Enriching Medical Student Learning Experiences

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ABSTRACT

OBJECTIVE: Medical students should develop skills in assessing their own learning needs and developing strategies to meet those needs. Medical curricula should be designed to provide active and enriching ways to explore medicine beyond the classroom. The program should enrich the elements of motivation, discovery, innovation, social services, cultural exploration, and personal development. The University of Kansas School of Medicine instituted a new curriculum in 2017 called ACE (**A**ctive, **C**ompetency-based, and **E**xcellence-driven). Eight 1-week courses of enrichment experiences are embedded within the first 2 years of the curriculum.

METHODS: After each of 8 medical content blocks, students are required to participate in a 1-week, nongraded enrichment experience according to their own learning needs and interests. Students choose the type of enrichment activities including clinical experiences, professional development, leadership development, research and scholarly activity, and community engagement. Students select their top enrichment choices and a computer lottery makes the assignments from their designations. Students engaged in research and scholarly activity are guided to appropriate research mentors.

RESULTS: A total of 196 enrichment activities at 3 campuses were developed for 211 students during the first 2 years of medical school. Most students selected clinical experiences with enrichments available in most medical specialties and subspecialties. Students also use enrichment weeks to conduct research/scholarly activity, particularly those students pursuing the Honors Track. A total of 2071 enrichment experiences were completed in the first 2 years.

CONCLUSIONS: Most enrichments involved clinical experiences, although research/scholarly activity and professional development enrichments also were popular. Evaluations from students and antidotal data suggested enrichments are popular among students and a good change of pace from the usual rigorous activities of the curriculum. Because of the large number of experiences required to conduct the enrichment weeks, a continuous process of evaluation is required to maintain the program. Therefore, flexibility is required to administer the program.

KEYWORDS: Medical students, undergraduate medical education, experiential learning, educational activities

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Introduction

Programs where medical students get exposed to several elements of various competencies at the beginning of medical school are critical.[1] Curricular leaders should consider (1) implementing experiential learning; (2) diversifying the experience to cover a broad spectrum of competencies; and (3) customizing the programs to have elements of motivation, discovery, innovation, social services, cultural exploration, and personal development.

Problem-based learning transformed medical education even with the diversity of how it is practiced.[2] Medical schools are shifting to provide early clinical experiences and offering active small group experiences to promote learning and problem-solving. Medical students usually engage in workplace learning from the start of their studies.[3] Active learning maximizes learning and course performance.[4] Early clinical learning is triggered by authentic practice experiences.[3,5]

Experiential learning is constructing knowledge and meaning from real-life experiences to bring the learner into contact with others in a particular role and context.[3] Real-life experience is the most important medium through which people learn to practice as health care professionals. Authentic workplaces become more important as students progress through the medical curriculum.

Different learners need qualitatively and quantitatively different support to maximize the potential for positive learning from experiences at different stages.[1] Active learning requires the student to develop skills in assessing their own learning needs and developing strategies to meet those needs. Some strategies involve increasing the curricular time in small group, problem-based learning, and student-centered learning. Each of these strategies has a classroom component. At issue is how to provide early active and enriching ways to explore medicine beyond the classroom. The program should enhance the

elements of motivation, discovery, innovation, social services, cultural exploration, and personal development.[1]

The University of Kansas School of Medicine instituted a new curriculum in 2017. The goal of its ACE (**A**ctive, **C**ompetency-based, and **E**xcellence-driven) curriculum is to graduate physicians focused on improving the health and well-being of Kansans and the global community. To meet this goal, faculty seek to train physicians who will emerge as lifelong learners adapting quickly to continuous changes in the practice of medicine brought about by scientific and clinical discoveries. The ACE curriculum has early clinical exposure through multiple mechanisms, along with an orientation toward clinical problem solving and patient presentation from the first day of medical school.

The new ACE curriculum is innovative, and features flipped classrooms, case-based collaborative learning, problem-based learning, simulation, and clinical skills labs. Eight 1-week courses of enrichment experiences are embedded within the ACE curriculum. In the first 2 years, eight 8-week blocks of educational content (4 each year) are provided based on integrated subject matter related to a specific system (eg, molecular and cellular medicine, respiration and circulation, brain, mind, and behavior). After each content block, each student is required to participate in a 1-week, nongraded enrichment experience according to their own learning needs and interests.

Enrichment programs offer a good opportunity for academic departments to demonstrate excellence and innovation in teaching.[6] The advantages to enrichments in preclinical years include (1) increasing career interest in early stages of medical school, (2) establishing ongoing mentoring relationships to maintain long-term interest, and (3) improving knowledge and skills which will give a head start to the clinical years. Enrichment experiences have been shown to be an effective method of increasing student interest in specific medical specialties.[6,7]

The purpose of this report is to document an innovative enrichment program for first- and second-year medical students that encourages experiential learning, exploration, and discovery. To our knowledge, no other medical school offers a similar design for enrichment activities.

Methods

The University of Kansas School of Medicine has 3 campuses. Each campus offers enrichment experiences for the local students. Local students have first choice for enrichments at their campuses. After the local choices are made, students from other campuses may select enrichments wherever they are available.

Clinical enrichments over the 3 campuses are available in most medical specialties and subspecialties. The students can experience medical specialties that they may not have had opportunity to encounter before medical school. Others have opportunity to enhance their interests in specialties where they shadowed or worked previously. Some students explore career options, while others seek to expand their understanding of various specialties. Some students develop new relationships with faculty who may assist them in residency matching.

Professional development enrichments provide opportunities to expand interests within the broader medical world. Enrichments include topics such as mindfulness, bioethics, doctor–patient communications, physician advocacy at the state medical society, and learning the electronic health record system. Community engagement enrichments include activities within community agencies and often with nonphysicians such as the emergency medical service, nursing collaborations, and forensic centers. Leadership development includes opportunities to develop skills with clinical directors, medical administrators, and community leaders. Students interested in research and scholarly activity have dedicated curricular time to complete projects. Some enrichments allow only 1 student per week depending on the learning environment and faculty; others take multiple students. Therefore, the number of available "courses" is high requiring placement and tracking up to 211 students during each enrichment week.

The ACE curriculum created an Honors Track for medical students. The Honors Track requires a research/scholarly project, presentation of the project at a conference, and preparation of a publication-ready manuscript. Students on the Honors Track and other students interested in research may use 4 enrichment weeks, plus the intervening summer, to work on projects. Honors students are expected to be the lead investigator with appropriate supervision from faculty. Scholarly activities are defined broadly, and projects may be in the basic sciences, clinical sciences, or quality improvement.

Students select an experience in 6 of the 8 designated enrichment blocks. Two enrichment blocks are prescribed by the school for professional development. Only students who must remediate the previous 8-week block are excused from enrichment to allow in-line remediation over the course of the week.

First- and second-year medical students choose the type of enrichment activities that they will participate in. With the exception of research and scholarly activity, the enrichment activity must be different for each block, affording them opportunities to explore a variety of learning experiences. Students select their top enrichment choices and a computer lottery makes the assignments from their designations. Students engaged in research and scholarly activity are guided to appropriate research mentors.

Enrichment faculty are recruited by the enrichment director on each campus. Specific objectives for the week are determined by enrichment faculty with input from the campus enrichment directors. Clinical enrichments are developed with objectives appropriate for preclinical students by providing them opportunities in environments to highlight the practice

Table 1. The number of enrichment activities available on each campus by type.

ENRICHMENT TYPE	KANSAS CITY CAMPUS	WICHITA CAMPUS	SALINA CAMPUS
Clinical experiences	82	56	6
Professional development	13	6	7
Leadership development	2	3	0
Research and scholarly activity	3	5	2
Community engagement	4	6	1

Table 2. The number of enrichment activities completed on each campus.

ENRICHMENT TYPE	KANSAS CITY CAMPUS	WICHITA CAMPUS	SALINA CAMPUS
Clinical experiences	1008	239	11
Professional development	182	49	40
Leadership development	15	2	0
Research and scholarly activity	405	14	3
Community engagement	85	11	7

of the medical specialty. Similarly, community engagement enrichments provide opportunities in environments highlighting the roles and responsibilities of community agencies. Professional development enrichments highlight experiences that develop desired attributes of aspiring physicians. Leadership enrichments are developed to highlight physician leadership roles.

Although the enrichment week is nongraded, students are asked to complete a reflection paper on their experiences. They provide their faculty advisors with information related to how the enrichment motivated their educational and career choices and what did not. They also maintain a daily diary of activities for their own benefit. Faculty complete a minimal evaluation regarding completion of enrichment objectives and a free-text summary of the experience. Evaluation data are provided to each student's coach and learning community director for follow-up and discussion. The reflections and evaluations provide feedback to faculty advisors as they discuss and review the students' personal learning objectives. To date, no compilation of the hundreds of student reflections has been completed.

Results

The ACE curriculum has completed its second year. Two classes have participated in enrichment activities. Although it is early to provide meaningful evaluative data, process information is encouraging. A total of 196 enrichment activities were developed for 211 students in each of the first 2 years of medical school. First- and second-year enrichments do not overlap; therefore, a maximum of 211 students must be accommodated at any 1 time. The Kansas City campus hosts 175 students each year. The Wichita campus has 28 students and the Salina campus has 8 students. Table 1 lists the number of enrichments available on each campus by type.

A total of 2071 enrichment experiences were completed in the first 2 years of the new curriculum. Table 2 lists the number of students who enrolled in each type of enrichment. Two classes of first-year students have completed enrichments, while only 1 class of second-year students have completed enrichments.

New enrichment activities are added as faculty see the opportunity to engage students early in their medical education pathway. Similarly, a few enrichments have been dropped because of the extra time requirements to teach preclinical students even for only 1 week at a time. Some activities are not available each enrichment week, because of faculty availability. Thus, available opportunities change slightly with each enrichment week.

A comprehensive evaluation of the entire ACE curriculum is ongoing, including the enrichment component of the curriculum. Enrichment directors evaluate student and faculty feedback on their experiences and perceived enhancement of the medical school experience. Early information suggests enrichment weeks are popular among the students. As shown in the tables, clinical experiences were the most popular enrichment activities. Research and scholarly activity experiences also were popular because of the link between the enrichment and the honors programs. Over 40% of each class has participated in research/scholarly activity during the first 2 years of medical school.

A continuous process of evaluation is required for the enrichment program. The large number of experiences (211 students × 2 classes × 8 enrichments) requires close attention

to details, and adequate resources must be made available in a constantly shifting educational and clinical environment.

Conclusions

An administrative burden exists to provide so many different experiences to 211 students during each enrichment week. The enrichment lottery is conducted weeks in advance; therefore, changes in faculty schedules occur frequently. Flexibility is required to administer the program. Also, the enrichment weeks are set months in advance without flexibility. Community enrichments vary for the best time to engage students and may not be available for each scheduled week. Thus, some activities are scheduled for each enrichment week; some are scheduled for only a few of the weeks.

Regardless of the administrative challenges, early feedback from faculty and students informs us that activities enrich the educational experience for students by giving them opportunities to explore and discover. Students desire some choice in their educational activities to enrich the core medical curriculum. Students like the experiences early in the curriculum as a change of pace from the rigorous academic studies and for a broader view of what medical practice will be for them in the future.

Faculty advisors report that feedback is overwhelmingly positive as students can engage in activities specific to their own interests. The honors program has thrived, in part, because of the dedicated curricular time available during enrichment weeks to work on scholarly activities.

Although the ACE curriculum has not been implemented completely over the 4 years of medical school, early review of its various components indicates the popularity of enrichment weeks among students and faculty. Thus, enrichment weeks will be maintained as part of the required curriculum. They provide a novel method to engage medical students and motivate their individual interests.

Author Contributions

All authors contributed jointly to the development and administration of the enrichment curriculum. All authors contributed to the writing and editing of this manuscript and have read and approved the final version.

Ethical Approval

This project reported on curricular development and presented administrative data only. It is not human subjects research.

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