AI in the Classroom: A Pitch for Sonography Educators

Hayley O. Bartkus, MS-HPEd., BSDMS, RDMS

Director, Diagnostic Medical Sonography Program
Johns Hopkins Schools of Medical Imaging

Adjunct Faculty, Health Professions Education Program
Boston University School of Medicine

Co-Founder
EchoMentor

Host
256 Shades of Gray Podcast



1

DISCLAIMER

The content and views presented are made available for educational purposes only. The information presented are the opinions of the presenter and do not necessarily represent the view of the Society of Diagnostic Medical Sonography (SDMS) or its affiliated organizations, officers, Boards of Directors, or staff members.

The presenter is responsible for ensuring balance, independence, objectivity, scientific rigor, and to avoid commercial bias in their presentation. Before making the presentation, the presenter is required to disclose to the audience any relevant financial interests or relationships with manufacturers or providers of medical products, services, technologies, and programs.

The SDMS and its affiliated organizations, officers, Board of Directors, and staff members disclaim any and all liability for all claims that may arise out of the use of this educational activity.

2

© Copyright. Society of Diagnostic Medical Sonography. All Rights Reserved.

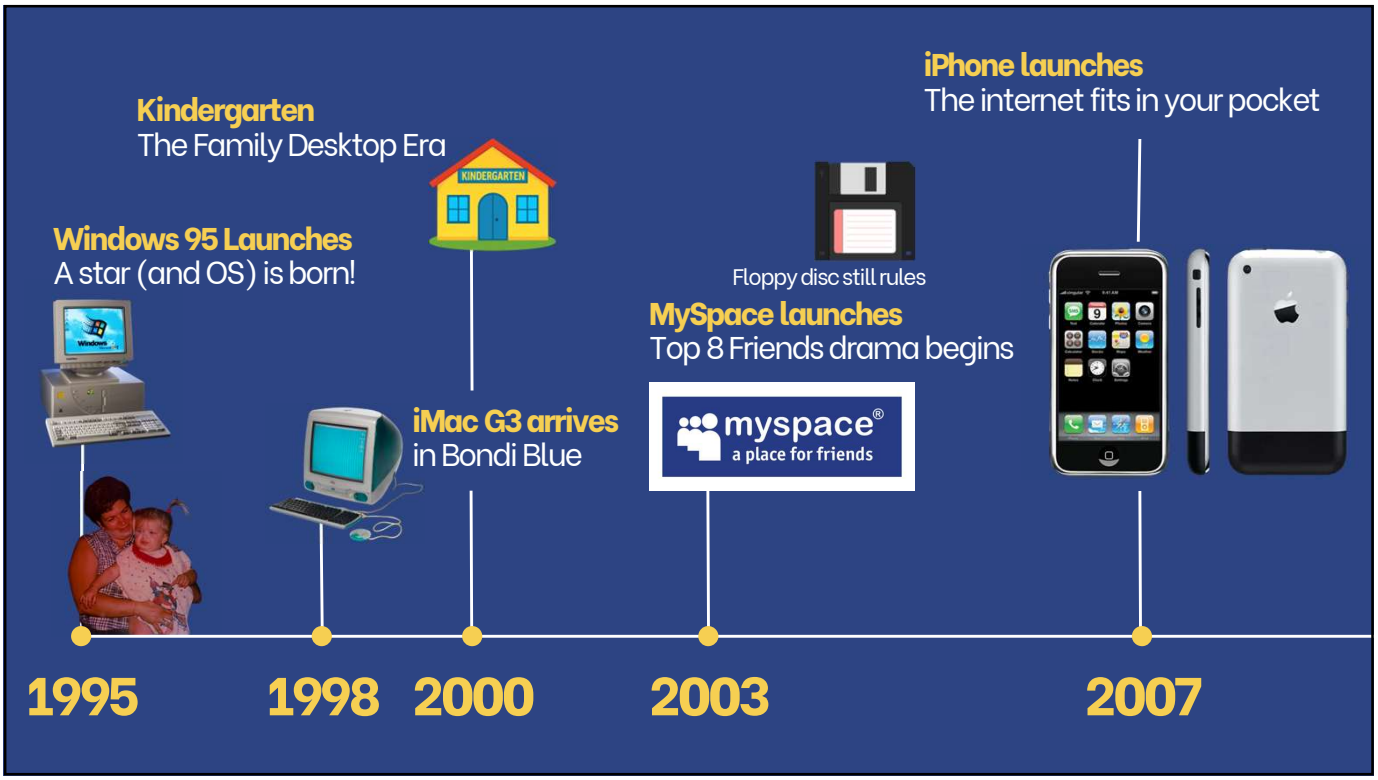
Shout it out!



1 word

to describe your gut reaction to AI in the classroom

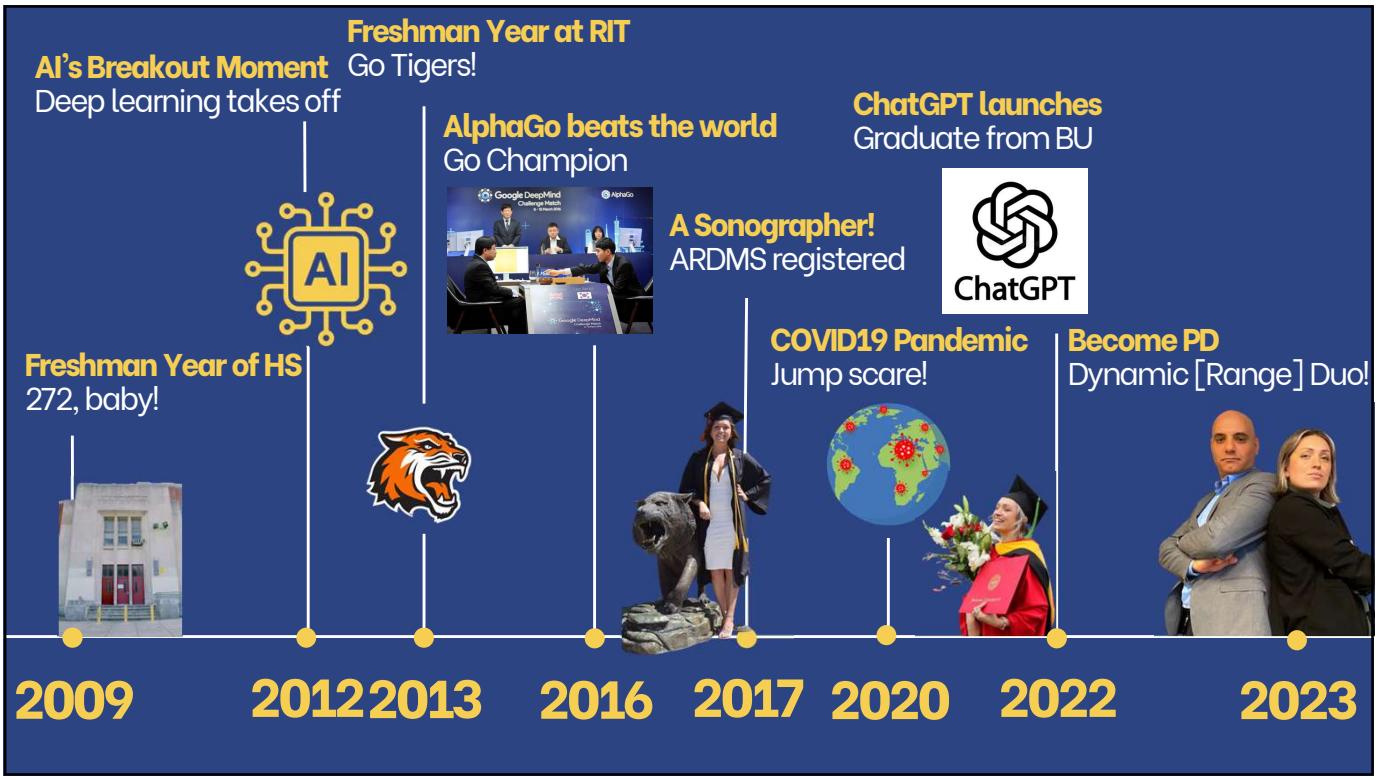
3



4

© Copyright. Society of Diagnostic Medical Sonography. All Rights Reserved.

2026 SDMS Annual Conference

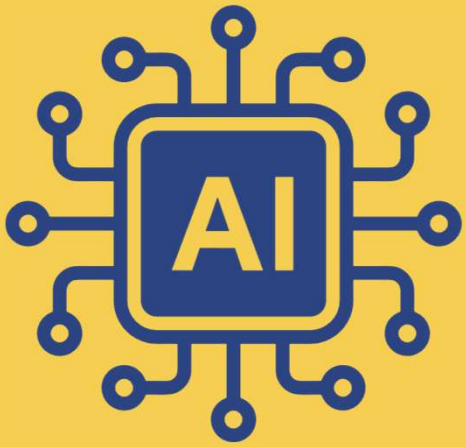


5



6

© Copyright. Society of Diagnostic Medical Sonography. All Rights Reserved.



Examine AI's rapidly evolving role in education and healthcare, and the sonography educator's responsibility to prepare students for AI-integrated clinical and research futures

7

1. Who has used an AI tool in your own teaching/process this year?

2. Who has had students use an AI tool?
Did they tell you?
Did you direct them to?

Show of hands!



3. Who has used an AI feature clinically?

8

© Copyright. Society of Diagnostic Medical Sonography. All Rights Reserved.

9

The Future that's Happening Now

- In 2023, the **Association of American Medical College (AAMC)** & **American Association of Colleges of Osteopathic Medicine (AACOM)** first distributed the **Curriculum SCOPE Survey**
  - **Collects Medical Education Data including**:
    - **S**tructure (curriculum)
    - **C**ontent
    - **O**rganization
    - **P**rocess
    - **E**valuaiton[2]

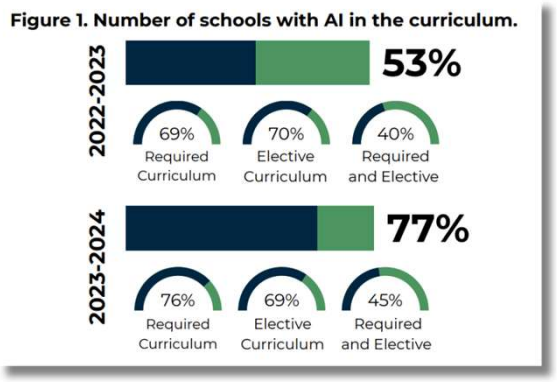
10

© Copyright. Society of Diagnostic Medical Sonography. All Rights Reserved.

2024 AAMC/AAOM Curriculum SCOPE Survey

- Number of schools with AI in their curriculum **increased by 59% from 2023 to 2004**, even given an 8% increase in participants[2]

Figure 1. Number of schools with AI in the curriculum.



Source: Farmakidis et al., AAMC, 2025

3 Key Findings

1. Most MD- and DO-granting schools **have integrated AI into the curriculum** with impressive growth over one year[2]
2. AI is being **infused across required curriculum** in various areas[2]
3. The overall **technical and governance infrastructure** to support AI's integration into curriculum **needs a sharper focus**[2]

11



So, what does this mean for *our* students?

12

© Copyright. Society of Diagnostic Medical Sonography. All Rights Reserved.

Sonographic Excellence Starts with Educators

- **Far Beyond the Bedside**
  - We are not just preparing future sonographers, we are **raising the future of our field**
    - Clinical Sonographers
    - Clinical Sonography Specialists
    - Sonography Practitioners
    - Healthcare Administrators
    - Educators
    - Researchers
    - Advocates
    - Activists





13

A Rapidly Changing Landscape…& World



Source: Merton, J Diagn Med Sonogr, 1997

1951 – Electronic engineer C.R. Cushman playing patient in Dr. Douglass Howry's Team's B-29 Scanner—constructed in part by a modified cattle watering tank

- Nothing new to us, right?!
  - Current research shows that **more than 60% of university students globally** have acadmeically experimented with GenAI—whether openly, or discretely.[3]
    - ***Our sonography students are no exception!***
  - **We must meet the moment.**
    - Sonographers are integral parts of the healthcare network and process.
    - **We owe it to our students to prepare them for the world they are entering,**

14

© Copyright. Society of Diagnostic Medical Sonography. All Rights Reserved.



Identify ethical and unethical AI applications in sonography education, including academic integrity, bias, and educators' role in developing independent scholars and future leaders

15

Ethical Conundrum



AI can **genuinely help** a struggling student learn.

AI can also let a struggling student **avoid learning entirely**.

Same tool, opposite outcomes—
the difference is entirely in **how it's used**.



Also the environmental repercussions, unstandardized legal parameters, potential company curruption and security risks—*but that's for another talk*!

16

© Copyright. Society of Diagnostic Medical Sonography. All Rights Reserved.

Legitimate Support

- Brainstorming
- Outline/Drafting Scaffolds
- Scheduling Assistance
- Supplemental Concept Clarification
- AI-Generated Review

Academic Integrity Risk

- Submitting AI-generated work as original, unedited
- Bypassing the actual diagnostic reasoning process, not just the writing
- Bypassing the actual academic reading and writing process entirely
- Citing sources that don't exist (AI hallucination)
- Undisclosed use on graded assessments

17

Bias Doesn't Disappear—It Becomes Automated

- AI systems **reflect the gaps in the data** they're designed with.
- Healthcare **already has disparity problems** AI can compound—**and it will.**
- **Educators are a checkpoint in this pipeline!**



18

© Copyright. Society of Diagnostic Medical Sonography. All Rights Reserved.

Raising Sonography Scholars

In their 2026 study of 270 undergraduate students published in *Discover Education* titled ChatGPT use in higher education writing and its relationship with critical thinking autonomy struggle and authorship, Hamsiah et al. found:

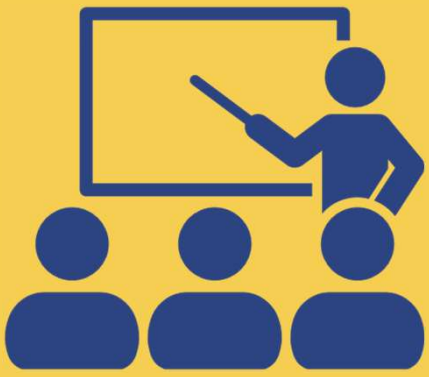
- ChatGPT use **displaces the earliest stages of critical thinking**—task interpretation, analytical framing, goal formulation—before students have engaged with them at all.[3]
- Generative AI **boosts efficiency and confidence in academic writing**—but it **also reshapes how students think**, fostering quiet **dependency**, **eroding cognitive struggle**, & blurring **who actually authored the work**.[3]

> **"Academic writing is no longer conducted in isolation; instead, students engage with AI systems that function as tutors, assistants, or quasi-interlocutors."[3]**



This phenomeon requires implemntation of **modified pedagogical and institutional strategies** to ensure **AI use is met with reflective, responsible learning**.

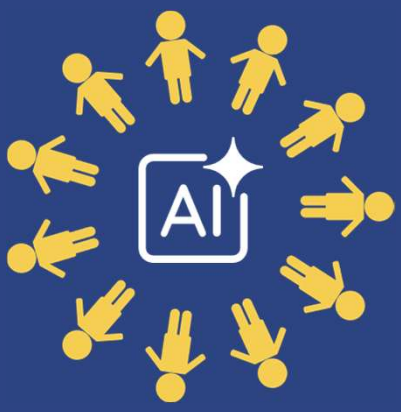
19



Implement practical AI-integration strategies for the sonography classroom that support student learning, research, and career development while strengthening diagnostic reasoning, professional accountability, and the profession's future leadership

20

© Copyright. Society of Diagnostic Medical Sonography. All Rights Reserved.



"As we engage with AI technologies, **our collective actions** will ultimately **determine** the state of the **future of health care and medical education** to **harness AI's power** while ensuring the **safety** and **well-being of humanity**."[5]

-Knopp et al.

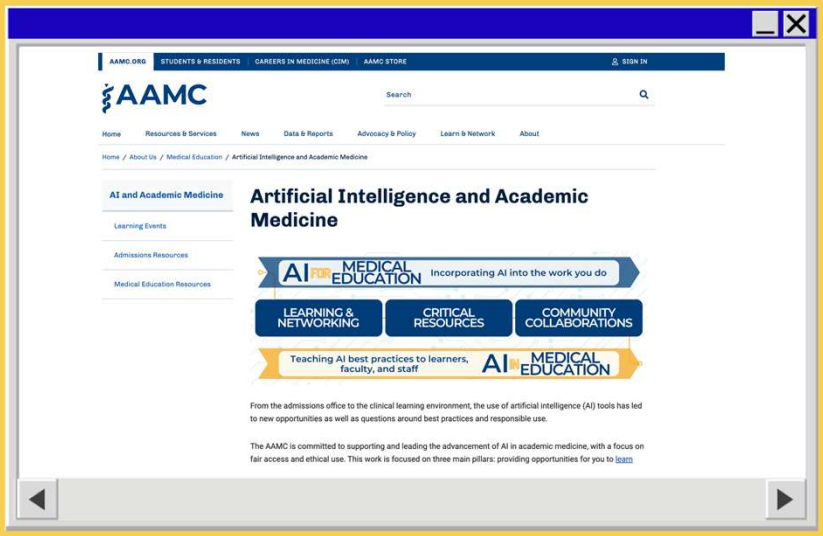
AI-Enabled Medical Education: Threads of Change, Promising Futures, and Risky Realities Across Four Potential Future Worlds, *JMIR Publications*

21

AAMC Resources for Medical Educators

Resources Include:

- Principles for the Responsible Use of AI in and for Medical Education
- Advancing AI Across Academic Medicine Resource Collection
- IACAI Vision and Integration Frameworks



22

© Copyright. Society of Diagnostic Medical Sonography. All Rights Reserved.

7 AAMC Principles for the Responsible Use of Artificial Intelligence in and for Medical Education[6]

23

1 Maintain Human-Centered Focus[6]



- Promote humanism in medicine
- Review and revise existing curricula through an AI lens
- Leverage human-centered design models
- Focus on competency and skill development
- Remember the learning environment

24

© Copyright. Society of Diagnostic Medical Sonography. All Rights Reserved.

2 Ensure Ethical & Transparent Use[6]

- Promote transparency
- Establish ethical guardrails and oversight
- Educate on ethical and responsible use



25

3 Provide Equal Access to AI[6]

- Engage learners in the process
- Ensure equal access to tools and training for all learners and educators
- Adapt to learner needs
- Monitor the impact on equity



26

© Copyright. Society of Diagnostic Medical Sonography. All Rights Reserved.

4 Foster Education, Training, & Continuing Professional Development[6]

- Provide access to learning resources
- Adopt a competency framework
- Promote diversity in expertise
- Create shared resources for collaboration

27

5 Develop Curricula Through Interdisciplinary Collaboration[6]

- Include foundational AI literacy in medical education curricul
- Develop advanced AI curricula tailored to specialties
- Cultivate interdisciplinary collaboration in curriculum design
- Identify AI learning needs for team-based care
- Develop outcome metrics

28

© Copyright. Society of Diagnostic Medical Sonography. All Rights Reserved.



Protect Data Privacy[6]

- Provide learners access to their dataDevelop advanced AI curricula tailored to specialties
- Teach educators, staff, and learners about data privacy
- Ensure compliance with data privacy regulations
- Conduct regular audits
- Balance data privacy with collaboration

29



Monitor & Evaluate[6]

- Implement assessment programs for AI tools
- Teach educators, staff, and learners about data privacy
- Build evaluation into implementation
- Gather and appraise diverse sources of evidence
- Scale monitoring efforts appropriately
- Support research in AI evaluation

30

© Copyright. Society of Diagnostic Medical Sonography. All Rights Reserved.

A Framework for the Sonography Classroom

Self Regulated Learning
The ability of learners to **autonomously plan**, **monitor**, and **adjust** their **cognitive**, **behavioral**, **motivational**, and **emotional processes** to achieve learning goals[7]





31

AI-Enhanced Self-Regulated Learning Model (AI-SRL)



For Educators:

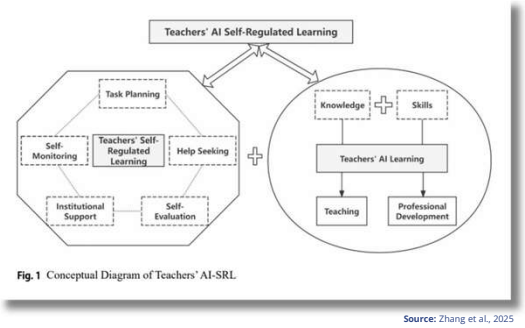


Fig. 1 Conceptual Diagram of Teachers' AI-SRL

Source: Zhang et al., 2025

- **Our SRL and AI-Learning happening at the same time**
  - **Educator SRL**
    - **Task Planning**
      - Deciding what **needs to happen**
    - **Self-Monitoring**
      - Checking **progress** as you go
    - **Help-Seeking**
      - Knowing when and where to **get support**
    - **Institutional Support**
      - The **surrounding structure** that enables (or limits) all of the above
  - **Educator AI-Learning**
    - **Knowledge + Skills = Learning**
    - Translates into our **teaching** and **professional development**

32

© Copyright. Society of Diagnostic Medical Sonography. All Rights Reserved.



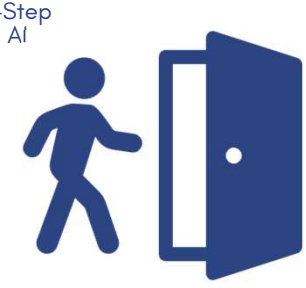
3 Step AI-SRL Model for Sonography Students

1. **Plan**
   AI as a **starting point**—outline, protocols, quick supplementary resources
2. **Optimize**
   AI as a **refining tool**—content breakdown, self-assessment resource, fact check (and fact check again
3. **Interpret**
   AI as a **soundboard**—the highest-stakes level, where judgment can't be outsourced

33

3 AI-Activities to Implement in Your Sonography Program Today

1. **This Week**
   Classroom Activity - Finding the Right Words
   Prompt your learners to share a clinical experience where they couldn't find the right words to say in the moment—as a class, prompt AI's response and discuss
2. **This Month**
   Assignment - AI Case-Based Assignment
   Prompt AI for a differential diagnosis on a sonographically relevant, atypical clinical presentation, and have students break down the case findinings identifying what the AI got right, wrong, or oversimplified
3. **This Year**
   Research Assignment
   Navigate each step of the scientific deduction process with implementation of the 3-Step AI-SRL Model for Sonography Students, each with a red-to-green light progression in AI application



34

© Copyright. Society of Diagnostic Medical Sonography. All Rights Reserved.

Thank you!
Discussion & Questions?



Hayley O. Bartkus, MS-HPEd., BSDMS, RDMS

Director, Diagnostic Medical Sonography Program
Johns Hopkins Schools of Medical Imaging

Adjunct Faculty, Health Professions Education Program
Boston University School of Medicine

Co-Founder
EchoMentor

Host
256 Shades of Gray Podcast

Scan to Connect!

35

References

1. Hanson T. Medical school fully embraces AI tools for students [video]. New York: CBS News; 2025 May 13 [cited 2026 Sep 3]. Available from: https://www.cbsnews.com/video/medical-school-fully-embraces-ai-tools-for-students/
2. Farmakidis AL, Singh A, Leaf K, Rossi A. Artificial intelligence curricula in U.S. and Canadian medical schools. Data Snapshot. Washington (DC): AAMC; 2025. Available from: https://www.aamc.org/media/84666/download
3. Hamsiah A, Rizal A, Malik AR. ChatGPT use in higher education writing and its relationship with critical thinking autonomy struggle and authorship. Discov Educ. 2026;5(1):580. doi:10.1007/s44217-026-01627-2. Available from: https://ezproxy.bu.edu/login?qurl=https%3A%2F%2Fwww.proquest.com%2Fscholarly-journals%2Fchatgpt-use-higher-education-writing-relationship%2Fdocview%2F3361808799%2Fse-2%3Faccountid%3D9676
4. Merton DA. Diagnostic medical ultrasound technology. J Diagn Med Sonogr. 1997;13(5 Suppl):10S-23S. doi:10.1177/875647939701300i503.
5. Knopp M, Warm E, Weber D, Kelleher M, Kinnear B, Schumacher D, Santen S, Mendonça E, Turner L. AI-enabled medical education: threads of change, promising futures, and risky realities across four potential future worlds. JMIR Med Educ. 2023;9:e50373. doi:10.2196/50373.
6. Association of American Medical Colleges. Principles for the responsible use of artificial intelligence in and for medical education [Internet]. Washington (DC): AAMC; 2025 Jul 31 [cited 2026 Sep 2]. Available from: https://www.aamc.org/about-us/mission-areas/medical-education/principles-ai-use
7. Zhang W, Ning Y, Yu N, Yao D, Wu H, Wu J, Fang B. Development and validation of the artificial intelligence self-regulated learning scale (AI-SRLS) for teachers. Educ Inf Technol. 2025;30(16):22989-3013. doi:10.1007/s10639-025-13670-x.

36

© Copyright. Society of Diagnostic Medical Sonography. All Rights Reserved.