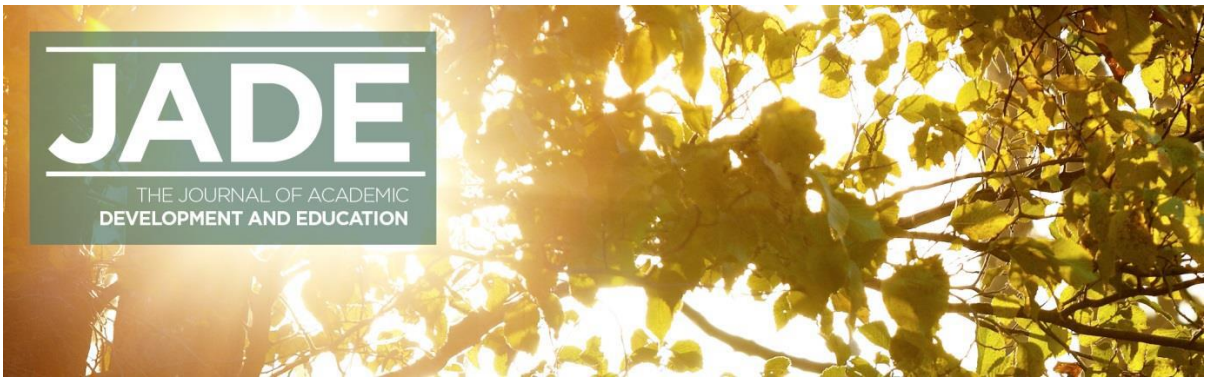

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Article:

Comparing the Experience of Mature-Aged and Traditional Medical Students in the Clinical Setting: A Qualitative Approach

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Abstract

Background: Although the mean age of first year medical students is 24, an increasing number of "mature-aged" students, defined as over age 30, are entering medical school in the United States. Few studies have employed qualitative methodology to determine the experience of mature-aged medical students, especially in the clinical setting.

Purpose: The purpose of this study was to employ a qualitative design to compare the experience of mature-aged and traditional medical students on clinical rotations.

Methods: Using a qualitative research design, third-year medical students at The George Washington University were recruited and interviewed from April till May 2012 until saturation in emerging themes was achieved. Five mature-aged students and four traditional students participated in individual semi-structured interviews, which were recorded, transcribed and analyzed using qualitative methodology. Trustworthiness was ensured using epoché, journaling, coding and analyzing data based on Moustakas' methodology, and triangulation of data analysis. Concept maps for each study group were created using Leximancer analysis software.

Results: Life experience, work experience and age emerged as major factors in determining medical student perception of expectations and role. Within these emergent themes, distinct differences were noted between the responses of the mature-aged and traditional medical students. Concept mapping confirmed these findings.

Conclusion: We have shown in this study that mature-aged students draw upon previous life experience, which shape role expectations, as well as medical team dynamics. Understanding the experience of mature-aged medical students in the clinical setting may have implications in medical school admission, curriculum design, and approach to clinical medical training.

Introduction

The demographic of students entering graduate-level education is changing. Today's students are presenting with a broad range of learning preferences and perceptions shaped by their diverse cultural backgrounds and past experiences. The mature-aged student is becoming a topic of interest in higher education. Although there is a trend of older students returning to education, the definition of mature-aged students in the literature varies between and within professional fields.[1-3] Several studies examined academic persistence and performance of mature-aged students in higher education, focusing on time-management skills, intellectual ability, and the effects of aging.[3,4]

In the United States medical field specifically, this trend is not well investigated. Admission of older applicants is being encouraged in the nursing field, driven by healthcare demands.[5] The motivation and consequences of admitting mature-aged students in medical schools is not well elucidated.

In the United Kingdom, the majority of students entering medical school are 18 years old, coming directly from school.[6] Mature-aged students are considered adults over 21 years of age[6-8] that enter the medical school curriculum and this emerging phenomenon is being extensively studied. Some apply after completing a first degree and others after having worked for several years.[7] Some institutions have established preparatory years to help them reintegrate the school system.[6] These mature students, as per the United Kingdom definition, were motivated by various factors, from change to consolidation in career path.[9]

The Australian Medical System is very comparable to the System in the United States whereby all students enter medical school after completing an undergraduate degree and the

traditional students are on average 23 years old upon admission. These programs are believed to allow entrants sufficient time to make a mature and informed decision.[10]

Although the mean age of the first-year medical student in the United States is 24 years old, an increasing number of "mature-aged" and "non-traditional" medical students are entering medical school.[11-13] Initially considered with some suspicion and a potential risk to schools[14], this view is now changing. An initial reluctance of medical school admission committees to accept older applicants has given way to broader admission criteria and acceptance of students with a variety of backgrounds and life experiences. These non-traditional students often report a different medical training experience compared to their younger counterparts.[15] These students may be in their 30s or 40s, may already have families, and may have established themselves in another career before pursuing medicine.

Most studies of mature-aged medical students have examined academic performance using a quantitative research design. Examining age as a predictive variable for academic performance, Cariaga-Lo and his colleagues[16] found that mature-aged students are at higher risk of failing than younger medical students. In comparing older medical students with those younger than 25 years, older students exhibited lower basic science course scores than younger students, but clinical scores did not differ between the two groups.[11] A study conducted in an Australian medical school concluded that academic grades were similar for both groups, although older students reported more barriers and younger students won more academic honors.[17] Haist and his colleagues found that older female students performed significantly better on clinical tasks than younger students and men.[18]

Few studies have employed a qualitative methodology to determine the experience of mature-aged medical students. Researchers at McGill University conducted a focus group of 21 medical students over the age of 25. The students identified three main themes of frustration in comparing themselves to younger medical students: difference in educational priorities, lack of social support, and loss of previous personal and professional identity.[11] A group at the University of Colorado conducted a focus group of eight fourth-year medical students over the age of 30 to determine if there were differences in attitudes and beliefs between older and younger medical students. The older students identified themes of increased home responsibilities relative to their peers, lack of perceived respect by medical staff compared to their previous career, and a tendency to be more active participants in learning.[12] Another study also found similar themes in one-on-one interviews of four mature-aged medical students at an Australian medical school.[19] Some believe non-traditional medical students bring life experiences, maturity, diversity, and a broader perspective to medical training. However, little is known about the mature-aged medical students' experience in the clinical setting, and how their experiences compare to traditional medical students.[11]

Understanding the experiences and unique issues of mature-aged medical students is potentially a step towards establishing new or even "better" ways that medical schools could select applicants for admission, and hence, the quality of physicians in practice. The purpose of this study was to compare the experience of mature-aged and traditional medical students on clinical rotations at a large urban medical school, employing a qualitative design.

Methods

This is a phenomenological study[20] conducted in order to understand lived experiences. The central research questions were: What is the experience of clinical rotations for mature-aged third year medical students? Is the clinical experience different for the mature-aged medical students compared to traditional students?

This project was approved by the Institutional Review Board (IRB) at The George Washington University, as an exempt study (IRB #051224). A recruitment e-mail was sent to all third and fourth year medical students participating in the clinical component of a four-year Doctor of Medicine program from May until August 2012. Responders were interviewed until saturation was achieved. A total of nine third year medical students participating in clinical rotations were interviewed, five of which were over the age of 30 and the other four were under the age of 30 at the onset of medical school. Face-to-face interviews were conducted in a private setting and lasted approximately 45 minutes. Consent was obtained from all participants prior to initiation of the interview. The interviews were semi-structured to allow for full discussion (Table 1). Demographic data for the medical student population included in the study are displayed in Table 2. Interviews were recorded and then transcribed. Moustakas' (1994) methodology was utilized to analyze the data, with multiple strategies employed to ensure trustworthiness of findings. The epoché technique was implemented as a first step in analysis.[21] The interviewer also employed journaling throughout the process. All of the interview transcripts were read, coded and the data then clustered into three main emergent themes. Triangulation was utilized to ensure that biases were minimized in data analysis.[12]

Identification of concepts and conceptual mapping was performed using Leximancer, version 4.0, a visual text analytic software tool used for analyzing qualitative data. The system

captures textual data, identifying related words and grouping them together in clusters, to create visual semantic maps. Colored concept map generated using Leximancer shows the strongest concept in warmer colors (red, orange/brown) and the more minor relevant concepts in cooler colors (shades of green, blue and purple here). The size of the circles is a visual representation of the frequency of the concepts. The words within each circle represent the thesaurus of relevant words that were included in the development of the concept.[22]

Results

From the transcribed interviews three main themes emerged:

Abundant life experience influences the student's perspective of their role as a medical student on clinical rotations.

This theme emerged from the following categories: reason to pursue medicine, past experiences and background, and expectations of the medical student (Table 3). Reasons for entering the medical field differed between traditional and mature-aged students. Mature-aged students cited influence of physician mentors and dissatisfaction with previous career choices. Younger students described mainly altruistic, as well as cultural and family influences in finalizing their decision. When discussing their role as a medical student, mature-aged students readily cited past experience, drawing upon personal life events, illness, and family. Mature-aged students adapted their role to patient needs, related to past experience. Mature-aged students were more apt to identify a long-term personal goal in medical education, often related to a special patient population. These themes were noticeably absent in the dialogue of traditional students, who focused mainly on extracurricular activities related to diversity. Also, expectations are shaped by past experience: Mature-aged students expressed a very definitive view of their

role in medical education, including expectations and demands. Mature students readily acknowledged the cost of medical school, expecting value from their investment. Lack of control of personal time was an unexpected challenge for mature-aged medical students, especially those with children. Traditional medical students noticed differences in how younger versus older medical students approach medical school demands. Younger students expressed surprise in the importance of the personal interaction component of succeeding in the clinical environment.

Previous work experience shapes expectations of the role as a physician in training on clinical rotations.

Sub-themes of transition into the clinical years, learning style, and comfort level in the clinical setting forms this main theme (Table 4). Mature-aged students described taking initiative and autonomy with more confidence than their younger counterparts, linking the transition to previous experiences in the workplace. Traditional students recognized their inexperience and initial nervousness in the clinical setting. Younger students emphasized the central role of mentors in allowing them to gain confidence in the clinical setting. They also relied more heavily on preparation to feel comfortable than mature-aged students. Although traditional students expressed discomfort with autonomy, mature-aged students welcomed independence and enjoyed working in a team. Students with prior work experience preferred "learning by doing," jumping into patient interactions without hesitation and viewing every encounter as a learning experience, without regard to perfect performance.

Age plays a role in the students' ability to relate to senior members of the medical team, as well as medical student colleagues.

Categories of comparing oneself to peers, relating to the medical team and specialty choices contributed to this emerging theme (Table 5). Traditional medical students reflected that they sometimes feel insecure about their young age, especially with older patients. In contrast, mature-students embrace their acquired social skills, and even express concern over younger students' lack of life experience. Even younger aged students see this difference as they are called upon to "grow up" faster and become "more realistic" as they enter the clinical setting. In relating to other medical professionals, mature-aged students stated they feel more comfortable relating to others in their age group, despite potential hierarchical barriers. They feel more natural interacting with the same generation in a work environment. Traditional medical students express awareness of their lack of life experience, noting that they feel uncomfortable about being young in the clinical setting. Young students adhere to the hierarchical nature of medicine, with defined boundaries between the physician and student based upon both age and experience.

Concept Maps

From the mature aged students' interviews (figure 1) Leximancer extracted the seed concept "feel" (100%, in red in the concept map), mainly linked to "year" (75%, in orange/brown) and "experience" (70%, in yellow). There is more focus on the individual's years (75%) and the medical experience (70%) and how he feels (100%) for this is at the center of the interaction with everything else; it is more the approach of a trainee position in medicine (43%, in green), rather than the approach of a student (19%) on rotation (5%,in blue).

From the Non- Mature aged students interviews (figure 2), Leximancer extracted the seed concept "setting" (100%), represented in red in the concept map, mainly linked to "school"

(72%, orange/brown) and “things”(44%, brown/yellow). There is more focus on the setting (100%) and school (72%) and how it is at the center of the interaction with everything else, the true approach of a student. Experience (6%) in life (10%) and work (6%) has much less impact.

Time is equally linked to the central theme in both maps; 28% in figure 2 and 21% in figure 3. Students from both groups give time equal importance, but from a different perspective; for the mature-aged students it is essentially linked to the core concept “feel” (in red) so it has a very personal dimension while for the non-mature-aged students it is essentially linked to the core concept “setting” (in red), so more in touch with the outside daily environment.

Discussion

Mature-aged medical students may experience the clinical years differently than traditional medical students. This study employed a qualitative research design to compare the experience of mature-aged medical students to traditional students in the clinical setting. Three main themes emerged from the research, which may not only aid medical educators in understanding the perceptions of mature-aged students, but also may have implications in admissions, curriculum design, and support initiatives.

Previous life experience influences the student’s perspective of their role as a medical student. Considering the decision to enter the field of medicine, mature-aged medical students were more likely to express dissatisfaction with a previous career and consultation with a physician friend or mentor, whereas younger students cited cultural or family influences in their decision to pursue medicine. This supports previous literature, finding that parental expectations were more commonly cited by younger students and altruistic reasons in mature-aged students.[17] Among mature-aged students, reasons for delayed entry into medicine included late

consideration of medicine as a career, financial problems, and dissatisfaction with previous career, poor academic results or a combination of the above.[17] Understanding the primary motivation of mature-aged students in undertaking medical careers can assist medical school administrators in admission needs, as well as welcoming contributions of this new and increasing segment of the student population.[23]

Although both older and younger students drew upon past life experiences when discussing their path to medicine, mature-aged students took reflection one-step further to connect personal and family life events to how they approach patient interaction. As displayed by the Concept Maps, mature-aged students focused more on "years" and "medical experience" in relation to "feeling" in describing their clinical interactions. Traditional students focused more on "setting" than "feel," linking to concrete concepts, such as "school" and "things." Studies have shown older medical students to be more active learners.[11,12] These findings support basic adult learning principles, where information that is applicable and based in previous experience is more readily learned. In addition to having different learning styles, mature-aged students are more inclined to self-reflect.[19] Mature-aged students may consider the more humanistic aspect of patients, rather than subjects that advance an individual's medical education.

Mature-aged medical students tended to have strong views on their role of medical student and medical education. They highly valued their time, finding lack of control over personal time as an unexpected challenge, especially in the clinical years. Although time was an equally cited central theme in the Concept Maps, older and younger students linked the theme of time differently. Mature-aged students linked "time" to the core concept "feel," indicating an internal, personal dimension, while traditional students linked "time" to the core concept

"setting," an external factor. This could be considered a disadvantage of older age as described by Jauhar 2008, for the medical profession and its training requires a time commitment that cannot be controlled.[13]

Previous research has indicated that older students experience isolation and loneliness from other students due to perceived differences. They are more likely to express missing previous social support, challenges to family life, and financial difficulties.[11,12,17,19] The mature-aged students interviewed in the current study did not express as many concerns over isolation, citing friendships with other mature-aged students or fostering older-relative relationships with traditional students. This may improve with increased admission of mature-aged students. Although scheduling issues and unclear objectives in the clinical environment were a minor frustration for older students, mainly due to time impingement, these were also viewed as expected components of life.[13] In general, older students had higher expectations, but also a more realistic view of their role in medical education.

In addition to basic life experience, previous work experience especially shapes expectations of the role as a physician in training on clinical rotations. While traditional medical students express concern over quick decision-making in the clinical environment, mature-aged students look forward to taking initiative in medical situations and thus have an easier transition in the clinical setting.[24] The observed strength of mature aged students in medicine was to be single-minded and able to act quickly, almost reflexively, which is very important in critical situations.[15] This ability, likely derived from previous life and work experience, may explain the increased confidence of mature-aged students in clinical situations.

Studies on diagnostic abilities of medical students showed an association between high diagnostic thinking scores and students' high self-confidence, high motivation to learn and abstract learning types.[25]Mature-aged students tend to have more self-confidence when they enter the clinical years, especially in their communication skills as shown by our study. Therefore, these highly motivated and self-confident learners might have better diagnostic abilities. Mature-aged students have a greater capacity to self-reflect and are better able to relate to patients.[19] Communication skills, such as being attentive, listening, responding, demonstrating empathy and rapport are recognized as fundamentals for a good clinical practice. Many medical schools have implemented training programs to develop these important skills.[26]

Finally, age plays a role in the students' ability to relate to senior members of the medical team, as well as medical student colleagues. Age may change the dynamic of the hierarchical medical team, where ages may or may not correspond to level of training. Young students more readily embrace the hierarchy in medicine, which can be compounded not only by clinical experience, but by age and life experience of older team members. Mature-aged students enjoyed working with others of similar age in a work environment; although, at times this created uncomfortable situations, especially with resident physicians who are still in training. The medical profession requires a certain level of energy and intensity of commitment, which may be a realistic challenge for older medical students. Previous life experience may make it harder for mature-aged students to conform to hospital hierarchy and order.[15]

Age may play a role in specialty choice, although this was not demonstrated in our study. Mature-aged students typically related their planned specialty choice to their past life and work experiences. Although older students did cite lifestyle as a consideration, it did not seem prohibitive to specialty selection in our study. According to previous research, mature-aged

students were more likely to enter into private solo-practice, with a smaller proportion seeking careers in teaching and research.[12,17] Many older students choose primary care.[27] Although this was not supported in the current findings, it would be interesting to determine which residencies mature-aged medical students ultimately seek, match and complete. A Study by Anderson and Thorpe[28] shows the need to consider age when bringing together people from different professions for early inter-professional interaction in higher education. An interesting future study could be conducted to study that aspect in our student population.

Strengths of this study include adherence to tenants of qualitative research to achieve trustworthy results. There are a number of limitations to this study. First, the mature-aged student lacks a consistent definition, with age ranging from 25 to 30 years in the medical education literature. More importantly, solely using age as a criterion may discount critical life experience, which is difficult to measure or define. In any study where participants are not randomly selected, there exists the potential for selection bias. Students with a particular interest or strong views on their role in medical education may be more apt to participate in the research. This study is also limited by including only senior medical students at one large urban medical school.

In conclusion, age, work and life experience shape the expectations and role of mature-aged medical students (Figure 3). The researchers plan to utilize the findings of this pilot study to develop quantitative and qualitative questions to distribute to medical students at multiple training sites for further exploration of this topic. The first step in evaluating and modifying the clinical curriculum is to understand the experience of both traditional and mature-aged medical students, and how they interact with each other. This is an important consideration when committing to mature-aged students in the admission process. These differences also have

implications in developing unique support systems, positively reinforcing application of life experience in the clinical setting, and utilizing the views of mature-aged students in improvement measures.

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Table 1: Interview Questions:

1. Please tell me what led you to Medicine.
2. How are you finding the experience of becoming a student again as an adult?
3. What was it like for you when you started working in the clinical setting?
4. What life experiences have you had that you think had an impact on your interaction in the hospital? a. Can you give me an example of a particular life experience and how it has impacted your interaction in the hospital? b. Out of all of the experiences you have had, why did you select that particular interaction?
5. Please tell me about a circumstance where you felt very comfortable in the clinical setting.
6. Describe circumstances where you felt uncomfortable in the clinical setting.
7. I am curious about your experience in the different specialty tracks. Do some tracks stand out more than others for you and why?
8. How are you going to determine what field of medicine you want to go into?
9. As you reflect back on the hour and a half we have spent together, what are the things you want to make sure I capture when I prepare the findings?
10. Do you have any questions for me?

Table 2: Demographic Data for Third Year Medical Student Population

Student Demographics	**%**
Gender	
Female	53
Male	47
Age Distribution	
>30	5
25-30	57
22-24	38

Table 3

Theme 1: Abundant life experience influences the student's perspective of their role as a medical student on clinical rotations

Sub-theme	Example quotes
Reason to pursue medicine:	
Traditional	*"I think what led me to medicine was being able to help people in a very personal way because there are lots of ways to help people but I think, it seems to me like medicine is a very like intimate way to help somebody very quickly."*
	"And then when my sister passed away early on I started to see medicine as a way to help people, a way to help families."
Mature-aged	*"I was not feeling fulfilled with work anymore, with my career… [I] volunteered at the hospital, in the ER, talked to all my doctor friends… the more I got into it, the more I realized that it was the perfect fit for me."*
Past experiences and background:	
Traditional	*"I did not have any life-defining moments or anything like that."*

	"In undergrad I was one of those people that was super-involved… I volunteered with a program called alternative spring breaks… studying abroad… studying anthropology."
Mature-aged	*"Definitely having kids, going through pregnancy, being married and divorced. That actually also just helps in connecting with patients…"*
	"When I am in the hospital with the patient I am always thinking about maximizing the patient's experience because I have been a patient."
	"That's what I am passionate about, and I think all of that has come having lived my life throughout my twenties and that's when you really have had more useful experiences and you really kind of figure yourself out… these topics, primary care, HIV, helping the underserved, that is what I do and know and enjoy."

Expectations of the medical student

Traditional	*“I did not take time off and it seems like people in my situation tend to at least start out more optimistic about the whole thing and end up more disappointed in the end when they start dealing with people on a daily basis... whereas a lot of my friends that are older seem more realistic, in that they have had more life experience in the workplace and dealing with people in that setting."*
Mature-aged	*“I believe I am a consumer of education and I want value for my money.”*
	“Losing that autonomy to control your schedule was the biggest challenge for me."

Table 4

Theme 2: Previous work experience shapes expectations of the role as a physician in training on clinical rotations

Sub-Theme	Example quotes
Transition into the clinical years	
Traditional	*"…having to make really quick decisions is not something I am used to doing…"*
Mature-aged	*"Relating it back to the classroom when I was teaching... if something goes wrong in the classroom, I need to respond pretty quickly... you are thinking ahead of what actually could happen and I think it's an incredible skill you should have as a third year [medical student], predicting what you could do to help the team and not just sitting there waiting for someone to tell you what to do."*
Learning style	
Traditional	*"I felt comfortable in the clinical setting more times than not... that has to do with having good mentors that have prepared me for*

	what's coming and also kind of doing my homework and studying and making sure I felt comfortable partially out of fear."
Mature-aged	*"I learn much more on my feet, I learn much more by doing... getting autonomy, when you get a chance to actually go in and you are the one who sees the patient."*
Comfort level in the clinical setting	
Traditional	*"I think everyone starts third year being really nervous..."* *"I did not feel comfortable because I did not know what exactly I was doing, but usually feeling uncomfortable seems to have just been the result of not seeing someone else do it first".*
Mature-aged	*"There are certain things just because I am older and I have experienced more in my life that I feel like I can say without feeling, you know, concerned that I am saying the wrong things."*

Table 5

Theme 3: Age plays a role in the students' ability to relate to senior members of the medical team, as well as medical student colleagues

Sub-Theme	**Example quotes**
Comparing oneself to peers	
Traditional	*"I get a little uncomfortable maybe because of my own insecurities about being a young medical student."*
Mature-aged	*"I feel like working before has done incredible things. I feel more mature, I feel like I can handle lots of different situations. I recommend everybody to do real work before medical school".*
Relating to the medical team	
Traditional	*"There were multiple times… where I felt that the attending was intentionally trying to make me uncomfortable and make me cry… but I was kind of prepared and so when it was happening I was like okay you are trying to*

	make me uncomfortable and it did, but I tried to say focused."
Mature-aged	*"I do feel more comfortable working with residents and upper attendings that are my age. Third year I finally get to be normal again and be myself and use my life experience that I already have for patient care... in the work environment, I felt more myself."*
Specialty choices	
Traditional	*"I want to be the type of doctor that when I am done with medicine I can look back and see all of the families I helped… even days when I am exhausted, I still want to read and wake up early and work really hard."*
Mature-aged	*"I had concerns about work-life balance with OB, which is why all things being equal, I chose psychiatry because I want to have a life and I have children and I want to be there for my girls. I don't have anything to prove."*

Figure 1: **Concept Map for Mature Aged Students Interviews**

Colored concept map figure generated using Leximancer shows the strongest concept in warmer colors (red, brown/orange) and the more minor relevant concepts in cooler colors (shades of green, blue and purple here). The size of the circles is a visual representation of the concepts. The words within each circle represent the thesaurus of relevant words that were included in the development of the concept.

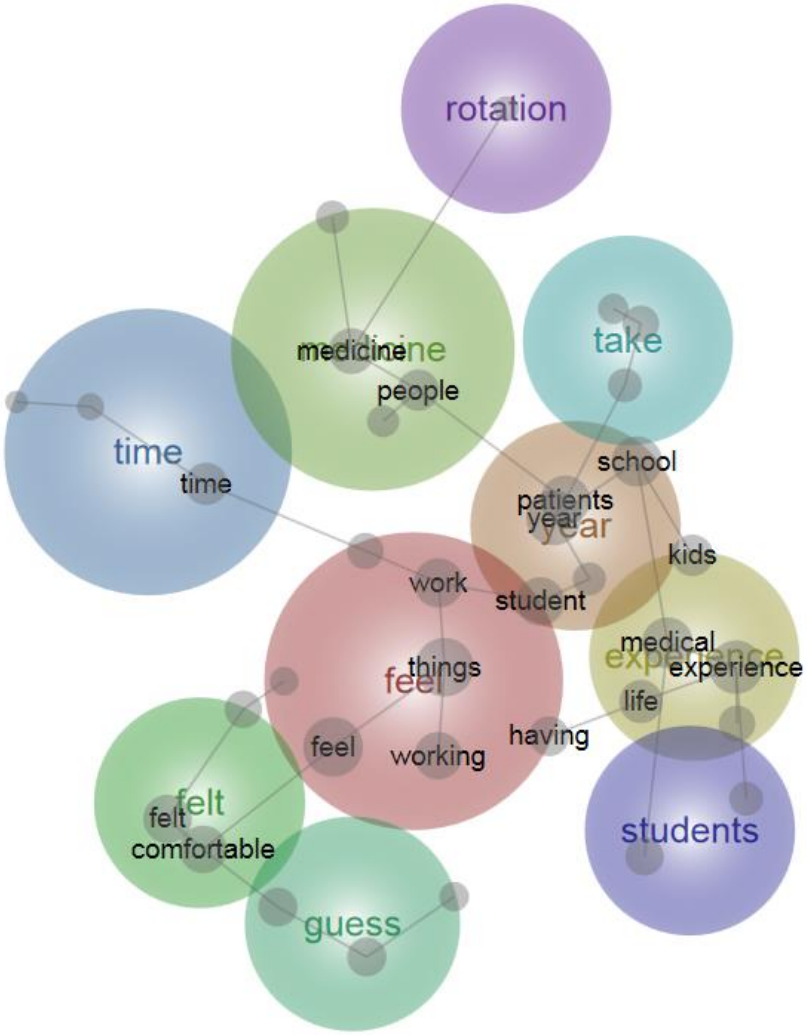

Figure 2: **Concept Map for Non- Mature Aged Students Interviews:** Colored concept map figure generated using Leximancer shows the strongest concept in warmer colors (red, brown/orange) and the more minor relevant concepts in cooler colors (shades of green, blue and purple here). The size of the circles is a visual representation of the concepts. The words within each circle represent the thesaurus of relevant words that were included in the development of the concept.

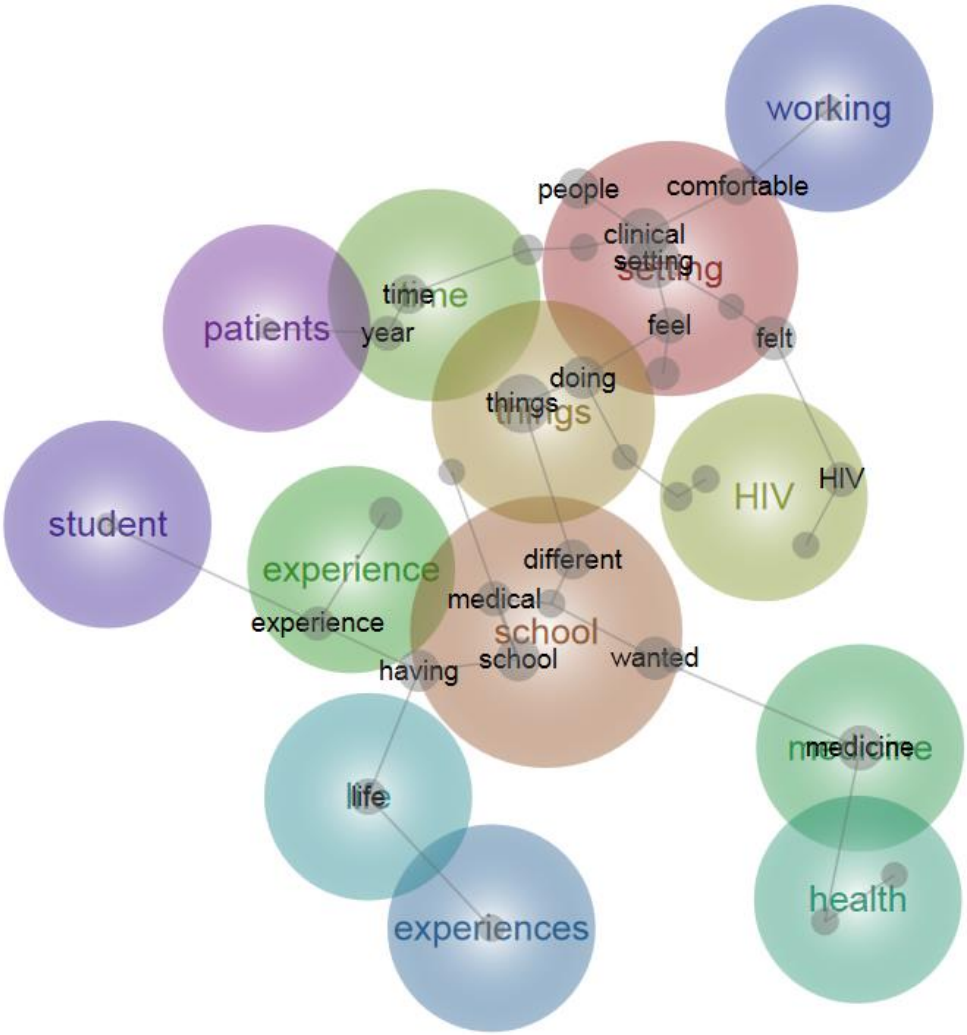

Figure 3: Schematics showing the hypothesis we derived from our pilot qualitative study:

Age, work and life experience shape the expectations and role of mature-aged medical students.