was taken to enhance the trustworthiness of the study based on the recommendations of Nowell *et al*.[24] for doing a trustworthy thematic analysis:

- The raw data were stored in a well-organized archive to provide an audit trail
- The first author was engaged with data for a prolonged period
- The first author documented her reflective thoughts during data collection and analysis to establish an audit trail
- Sufficient time was invested to develop the themes
- The process of peer debriefing was accomplished with third author
- All themes and subthemes were discussed and reviewed again in the team meeting
- An expert (fourth author) who has a great knowledge about the area of the study and the method of thematic analysis reviewed the themes to determine whether they are sufficiently clear and comprehensive
- The referential adequacy test was accomplished by comparing row data to the developed themes to make sure that they are firmly grounded in the data.

Results

The survey was completed by 167 interns (response rate: 83%). The average age of participants was 25.65 (54 unknown) including 89 (53%) females and 77 (46%) males (1 unspecified). Six themes were created that were related to the key features of the significant crossroad experiences described by the interns, including their potential for developing self-authorship:

Theme 1: Experiences by being Respected and validated

Interns experienced a wide range of ways in which they were respected by the various clinical team members. The educational environment was more effective when supervising doctors, including attending and residents, respected and valued the interns. This led to interns becoming more actively engage to enhance their interest in the specialty of their clinical rotation: *"The existence of good and consistent educators like professor (N) whose kind of education and his enthusiasm for every subject and for every patient, encouraged me to (learn) internal medicine."* The consequence of increased engagement led to an increase in interns' self-confidence and some learned that they had to maintain their own confidence in all interactions so that others would respect them: *"At every level and every approach you have to be confident and assured. With the teacher, with the resident, with the patient, one should not see oneself as inferior and should maintain own's respect."* Having to provide case presentations and being questioned during clinical teaching, such as morning rounds, also increased interns' sense of respect, which promoted satisfaction and confidence and made them feel a need to further study: *"I restarted learning internal medicine… (Due to the continuous discussions in morning and educational rounds)… the reason is… professors' questions and discussions and valuing the interns."*

Interns felt undervalued in some departments and this had a negative impact on their growth and performance: *"Unfortunately, due to the lack of trust in the interns, the sense of responsibility does not grow in many colleagues and things are done casually."* Observing disrespect or low-quality education in some departments prompted some interns to become independent learners. Furthermore, some interns decided to base their own future interactions on respect and pay more attention to this when they teach. These negative experiences made interns think about their own expectations of future lives, discouraging them from pursuing future careers in some specialties, or even doubted about their continuation of studies: *"Prioritize my demands… respect and a reasonable amount of work should be important to me along with professional and academic career development."*

Theme 2: Experiences by involvement in patient management

Interns were involved in patient management to varying degrees (such as initial history taking, participation in patient management, or relatively independent patient treatment). These experiences increased their sense of usefulness, self-confidence, satisfaction, hope, and interest and led them to think about their values in choosing a career: *"It made me think because of more involvement in the diagnosis and treatment of patients…. How can we have a little more impact? When I was assigned a critical patient… I decided to choose a field that is more effective in relieving this pain."*

Interns felt a need to collaborate with other colleagues to perform their duties in patient management and subsequently realized the importance of having shared responsibility for a successful teamwork: *"In situations where the responsibility was with us, we had to interact with teammates to divide tasks, and in situations where work stress was high, we could manage."*

By engaging in patient management (especially when independently dealing with patients), interns increased their understanding of the importance of their own knowledge in managing patients, with the identification of knowledge deficiencies and the need for further study. They also understood the importance of case-based study to change their way of shaping their own knowledge: *"The resident assigned me the task of writing the orders, which made me realize how far it was from the theoretical content. I imagine the theoretical topic for myself in the form of instructions or advice to the patient."*

Confronted with questions, ambiguities, and different approaches in patient management stimulated the interns to think about the validity of knowledge resources and they became aware of the uncertainty and constant change in scientific knowledge that led some of them to self-study up-to-date resources: *"Medicine is a living and dynamic field and the information obtained must be reviewed frequently."* Interns also increased their understanding of the influence of clinical experiences in considering different factors in making decisions about patients: *"I have come to the conclusion that in the field of medicine, a combination of scientific research with the patient's bedside will be more effective, even if it sometimes leads to inconsistencies."*

Theme 3: Experiences by participation in interactive learning environments

Internship provided a great opportunity of observing and experiencing different interactions, especially on wards with a variety of staff. Observing the impact of clinical team hierarchies on interactions was a thought stimulating experience for interns. Some felt they were at the lowest level and unable to question or offer their own opinions to others higher in the hierarchy. However, others tried to express their own opinion: *"I explained to my audience that in my opinion, this expectation is not reasonable. Eventually, due to the leveling in the hospital, I had to follow my senior opinion."* The interns thought that the negative interactions and atmosphere of some clinical wards was an obstacle to their effective learning by reducing their interest and discouraging them from considering a future career in the specialty: *"For me, in addition to the aspect of medical education to continue my studies, the way my colleagues treat each other became much more prominent."*

Positive interactions, such as feeling welcomed and shown friendship, improved interns' performance, promoted their resilience, and made them more interested and active, which resulted in more learning. However, some interns learned to adjust their interactions with clinical staff to achieve optimal learning: *"I conclude that being serious in work does not interfere with intimacy with the medical staff, and of course, a certain limit should be set for the medical and nursing staff, because otherwise they do not pay attention to the orders."*

Theme 4: Experiences by participation in authentic clinical work environments

The rotations confronted interns with new conditions and real-world experiences of clinical settings. They experienced different workloads (such as number of patients, night shifts and duty hours) and a variety of critical or stressful situations (such as managing emergencies, incurable patients, and patient deaths). Interns could closely observe the lifestyle of different specialists: *"I was faced with new and more real-world*

situations that inevitably forced me to self-scrutiny (and) judge others and learn from behaviors."

Following these experiences, interns gained a better understanding of their own capacities, interests, and priorities. Some interns' satisfaction and confidence for their field of interest were enhanced by overcoming the challenges. Some interns thought that they could not bear the heavy workload or difficult conditions and for these interns easier work or suitable lifestyle has become a priority in their career planning: *"But observing the very high work pressure of the residents and that almost all the time and life is spent on their field, I asked myself … do I have the physical strength and traction to continue studying and working in this field for the rest of my life or not?"*

Patients' death or life-threatening terminal illnesses challenged some interns and promoted thoughts about the uncertainty of life and the value of living in every moment: *"The first case of a dead patient that I saw during my internship. For the first time, I was confronted with the fact that it is true that every battle and challenge is worth the effort, but sometimes the result is beyond our control. I conclude that human life is very unstable and can change suddenly at any moment, so the moments should be appreciated more."*

The heavy workload, followed by the need for more collaboration and cooperation, prompted some interns reflect on their interactions and feel a need for responsibility and commitment. Observance of ethical and professional issues despite the heavy workload or the difficult conditions had become a challenge for interns. Some of them decided to manage the negative environmental effects by controlling their own behaviors and reactions and by persisting in their adherence to ethical principles: *"communicating with the patient or patient' companion at the time of fatigue… and calm them down was a challenge to think about how to communicate."*

Large numbers of patients provided more opportunities for learning from interactions with patients and gaining more experience and mastery in patient management. Interns realized their knowledge deficiencies and felt a need for further study from valid and up-to-date resources. Lack of time due to overwork also affected the amount and the selection of resources: *"Due to the large number of patients, it helped me to realize my lack of experience and information first… and showed me the need to gain information in a very short time."*

Theme 5: Experiences by the observation of professional behaviors

Interns observed positive professional behaviors of faculty teaching staff and residents in their daily clinical work (such as seriousness, calmness, being on time and taking responsibility), during their interaction

with patients (such as patience, empathy) and with colleagues (such as mutual respect and teamwork). These experiences led interns to think about their own values and they gained a better self-knowledge and decided to model the behaviors that they had witnessed: *"The follow-up performed … made me think that if I was to be a successful doctor 1 day, I would have to worry about my patients like this."*

Interns also described unethical or unprofessional behaviors of some clinical team members, such as mistreating colleagues or abusing junior colleagues. These negative experiences reduced the interns' interest and satisfaction, discouraging them from taking interest in the specialties and led them to think about appropriate reactions and their own future behaviors: *"I myself should not deal with interns in this way during my residency, and I should pay attention to ethical principles."*

Relying on the extensive knowledge and experience of some of their teachers, the interns modeled their approach in patient management and solved their own ambiguities. They observed the influence of their teachers' practical experience on patient management and realized that the knowledge in the books alone was not enough for making clinical decisions: *"The most applicable has always been the information of professors because the information of residents was often raw and the information of valid scientific sites could not be done due to a number of shortcomings in the hospitals and medical centers."* On the other hand, some interns noted errors in patient management or inconsistency of treatments with guidelines by some attending physicians and residents and these experiences moved interns toward independent study of valid and up-to-date resources.

Theme 6: Experiences through the uniqueness of different specialties

Experiences in surgical and gynecological wards
Some interns became more interested and hopeful by experiencing practical procedures in surgical and gynecological wards. They became less afraid of the procedures, gained more confidence, and this reinforced their interest or disinterest in the specialty. Observing the improvement of patients following surgical procedures was also effective in interns' interest, satisfaction, and feeling usefulness.

The reality of these specialties, such as high workload and stress, emergencies, minority of women (in surgery) and men (in gynecology), and the specialists' lifestyle led some interns to reflect on their own abilities and expectations in choosing career: *"The experience of managing and observing trauma patients, and especially being in the operating room, gave me the confidence that as a future job, I will choose from the surgical field. Observing dramatic changes before and after surgery has been particularly effective in this regard."*

Experiences in internal medicine and pediatric wards
Interns were faced with more questions and ambiguities by confronting diverse patients of the internal medicine and pediatric wards. The higher prevalence of diseases and the vast amount of knowledge needed to manage patients in these fields led some interns to conclude that in order to become a good physician, they must have more mastery on these disciplines and felt a need to further study from valid resources: *"Internal medicine and pediatrics covered a wide range of medicine for me, and I felt that in order to be reasonably literate in my field of study …, I needed to be able to master pediatric and internal medicine."*

The poor condition and prognosis of internal medicine patients made some interns feel that many of their efforts were in vain and they were less inclined for continuing the study in this field.

In the pediatric ward, communicating with children and their parents which required greater patience and empathy had become a challenge for some interns, prompting them to reflect on their interactions and their own ability of communicating and examining children: *"Dealing with children requires complete patience and proper time, that my personality was not suitable for this field and appropriate communication with children."*

Discussion

In this qualitative survey, the key features of the experiences that stimulated interns to think about themselves, their interactions with others and their way of understanding the complexity of knowledge acquisition and application were identified into six main themes including experiences by being respected and validated, experiences by involvement in patient management; experiences by participation in interactive learning environments, experiences by participation in authentic clinical work environments; experiences by the observation of professional behaviors, and experiences through the uniqueness of different specialties.

An important finding was that interns interpreted and reacted to similar experiences in different ways, which may have stemmed from their different self-authorship developmental stages.[7] Longitudinal studies have shown that self-authorship development does not usually follow a linear progression; it may vary from person to person and an individual may regress to his/her previous stages during some difficult contexts.[14] Therefore, providing a wide range of challenging crossroad opportunities within a supportive context is essential for promoting students' development toward self-authorship.

Identifying the more detailed meaning making process and probing the detailed consequences of the experiences was not possible through the questionnaire. Therefore, it cannot be concluded that all the experiences described by interns changed their phases of self-authorship. Moreover, interns described a wide range of both challenging and supportive experiences in different rotations. This combination of challenges and supports was presented in experiences under three themes of "respected and validated," "interactive learning environment," and "observation of professional behaviors." However, the challenging experiences under each theme can be considered as potential crossroad experiences that could provoke interns' development across the three dimensions of self-authorship in an appropriate supportive context.

The findings of this study suggest that the personal and professional development of interns could be potentially fostered through the situational experiences of working in different clinical settings during clinical rotations. Being respected and validated as an effective member of the patient management team and the observation of professional behaviors of role models were important factors for this development. Interns' enhanced self-confidence and better self-understanding of their own values, capacities, interests, and priorities following these experiences, are also similar to the description of personal development by the participants in Magolda's studies.[7]

The highly interactive learning environment of internship rotations and the required collaboration with other clinical team members for managing patients led interns to understand the necessity of adjusting their own way of interactions with other clinical staffs to have optimal learning and performance. This can indicate their personal and professional development, which is also similar to other previous studies.[7] Confronting the mistreatments or abuses in the hierarchical environment of clinical settings was another potential stimulus for development described by interns. The students' dissonance caused by negative experiences in relationships has also been shown to have self-authorship developmental effects.[25,26] Gaining confidence in expressing one's feelings and needs has been identified as a notable challenge for some students.[25] However, the learner's low status position in the hierarchical system of medicine can make them feel disempowered[27] and dismissed.[28] A common strategy of medical students for negotiating hierarchy is demonstrating humility in their interactions with others and acquiescing to the lead of their supervisor.[29] Further research is needed to investigate the effects of the clinical hierarchical environment on the self-authorship development of medical students.

Involvement in patient management confronted the interns with ambiguities, different approaches, and the influence of various factors in clinical decisions. Case discussions to explore the practices of teaching staff providing clinical care could portray that knowledge construction is complex. Interns' subsequent eagerness to engage in more learning and study of up-to-date resources and applying knowledge in a new way could indicate their cognitive development[13] and aligns to the important effect of authentic experiences for personal and professional development.[30]

An interesting finding of this study was the differences in interns' description about surgical and internal medicine wards. Surgical rotations were more frequently stated in response to the intrapersonal domain question, with the description of better self-understanding of own interest in procedural works or capabilities for difficult conditions and a particular future lifestyle. Internal medicine rotations were more frequently stated in response to the cognitive domain question due to the breadth, diversity, and prevalence of the diseases that made some interns feel a need for further study of up-to-date resources. This raises the question whether different disciplines would have different developmental effects on students. Variation in students' meaning making[31] and reflective judgment[32] depending on disciplinary differences have been reported previously. We therefore recommend that the self-authorship developmental effects of clinical education in different specialties be further examined in future research.

The findings of this study could help medical educators to create a rich environment for promoting self-authorship of medical students. Teachers can create crossroad opportunities by providing authentic experiences of patient management in the real-world clinical settings. However, it is crucial to provide an appropriate supportive context. Teachers should respect and validate learners' capacities to know by trusting their abilities to make judgments. This validation is a key characteristic of settings in which learners are regarded as professionals.[13] Medical educators can demonstrate their own approaches to ambiguities and complexities of patient management, so the learners could model them. Dialog as a form of communication can shift the hierarchical discussion to a more collaborative relationship with equal roles of individuals, and this is suggested as a way toward mutual recognition and respect, from which trust may grow.[33]

Strengths and limitations
To our knowledge, this is the first survey with a high response rate about the key features of the crossroad experiences across major internship rotations in Iran. The high response rate to the survey strengthened this study.

The study was limited by the nature of questionnaire in which participants' short answers with ambiguous or judgmental terms (such as good or bad behavior or abuses) could not be probed. Moreover, our findings were limited by experiences that interns remembered and credited as important. Therefore, it is possible that some developmentally effective experiences may have been excluded. However, the questionnaire provided a way for accessing the perspectives of interns across a wide variety of experiences who might not have cooperated with interviews. Future research can be conducted with a more in-depth exploration of the key features of the numerous crossroad experiences during clinical rotations and their consequences on self-authorship.

Conclusion

Self-authorship is an essential capacity for professional practice in medicine. This qualitative survey identified a variety of potential crossroad experiences that could promote interns' personal and professional development along the three dimensions of self-authorship. Authentic experiences of patient management in the real world of clinical settings can effectively provoke interns' development but the study highlighted the importance of support from their teachers. Medical educators can support learners by respecting and validating the values and beliefs of interns, and it is also essential that they provide appropriate role modeling of professional behaviors. This study also suggested possible differences in the developmental effects of surgical and internal medicine rotations on medical interns. Further research is recommended to explore the impact of the hierarchical system of medical education on self-authorship and also the impact of rotations in different specialties.

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Conflicts of interest
There are no conflicts of interest.

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