INCLUSION AND INCLUSIVE EDUCATION: EDUCATION FOR ALL
Blended Learning

Exploring the Potential of AI-Enhanced Blended Learning for Equitable Education

Yaffa Jumah Abu-Hamda/Palestine
Lina Khair Rahme/ Lebanon

May 27, 2023 | Amman, Jordan
Objectives

• **Introduce** blended learning and AI-enhanced tools for learner engagement and equitable education.

• **Showcase** examples of AI tools, focusing on chatbots for personalized guidance and support in education.

• **Brainstorm** effective strategies for integrating chatbots and AI tools to promote inclusion and enhance learner engagement.

• **Foster** reflection on teaching practices and inspire educators to incorporate AI-enhanced technologies for equitable education.
<table>
<thead>
<tr>
<th>Time</th>
<th>Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>11:45-11:47</td>
<td>Introduction of the MEPLI conveners</td>
</tr>
<tr>
<td>11:47-11:52</td>
<td>Definition of blended learning and its components</td>
</tr>
<tr>
<td>11:52-11:57</td>
<td>A case study about blended learning</td>
</tr>
<tr>
<td>11:57-12:04</td>
<td>Activity about the video that was sent via email</td>
</tr>
<tr>
<td>12:04-12:11</td>
<td>Definition of AI and its importance in education</td>
</tr>
<tr>
<td>12:11-12:16</td>
<td>Introduction to AI tools and their applications in education</td>
</tr>
<tr>
<td>12:16-12:21</td>
<td>Applications of AI tools to enhance inclusion</td>
</tr>
<tr>
<td>12:21-12:26</td>
<td>How artificial Intelligence can be applied in blended learning</td>
</tr>
<tr>
<td>12:26-12:33</td>
<td>Introduction to LLMs and examples of the most popular ones</td>
</tr>
<tr>
<td>12:33-12:38</td>
<td>Tips for prompting and using LLMs effectively</td>
</tr>
<tr>
<td>12:38-12:43</td>
<td>LLMs as information providers</td>
</tr>
<tr>
<td>12:43-12:48</td>
<td>LLMs as guidance providers</td>
</tr>
<tr>
<td>12:48-12:53</td>
<td>LLMs as support providers</td>
</tr>
<tr>
<td>12:53-12:58</td>
<td>LLMs as assessment providers</td>
</tr>
<tr>
<td>12:58-13:00</td>
<td>Workshop Recap and Next steps</td>
</tr>
</tbody>
</table>
Lead presenter: Yaffa Jumah Abuhamda/ Palestine

- Middle East Professional Learning Initiative (MEPLI) Lead convener and 2020 Fellow at Harvard Graduate of Education.
- Researcher at Centre for educational research and Development.
- She holds a BA from Al-Quds Open University and MA from Al-Najah University in English Language Teaching. THESIS title is (The Effectiveness of Blended Learning on Seventh Graders' English Grammar
- Achievement in Salfit Directorate in Light of COVID-19“.
- She worked with a team on completing and designing a digital catalog with the British Council. It also has many published researches in the field of education.
- She has a CAEL certificate from HGSE
- She led many training workshops in the field of leadership and participated in many educational conferences.
- She is currently pursuing her PHD in Educational Leadership.
Co presenter: Lina Khair Rahme/ Lebanon

- Middle East Professional Learning Initiative (MEPLI) convener and 2022 Fellow at Harvard Graduate of Education.

- BA from the Lebanese University in English Literature and M.Ed from Balamand University in Instructional Technology and CAEL certificate from HGSE.

- Learning and Development expert and Educational consultant, specialized in educational leadership, educational technology and integration of artificial intelligence in education.

- AI enthusiast, skilled at LLM prompting optimization.

- Project coordinator of various educational and livelihood projects for women and youth.

- English language instructor with a proven track record of two decades in teaching English as a Second Language (ESL) and English for Specific Purposes (ESP).
Technology alone is not Enough

Steve Jobs
Definition and components of Blended Learning

Blended Learning

- Online learning
- Self-directed asynchronous
- Collaborative Asynchronous
- Asynchronous Learning

- Synchronous Learning

- Face to face learning
- Learning at the same time and place
Asynchronous Online Learning:

Self-directed asynchronous

- Flexibility
- Independence and self-motivation
- Self-assessment
- Lifelong learning

Collaborative Asynchronous

- Virtual collaboration
- Peer review and feedback
- Reflection and elaboration
- Global connections
Synchronous online learning

REAL-TIME INTERACTION.

SOCIAL CONNECTION AND COMMUNITY BUILDING

IMMEDIATE FEEDBACK

INCREASED MOTIVATION AND ACCOUNTABILITY

SENSE OF BELONGING
Case Study: The Effectiveness of Blended Learning on Seventh Graders' English Grammar Achievement in Salfit Directorate in Light of COVID-19

How this case study is relevant to our workshop

Methodology

Findings and Analysis

Recommendations

Main takeaways
How does your interpretation of a situation or event impact your actions and decisions?
What do you know about Artificial Intelligence?
Applications of AI tools to enhance inclusion
Presented by Dr. Jawaher

• PhD in Curriculum and Instruction Science Teaching Methods.
• MS in Teaching Methods Hashemite University, 2006 Bachelor of Chemistry, Hashemite University, 2001.
• MEPLI Fellow
• Lecturer (Part time) –The University of Jordan.
• Awards :
  ➢ Khalifa Educacional Award 2018 / the field of innovation in education / UAE.
  ➢ Mohammad Bin Zayed Award for Best Teacher
• Member of the National Center for Curriculum Development / Jordan in 2020.
Thaki Lab Initiative

Description

• Attractive learning environment, virtual teaching aids for school student
• Deep understanding of scientific concept.
• Science Applications compatible with the requirements of the digital generation

Target group:

• Primary students: fourth, fifth and sixth grades in science.
• Elementary students: ninth and tenth grade in Chemistry and Earth sciences.
Provides an opportunity for a deeper understanding of scientific concepts.

Increases the motivation of today's students (the digital generation) to learn science.

Reduces the challenges in carrying out experiments and scientific activities, including: lack of basic requirements such as chemicals and models, lack of time, and pressure on the teacher to interrupt the curriculum.

Employing the skills of the twenty-first century, creative and critical thinking, innovation, and digital literacy...
Types of applications in the Thaki lab

1. Markdown, which may be an image to activate the digital or programmed objects in those lessons.

2. Markless, which is the augmented reality does not need an image.
How can Artificial Intelligence enhance Blended Learning?
How can Artificial Intelligence enhance Blended Learning

- Personalized Learning
- Intelligent Tutoring
- Adaptive Learning Pathways
- Automated Assessment
- Virtual Assistants and Chatbots
- Natural Language Processing
- Content Recommendation
- Learning Analytics
Definition and Overview of NLP / LLMs

- Natural Language Processing (NLP)
- Artificial Intelligence
- Large Language Models (LLMs)
Examples of LLMs

ChatGPT
Bard
Bing Chat
Claude
You cannot delete your prior prompts/questions.

OpenAI is attempting to mitigate potential harms.

ChatGPT replies may show gender bias and discrimination.

The free version is sometimes at capacity.

ChatGPT is not connected to the Internet. If asked about events after 2021.

ChatGPT is in the “free research preview” stage.

Examples:
- "Explain quantum computing in simple terms."
- "Got any creative ideas for a 10 year old’s birthday?"
- "How do I make an HTTP request in Javascript?"

Capabilities:
- Remembers what user said earlier in the conversation
- Allows user to provide follow-up corrections
- Trained to decline inappropriate requests

Limitations:
- May occasionally generate incorrect information
- May occasionally produce harmful instructions or biased content
- Limited knowledge of the world and events after 2021
What do You Need to Know about ChatGPT Plus?

ChatGPT plus gives you access to ChatGPT 4 which is more creative and conducts better analysis than the 3.5 version.

ChatGPT 4 offers the browsing option to browse the internet for more accuracy.

ChatGPT 4 combined with plugins such as zapier, Show Me, Prompt Perfect can do magic.

You can disable Chat History and training for more privacy.

ChatGPT 4 has a cap of 25 messages every 3 hours.
What are the best practices in prompting LLMs?
Suggest solutions for the problem of pollution in a country

To address the problem of pollution in a country, it requires a multi-faceted approach involving various stakeholders and sectors. Here are some solutions that can be implemented:

1. **Promote Renewable Energy:** Transitioning to renewable energy sources such as solar, wind, hydro, and geothermal power can significantly reduce pollution from fossil fuel combustion. Encouraging investment in renewable energy infrastructure and offering incentives for clean energy adoption can accelerate this transition.

2. **Improve Public Transportation:** Enhancing public transportation systems can reduce reliance on private vehicles and decrease air pollution. Investing in efficient and eco-friendly modes of transport like electric buses, trams, and trains, along with creating dedicated cycling lanes and pedestrian-friendly infrastructure, can promote greener transportation alternatives.

3. **Implement Sustainable Waste Management:** Establishing comprehensive waste management systems is crucial to prevent pollution of land, water, and air. Encouraging recycling, composting, and waste reduction practices, as well as investing in waste treatment facilities and landfill management, can mitigate pollution caused by improper waste disposal.

4. **Enforce Strict Emission Standards:** Setting and enforcing stringent emission standards for industries, power plants, vehicles, and other pollution sources can help reduce air pollution. Regular monitoring, inspections, and penalties for non-compliance are necessary to ensure adherence to these standards.

5. **Encourage Green Building Practices:** Promoting sustainable construction methods and green building practices can minimize pollution from the built environment. This includes using energy-efficient materials, implementing proper insulation, utilizing renewable energy technologies, and adopting water conservation measures.

6. **Increase Awareness and Education:** Conducting public awareness campaigns and educational programs on pollution-related issues can help instill a sense of responsibility and encourage individuals to adopt sustainable practices. Educating the population about the importance of recycling, conserving energy and water, and reducing pollution can lead to positive behavioral changes.

7. **Protect Natural Resources:** Preserving and protecting natural resources like forests, wetlands, and water bodies are essential for maintaining a healthy environment. Implementing conservation measures, regulating deforestation, promoting sustainable agriculture practices, and safeguarding water sources can mitigate pollution and maintain ecological balance.

8. **Strengthen Environmental Regulations:** Enhancing and enforcing environmental regulations and laws can ensure that industries and businesses operate in an environmentally responsible manner. Regular environmental impact assessments, stringent enforcement of pollution control measures, and penalties for violations are vital in curbing pollution.

9. **Foster International Cooperation:** Pollution knows no borders, and addressing global environmental challenges requires international collaboration. Participating in international agreements and initiatives, sharing best practices, and collaborating with other countries to tackle transboundary pollution can have a significant impact.

10. **Invest in Research and Innovation:** Supporting research and development in clean technologies and sustainable practices can lead to breakthrough solutions for pollution reduction. Government funding, grants, and incentives for green innovation can spur technological advancements and accelerate the transition to a cleaner and more sustainable future.

Remember that implementing these solutions may require a combination of policy changes, financial investments, public engagement, and long-term commitment from the government, industries, and citizens.
Situation:
You are a grade 10 student working on a project proposal which aims to decrease pollution by sorting garbage in a rural area in North Lebanon. You are facing writer’s block. You cannot come up with ideas for your group and for this proposal.
You want to submit this project to discuss it with my instructor and team in the classroom.

Initial prompt:
Suggest solutions for the problem of pollution in a country.

How can we make this prompt more efficient?
<table>
<thead>
<tr>
<th>Objective</th>
<th>Activities</th>
<th>Resources Needed</th>
<th>KPIs</th>
<th>Risks</th>
<th>Risk Mitigation Strategy</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Raise Awareness</td>
<td>1. Organize a Trash Cleanup Day in the community, where students and community members come together to clean up littered areas.</td>
<td>- Trash bags&lt;br&gt;- Gloves&lt;br&gt;- Cleaning tools (brooms, rakes)&lt;br&gt;- Transportation for volunteers</td>
<td>- Number of participants&lt;br&gt;- Amount of trash collected&lt;br&gt;- Positive feedback from community members</td>
<td>- Lack of participation&lt;br&gt;- Insufficient cleaning supplies&lt;br&gt;- Weather conditions</td>
<td>- Promote the event through flyers, social media, and word-of-mouth to encourage participation&lt;br&gt;- Ensure enough cleaning supplies are available by organizing donation drives or seeking sponsorships&lt;br&gt;- Have a backup plan for inclement weather (e.g., rescheduling or providing appropriate gear)</td>
</tr>
</tbody>
</table>

الأهداف - الأنشطة - الموارد اللازمة - مؤشرات الأداء الرئيسية - المخاطر - استراتيجية التخفيف من المخاطر
Prompt Optimization

CIDI framework inspired by Dr. Gianluca Mauro
Prompt Optimization

Context: I am working on a project proposal which aims to sort garbage in a rural area in North Lebanon.

Instructions: I want you to write 5 suggestions of activities that can be done with grade 10 (students who are my peers) to enhance their community engagement. Use the style of a grade 10 student. Be creative. Put the suggestions in a table. Column 1 for the objective, column 2 for activities, column 3 for resources needed, column 4 for KPIs, column 5 for risks and column 6 for risk mitigation strategy

Details: I want to submit this project to discuss it with my instructor and team in the classroom

Input: Take into consideration the following instructions: Formatting: All work will be submitted in Times New Roman, 12 point font, double spaced. Titles should be in bold. activities should be numbered.

Aنا أعمل على اقتراح مشروع يهدف إلى فرز النفايات في منطقة ريفية في شمال لبنان.

التعليمات: أريدك أن تكتب 5 اقتراحات للأنشطة التي يمكن القيام بها مع الصف 10 (الطلاب الذين هم زملائي) لتعزيز مشاركتهم المجتمعية. استخدم أسلوب طالب الصف العاشر. كن مبدعا. ضع الاقتراحات في جدول. العمود 1 للهدف، العمود 2 للأنشطة، العمود 3 للموارد اللازمة، العمود 4 لمؤشرات الأداء الرئيسية، العمود 5 للمخاطر وعمود 6 لاستراتيجية التخفيف من المخاطر.

تفاصيل: أرغب في إرسال هذا المشروع لمناقشته مع مدرسي وفريقي في الفصل.

How can LLMs enhance Learner’s engagement?
Study 1
F1: LLMs have the potential to help students learn basic content in a responsive, interactive, and confidential way

Study 2
F1: LLMs provide quick and personalized services
F2: LLMs provide academic support
LLMs as Information Providers

Interactive Learning Experiences

Relevant articles to support research

Adaptive Learning Support 24/7

Continuous Learning and Updates
Examples

Sure! Chatbots are computer programs designed to have conversations with human users over the internet. They are built from AI and machine learning algorithms to best showcase the correct content based on user’s intent.

There are many online courses and tutorials available to learn about chatbots. Some popular platforms that offer chatbot courses include Coursera, edX, and Udemy. These platforms offer a variety of courses on topics such as creating chatbots with Rasa and Python programming, building AI-powered chatbots without programming, and using tools like Dialogflow and IBM Watson to create chatbots.

Would you like more information on a specific platform or topic?

Learn more: 1. edx.org  2. coursera.org  3. udemy.com  4. careers360.com

There are several ways to create your own chatbot. You can use a chatbot creation solution provider like Botnation or start a free Chatbot trial. The process usually involves identifying the purpose of your chatbot, deciding where you want it to appear, choosing a chatbot platform, designing the chatbot conversation in a chatbot editor, testing and training your chatbot, and collecting feedback from users.

You can also build a chatbot using the Microsoft.Bot.Connector.Teams NuGet package, the Bot Framework SDK, or the Bot Connector API, and deploy it to a cloud service like Microsoft Azure.

There are also several no-code chatbot creation tools available such as Botmake.io and Typeform that allow you to easily create a chatbot without coding.

Would you like more information on a specific platform or method?

Learn more: 1. botnation.ai  2. botmake.io  3. typeform.com  4. chatbot.com
LLMs as Guidance Providers

- Personalized guidance and support
- Personalized recommendations (career orientation)
- Personalized study plans (providing materials, tracking progress, setting goals)
LLMs as Support Providers

- Mental Support
- Problem-solving
- Real-world scenarios
Chatbots can help you in writing your report by providing you with information and resources related to your topic. For example, you could use a chatbot to search for statistics and data on the impact of community service projects on waste management. You could also use a chatbot to find articles and research papers on the subject.

However, chatbots are not designed to write reports or generate original content. They can provide you with information and resources, but it is up to you to use that information to write your report.

I recommend using a search engine like Bing or Google to find information and resources for your report. You can also use academic databases like JSTOR or Google Scholar to find research papers and articles on your topic. Good luck with your project!
Examples

Khanmigo

This conversation is recorded and viewable by your parent and teacher.

Can you just tell me the answer?

It's important that you learn how to do this yourself! What do you think you need to do to multiply 2 by 5/12?

They need the same denominator.

That's a good thought, but in this case, you don't need to find a common denominator because you're multiplying, not adding or subtracting. What else could you try?

Type message (do NOT share any personal data)
ChatGPT has the ability to:

- Scale high-quality qualitative feedback for each learner
- Point out potential areas for improvement and provide grades based on a rubric
LLMs as Assessment Providers

Performance tracking and assessment support
Khan Academy

Adaptive Assessments
QuizBot, Quizlet, Kahoot

Skill-based Assessments
interactive scenarios or quizzes

Comparative feedback
learners to peer-assess their work
What are some privacy concerns from using ChatGPT?

As with any technology that processes personal data, there are potential privacy concerns associated with using ChatGPT. Here are some of the main concerns that users may have:

1. Data collection: ChatGPT may collect and store data from your interactions with it, including the text of your queries and the responses it provides. This data could potentially be used to identify you or your preferences.
2. Security: There is always a risk of data breaches or unauthorized access to personal information, which could expose your interactions with ChatGPT to third parties.
3. Bias and fairness: ChatGPT is trained on a large corpus of text data, and there is a risk that this data may contain biases or prejudices that could influence the responses it generates.
4. Misuse: There is a risk that ChatGPT could be used to generate harmful or malicious content, such as misinformation or hate speech.

To address these concerns, it is important to use ChatGPT with caution and to be aware of the risks involved. Users should also ensure that they are using a trusted and secure platform to interact with ChatGPT, and that they are aware of any data collection and storage practices associated with the platform. Finally, it is important to consider the potential biases and limitations of ChatGPT’s training data when evaluating the responses it provides.
Thank you for joining us in promoting a more inclusive education for all!

Questions?

Stay connected

Follow us on Facebook

Visit our website