

BACKGROUND

- The landscape of surgical education is evolving from traditional didactic methods towards more engaging multimedia formats
 - Traditional approaches adhere to an instructor-centered model, which promotes a passive form of learning and may not cater to diverse learning styles
 - Contemporary, learner-centered methods prioritize active participation and critical thinking
- Source-grounded artificial intelligence (AI) models represent a powerful tool for content creation. These models allow users to "ground" the language model in user-input sources and convert text to audio.
 - Source-grounded content ensures that generated content remains focused to the users' realm of interest
 - Google's NotebookLM is a new large language model able developed in 2023 for public use

PURPOSE

- We aim to explore the feasibility and effectiveness of using NotebookLM to create educational podcasts for plastic surgery trainees
- We created several podcasts based on canon plastic surgery texts and assessed trainees' reception of the material compared to the original text

METHODS



CONTENT CREATION

- Eight *Grabb and Smith [1] chapters* chosen based on ACEPS plastic surgery milestones (Table 1)
- Chapters were uploaded individually to Google NotebookLM (Google Labs, Mountain View, CA)
- Audio summaries were created using the AI-driven system (Fig 1).

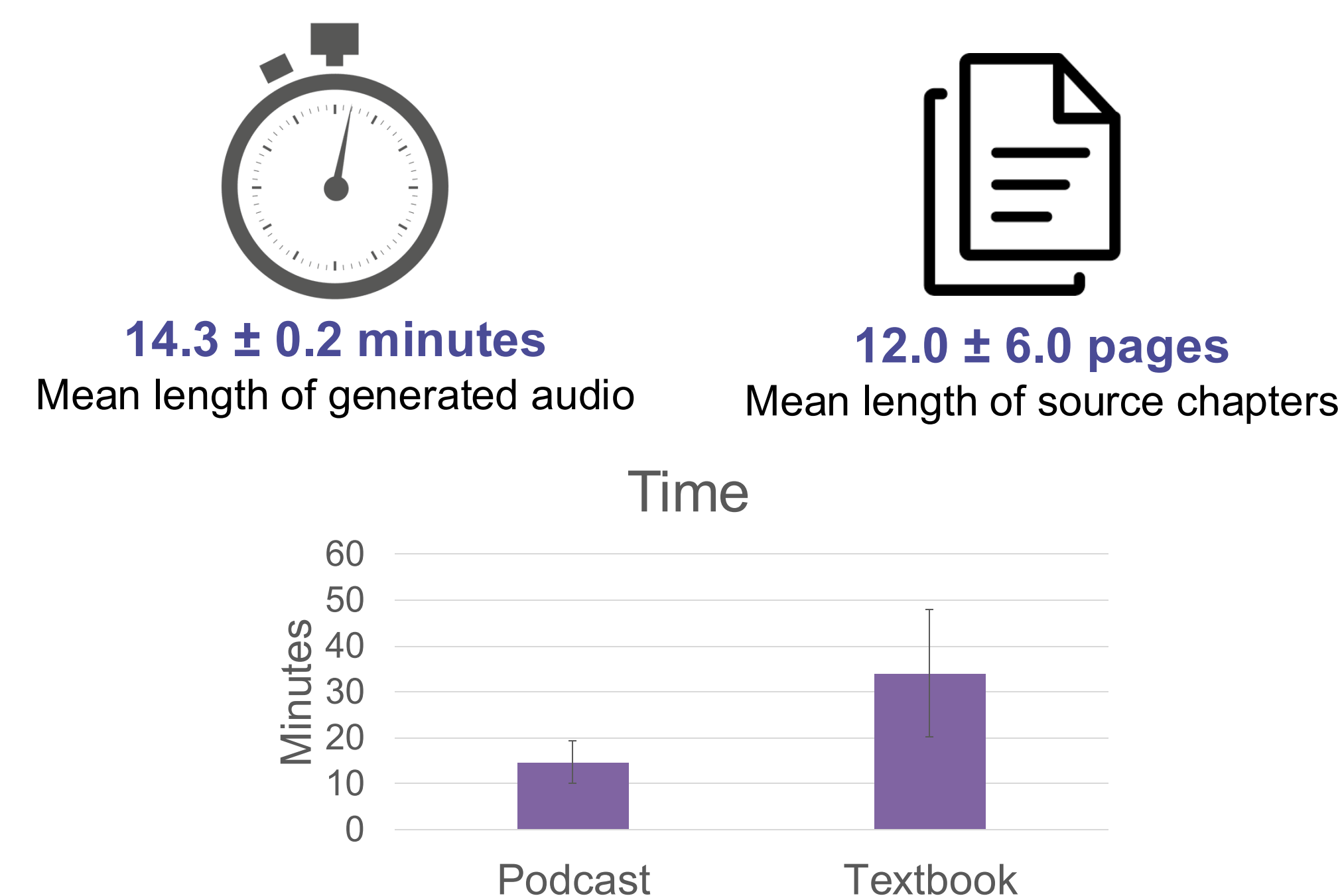
SURVEY

- Anonymous survey among plastic surgery trainees at our institution, recruited during October 2024 using institutional list servers.
- Likert scale assessed beliefs surrounding:
 - Fidelity** of the podcast to the text, **informativeness** of the podcast, **engagement and appeal** to personal learning style, and **preference for audio versus text resources**

STATISTICS

- Microsoft Suite statistical software (Redmond, WA) was utilized for all statistical analyses. Descriptive analysis was conducted, with frequencies and percentages reported for categorical variables, and means and standard deviations calculated for continuous variables.

RESULTS



- Overall, generated podcasts were rated highly for their informative value (mean 4.8), accurate representation of textbook content (4.2), being intuitive for personal learning style (4.2), and engaging quality (4.5). No podcasts were deemed to include extraneous insertion of information. Reported strengths of the podcasts included excellent coverage of surgical definitions from the chapter, helpful analogies to describe terminology, and technique options for procedures.
- Participants preferred a mixed media approach (90%), versus text (0%) or audio alone (10%) for learning the specified material.

ACEPS Milestone	Grabb and Smith Chapter
Breast Reconstruction	Latissimus Dorsi Flap Breast Reconstruction
Cosmetic Trunk and Lower Extremity	Abdominoplasty and Lower Truncal Circumferential Body Contouring
Facial Aesthetics	Rhinoplasty
Orofacial Clefting	Cleft Lip and Palate
Basic Science/Pathophysiology-related Milestones	Wound Healing: Abnormal and Normal
Non-trauma Hand and Hand/Extremity: Soft Tissue Trauma/Infection	Soft Tissue Reconstruction of the Hand
Tissue Transfer	Lower Extremity Reconstruction
Non-Cancer Breast Surgery	Mastopexy and Mastopexy Augmentation

Table 1: Selected American Council of Educators' (ACEPS) plastic surgery, craniofacial, and hand surgery Milestones and their corresponding Grabb and Smith chapters that were used to generate podcasts.

THE TECHNOLOGY BEHIND NotebookLM: TRANSFORMING TEXT INTO PODCASTS



Figure 1: Representation of technology supporting NotebookLM, a source-grounded AI platform used for generation of audio content from text sources.

DISCUSSION & IMPLICATIONS IN PRS

- A **multimodal approach to education** consisting of **source-grounded AI podcasts as a companion to conventional textbooks** represents a powerful new model for information acquisition.
- The majority of participants in our study **preferred a mixed-media** approach to the plastic surgery information presented.
- Podcasts were rated to have **high fidelity** to the textbook, were **highly engaging**, and were **highly informative**
- Area for future improvement includes correcting the over- or underemphasis of information included in the source material which was seen in our generated podcasts
- AI-generated source-grounded podcasts as a complement to existing textbooks is two-fold:
 - Enhancing accessibility for a diverse set of learning styles
 - Increasing efficiency of knowledge acquisition.
- We demonstrate the potential for source-grounded AI models to aid in the creation of audio-based plastic surgery educational content with high accuracy.**
- In the future, this technology can translate other plastic surgery literature into audible content to diversify the media available to trainees and practitioners.

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