

Technology, Tools, and Transformation: Enhancing Hematology/Oncology Fellow Education

Introduction

This influencer strategy supports establishing an innovative education plan for MD Anderson Cancer Center's Hematology/Oncology (Heme/Onc) fellows. The project focuses on unifying diverse educational technologies and learning techniques to cater to diverse learning styles, improve fellows' retention of knowledge, and eventually improve their board exam performance.

Utilizing the Six Sources of Influence model (Grenny et al., 2013) and a systematic approach to identifying key behaviors, this strategy provides a medical education organizational change roadmap. It addresses involving faculty, aligning resources, and promoting cultural change to offer fellows a modern, engaging, and highly effective learning experience. According to Godby, Patel, and Nguyen (2023), “fellow-led didactic sessions, augmented by digital tools facilitated peer-to-peer learning and enhanced engagement, with fellows and faculty seeing positive results”.

Part A: *Influencer Strategy Foundations*

Desired Results and Metrics

The desired outcome of this activity is to change the educational experience for Heme/Onc fellows to one that is more personalized, interactive, and productive.

Success will be measured by:

- Quantitative Measures:
 - Higher board exam scores over the next two years.
 - *ASCO In Training Exam (ITE)*
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 - Greater levels of participation rates in tech-driven learning activities (90%+ engagement).
 - *Adding in Virtual Tumor boards*
 - *Board reviews in both Hematology and Oncology*
 - *Integrated Polling*
 - Better quiz and knowledge checks.
 - *At the end of each block or rotation*

- Qualitative Metrics:
 - Fellow surveys showing increased satisfaction and perceived value of training.
 - Faculty and program director feedback on fellow preparedness.

Identification of Key Behaviors for Organizational Change

Success depends on changing a few crucial behaviors in the faculty and the fellows:

1. See the Obvious:

The dysfunctional old lecture-bloated model is not serving all students. A simple, effective tweak is incorporating interactive learning aids—such as case-based apps, virtual tumor boards, or board reviews—into daily instruction.

2. Find Crucial Moments:

Key opportunities for behavior change are board prep season, orientation to new fellows, and rotation transitions. By offering structured learning platforms (e.g., question banks, podcasts, and flashcards) at these moments, fellows can form habits that optimize retention.

3. Learn from Positive Deviants:

A few fellows already make use of external technology resources, such as the Garg Question Bank, ASCO SEP, and ASH Fundamentals. By engaging these fellows as peer leaders, the program fosters collaborative learning and leverages peer-assisted learning, which has been shown to significantly improve knowledge retention and academic performance in medical education (Brierley et al., 2022). Their effective practices will be documented and shared program-wide, allowing all fellows to learn from these successes.

4. Identify Culture Busters:

There is a long history of relying on pedagogies through didactic lectures as the primary pedagogy. We will challenge this status quo by mainstreaming flipped-classroom methodologies, simulation instruction by faculty, and motivational designed learning sessions. Instructional staff will also be trained throughout the year to execute these methodologies with authority.

Vital Behaviors

To make change measurable, the following vital behaviors will be a priority:

1. Fellows regularly engage with tech-enhanced learning materials (apps, question banks, simulations) weekly. The use of digital tools for quizzes, knowledge checks, and interactive polling has been demonstrated to provide immediate feedback and improve learning outcomes in clinical education (Igbonagwam et al., 2022).
2. Faculty integrate at least one interactive or technology-supported activity per lecture or session. Research indicates that incorporating educational technology applications, such as interactive quizzes, simulations, and multimedia presentations, into medical education can significantly improve student engagement and learning effectiveness. For instance, a review by Tuma (2021) discusses various educational technology applications in medical education, focusing on interactive learning during lectures. The study highlights how such technologies can facilitate communication and promote interaction, thereby enhancing the learning experience in large group settings.
3. The program provides a feedback loop where fellows review and discuss teaching strategies regularly, enabling refinement in real time. Hematology/oncology fellow feedback has been shown to maximize the quality of feedback obtained by enhancing actionable and constructive feedback for learning (Sewaralthahab et al., 2021).

Key Organizational Influencers

- *Program Leadership*: Sets high expectations for creative teaching and allocates time and resources.
 - *Faculty Coordinators*: Early adopters who embrace new methods and mentor others in the division.
 - *Fellows as Peer Leaders*: Fellows who share good study habits and encourage engagement.
 - *Educational Technology Specialists*: Provide training and mentoring for using tools like quiz apps, VR/AR simulations, and learning platforms.
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Part B: *Six Sources of Influence Matrix*

Source of Influence: How It Shapes Desired Behaviors

Personal Motivation	Show peers the connection between new learning methods and higher board scores. Use anecdotes and statistics linking activity with better results.
Personal Ability	Teach faculty and fellows how to apply education technology tools. Provide step-by-step guides, tutorials, and technical help to ensure ease of use.
Social Motivation	Recognize faculty and fellows who are exemplary in applying and sharing tech-enabled learning. Emphasize success at program meetings and in newsletters.
Social Ability	Build a learning community through the pairing of fellows into study groups using collaborative tools, facilitating peer-to-peer learning.
Structural Motivation	Make incentives for participation available (CME dollars, certificates, or recognition). Incentivize faculty to create innovative sessions.
Structural Ability	Make access to devices, software, and Wi-Fi equally available. Set aside specific time for fellows to access these tools during rotations.

SIX SOURCES OF INFLUENCE



PERSONAL MOTIVATION

Connect innovation to higher board scores.
Share success stories to inspire buy-in.



PERSONAL ABILITY

Provide hands-on training and guides for tech tools to build confidence.



SOCIAL MOTIVATION

Celebrate early adopters. Recognize achievements during meetings/newsletters.



SOCIAL ABILITY

Build a peer learning network with study groups and shared resources.



STRUCTURAL MOTIVATION

Offer CME credits, certificates, incentives for participation and innovation.



STRUCTURAL ABILITY

Ensure devices, software, Wi-Fi, and protected time for engagement.

Conclusion

This influencer strategy is designed to transform the Heme/Onc fellowship program into a modern, learner-centered educational environment that leverages technology and teaching innovation. By focusing on high-leverage behaviors, leveraging faculty and fellow influencers, and aligning incentives with outcomes, this plan ensures sustained change. The ultimate goal is a more engaged fellowship experience, improved knowledge retention, and higher board certification scores, and positioning our program as a leader in graduate medical education.

References

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