American Occupational Therapy Association

Artificial Intelligence in Health Professions Education

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Learning Objectives

- Describe the foundational concepts of generative AI, including its key capabilities and limitations.
- Identify and illustrate potential uses of generative AI in your specific roles, such as in curriculum development, student assessment, and resource creation.
- Examine and discuss the ethical considerations related to using generative AI in educational settings, including issues like bias, data privacy, and academic integrity.
- Eevelop and design an action plan for the ongoing learning and adoption of generative AI in your roles, identifying training needs and resources for your teams.

Why AI Matters in OT Education

Why focus on AI?

- AI is transforming health professions education, including occupational therapy.
- Leaders must understand and integrate AI to enhance curricula and support students.

AI benefits:

- Improves curriculum development, assessment methods, and educational resources.

Session goal:

- Explore and implement AI opportunities in leadership roles.

Generative AI

Generative AI refers to a subset of artificial intelligence that can create new content based on the data it has been trained on. Unlike traditional AI, which may simply classify or analyze data, generative AI actually 'generates' something new.

Using Generative AI to Enhance Creative Intervention Planning

- Assignment developed to support students' transition from classroom to clinic
- Focus on overcoming "creative intervention planning" challenges
- Research: Hodgetts et al. (2007) & Patterson & D'Amico (2020) highlighted difficulties during Level II placements
- AI enhanced students' intervention planning skills during fieldwork
- Study published in Frontiers in Medicine: Healthcare Professions Education *in press*: https://www.frontiersin.org/journals/medicine/articles/10.3389/fmed.2024.1485325/abstract

Objectives of Initiative

- Demonstrate the potential of generative AI as an educational tool by analyzing changes in students' confidence and ability to generate intervention ideas before and after using AI.
- Evaluate the impact of generative AI on students' learning experiences, particularly in terms of engagement, efficiency, and satisfaction.
- Identify both the benefits and limitations of using AI technologies like ChatGPT in OT education, with a focus on supporting evidence-based practice while ensuring patient safety and confidentiality.
- Develop recommendations for integrating AI tools into OT curricula and suggest directions for further research.

Study Overview: Integrating ChatGPT in Fieldwork Seminar

- Conducted over two weeks with entry-level OT doctoral students
- Used ChatGPT 3.5 to assist in generating diverse intervention strategies
- Lecture demonstrated AI-generated interventions, including one contraindicated option to enhance critical thinking
- Assignment: Students evaluated interventions, conducted literature reviews, and justified selections using evidence-based resources
- Focus on critical reasoning, ethics, safety, and evidence-based practice
- Students documented search terms for transparency and ethical review

Key Findings

- **Confidence in Generating Interventions**: Slight increase in confidence for generating OT interventions and therapeutic exercise programs ($p=0.07$).
- **Comfort with Using ChatGPT**: Significant comfort increase, mean score rose 88% (2.03 to 3.81, $p<0.001$).
- **Knowledge of Ethical/Safety Considerations**: Improved significantly, mean score rose 59% (2.32 to 3.70, $p<0.001$).
- **Perceived Contributions to Healthcare**: Belief in potential to contribute to healthcare innovation increased 20% (3.24 to 3.89, $p=0.005$).
- **Anticipation of Assistance**: Post-exposure, students anticipated ChatGPT aiding in treatment plans (mean score 3.41).
- **Likelihood of Future Use**: Students indicated a likelihood of using ChatGPT in future practice (mean score 3.63).
- **Belief in Improved Outcomes**: 96.3% believed ChatGPT could improve outcomes; mixed views on evidence-based AI suggestions (51.9% Yes, 48.1% No).

Student Feedback on ChatGPT in Intervention Planning

- 63%: Efficient for generating treatment ideas, reducing cognitive load
- 85%: Helpful for brainstorming creative interventions
- 11%: Concerns about rigidity, limiting creativity
- 36%: Questioned reliability for evidence-based practice
- 42%: Lacked personalization for client-centered care
- 50%: Emphasized the need to vet for safety
- 96%: Plan to use ChatGPT during fieldwork for idea generation

Educational Impact and Future Directions

Potential of AI in OT Education:

- Enhances efficiency and creativity in intervention planning
- Critical to teach students how to assess and adapt AI-generated ideas

Key Findings:

- Aligns with trends in healthcare education (Gandhi et al. 2023, Rony et al., 2024)
- AI reduces cognitive load and fosters creativity (Nilsen et al., 2024)
- Notable improvements in understanding ethical and safety considerations

Limitations:

- Small sample size, self-reported data, short-term intervention
- Need for further research and responsible integration of AI

Future Focus:

- Ongoing training for responsible and ethical AI use in OT curricula

What is Generative AI?

How Does Generative AI Work?

Key Capabilities of Generative AI

- Content Generation
- Adaptability
- Speed and Efficiency
- Learning and Improvement

Ethical Considerations in AI Use

Key Considerations:

- Prevent bias and ensure fairness
- Protect data privacy and confidentiality
- Uphold academic integrity, avoid over-reliance on AI
- Balance AI with human judgment and expertise

Preventing Bias:

- Critically evaluate AI-generated content
- Continuously monitor for fairness and equity

Data Privacy:

- Anonymize personal data before AI input

Academic Integrity in AI Usage

Challenges & Opportunities:

- AI can help students but also poses risks to academic integrity.

Key Strategies:

- **Clear Guidelines:** Set expectations for responsible AI use.
- **University Level:** Broader guidelines encourage integrity while using AI.
- **Department Level:** Consistent syllabus statement ensuring students follow academic integrity policies.
- **Course Level:** Ethical AI use in clinical practice with focus on evidence-based practice, patient confidentiality, and safety.

AI Detection Tools:

- Evolving, but imperfect—human review is still essential.

Balancing AI with Human Judgment

AI as a Complement, Not a Replacement:

- AI supports but cannot replace human expertise in OT education.

Key Strategies:

- **Human Oversight:** Always review AI-generated content; prioritize human decision-making.
- **Ethical Training:** Ongoing training on AI limitations and the need for human oversight.
- **Reflective Practice:** Encourage reflection to ensure AI enhances critical thinking and professional growth.

Preventing Over-Reliance:

- Foster critical evaluation skills to maintain cognitive engagement and independent problem-solving.

AI Guidelines Across Journals

Citing AI Tools:

- APA 7 provides a method to cite AI tools like ChatGPT.

Journal Requirements:

- Some journals require disclosure of AI use but emphasize AI cannot be credited as an author.
- Human authors are fully responsible for content and ethical standards.

Adapting to Evolving Guidelines:

- Familiarize yourself with each journal’s policies to ensure AI use meets ethical requirements.

Apply Generative AI in OT Education

- Learning Activity 1

- Reflect on your specific responsibilities as a Program Director, Capstone Coordinator or Academic Fieldwork Coordinator - Where AI could make the most meaningful impact on your work.

- You might consider areas like curriculum design, student support, clinical practice, or administrative tasks.

Practical Applications of Generative AI in OT Education

Leveraging Generative AI for Qualitative Data Analysis in OT Education

- **Generative AI for Academic Leaders**:
  - Analyze large datasets to uncover trends and insights.
  - Use AI to evaluate student feedback, exit surveys, and performance.
  - Support ACOTE accreditation with mock questions and AI-driven analysis.

- **Fieldwork Example**:
  - AI can analyze qualitative data from students' final fieldwork performance evaluations (FWPE).
  - Identify common strengths and areas of concern across cohorts.
  - Inform curriculum adjustments or targeted support strategies.

- **ChatGPT in Action**:
  - Today, we'll explore how ChatGPT-4 can analyze FWPE data.
  - Paid version offers higher accuracy and complexity in qualitative data analysis.
  - Free version (ChatGPT-3.5) can handle basic tasks but may lack depth for complex datasets.

Steps to Using Generative AI for Fieldwork Performance Analysis

https://chatgpt.com/share/66eec8bb-8dc8-8006-9071-b39c515b283b

1. **Gathering Data**:
   - Download anonymized FWPE data into an Excel spreadsheet.
2. **Creating a Search Prompt**:
   - Craft a specific, targeted prompt to guide AI analysis.
3. **Entering Data**:
   - Paste FWPE data into ChatGPT, focusing on open-response sections (e.g., 'Basic Tenets of OT').
4. **Analyzing Data**:
   - AI processes and identifies key themes, strengths, and areas for improvement.
5. **Reviewing & Validating**:
   - Compare AI-generated themes to actual comments for accuracy.

Breakout Room Activity 2: Analyzing AI-Generated Responses

- Follow the provided link to view the ChatGPT conversation.

- In your breakout groups:
  - Select a volunteer(s) to read the fieldwork educator comments (mock raw data) in the grey box.
  - Review AI-generated strengths and areas for improvement.

- Discuss the following:
  - How do the AI-generated responses compare to your observations of the raw data?
  - How accurate and insightful are the AI-generated themes?
  - Did the AI miss any significant insights?
  - Does using generative AI simplify or complicate qualitative data analysis?

Using Generative AI for Course Design

Next Exercise: Course Design with Generative AI

- Apply **best practices in backwards design** to align evaluations with ACOTE standards.
- Use AI to:
  - Develop **learning objectives** that meet ACOTE standards.
  - Suggest **assessments** to measure student success.
  - Create **learning activities** that help students achieve objectives.

AI's Role in Course Design:

- Generate ideas for **learning objectives** based on your topic.
- Provide suggestions for **assessments** (exams, projects, presentations).
- Assist in designing **learning activities** (lectures, discussions, hands-on projects).

Breakout Activity 3: Evaluating AI-Generated Course Content

https://chatgpt.com/share/66f14894-183c-8006-9293-1f1ec65652f3

Example: AI-generated learning objective for ACOTE standard 4.5.

- Focused on **credentialing, licensure, certification** based on Bloom's Taxonomy.
- AI generated an **assignment and rubric** to assess student progress.

Small Group Discussion: Review and reflect on AI output.

- How well do the AI-generated learning objectives align with your understanding of the ACOTE Standard?
- Is the assignment suggested by AI appropriate for measuring student success in achieving the learning objectives?
- What parts of the generated assignment or rubric would you keep? What would you modify?
- How might generative AI help or hinder your course design process in the future?

Using Generative AI to Create Case Studies

Introduction to AI-Generated Case Studies:

- AI can be a powerful tool for generating **problem-based learning** case studies.
- In my fieldwork seminar class, students struggled to relate to real-world examples from previous cohorts.
- Solution: **Created case studies** where students discover the problem themselves and generate solutions.

Today's Walkthrough:

- Demonstrating how ChatGPT can be used to create a **case study script**.
- Show how the initial AI-generated script was **refined**.
- AI also helped generate **reflection questions** to guide student learning.

Activity & Discussion: Evaluating AI-Generated Case Studies

https://chatgpt.com/share/66f1aa96-95b8-8006-ad58-da21cab55b81

Volunteer Activity:
- Volunteers will read the **initial script** generated by ChatGPT.
- Compare it to the **refined version** and discuss the improvements.

Small Group Discussion:
- Review and reflect on AI-generated **reflection questions**.
- Discuss the content and implications of using AI-generated materials.

Guiding Questions:
- How realistic is the AI-generated case study? Could it happen in a real-world clinical setting?
- Are there any signs of **bias** in the script? Consider **cultural sensitivity, diversity, or stereotypes**.

Regroup: Share insights and experiences.

Ethical Use of AI in Education

AI as a Tool, Not a Replacement:
- AI offers great potential, but it must complement—not replace—our critical thinking and professional judgment.

Ethical Responsibilities in AI Use:
- Establish a solid framework for responsible AI application in education.

Supervision Tips for Responsible AI Use:
- Regularly review AI-generated content to ensure alignment with professional standards.
- Encourage AI as a tool for **idea generation**, not the final solution—critical evaluation is key.
- Provide ongoing education on the ethical use of AI, focusing on **data privacy** and **bias avoidance**.

Maintaining Academic Integrity and Professionalism:
- Uphold high standards as we integrate AI into educational practices.

Developing Your AI integration Action Plan

Next Steps: Integrating AI in Your Role

- Structure an action plan for thoughtful AI application in your responsibilities.

Key Questions for Your Action Plan:

- How can AI streamline your current tasks?
- What challenges or limitations might arise with AI integration?
- What resources (tools, training, support) are needed to achieve your goals?
- What ongoing professional development will be necessary for you and your team?
- Who can support your efforts—faculty, IT, administration?
- What are your first steps, and when will you revisit progress?

Group Activity:

- Work in small groups to discuss and develop action plans.
- Share and refine ideas with the larger group for feedback and support.

Key Takeaways and Final Thoughts

Understanding AI's Capabilities and Limitations:
- Generative AI can enhance curriculum development and assessment, but its limitations must be acknowledged.

Ethical Considerations:
- Prioritize fairness, privacy, academic integrity, and balance AI with human judgment.

Action Planning for AI Integration:
- Set clear goals, anticipate challenges, and commit to ongoing learning for effective AI use.

Collaborative Learning:
- Sharing experiences strengthens our ability to integrate AI meaningfully and ethically.

Final Thoughts:
- Generative AI is a tool—its impact depends on our thoughtful, ethical use.

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