

## Rubric for Evaluating AI Tools: In-Depth Criteria

The rubric is designed to offer insight into the strengths and weaknesses of an AI tool, evaluated against a set of criteria. It does not identify a threshold that an AI tool needs to cross before it should be used. Not all rubric criteria are necessarily applicable to all AI tools. This work builds on and is meant to be used in consort with "Rubric for eLearning Tool Evaluation" by Lauren M. Anstey & Gavan P.L. Watson, copyright 2018:

<https://teaching.uwo.ca/pdf/elearning/Rubric-for-eLearning-Tool-Evaluation.pdf>

Category	Criteria	Works Well	Minor Concerns	Serious Concerns	Not applicable
Functionality	Scale	The AI scales appropriately to accommodate the number of users without degradation in performance.	Occasional performance drops during peak usage times or with complex queries.	Consistent performance issues regardless of user load, indicating poor scalability.	
	Ease of Use	The AI interface is intuitive, with little to no learning curve for new users.	Some users require assistance to navigate or understand AI functionalities.	Users find the interface confusing, leading to a significant barrier to effective use.	
	Tech Support / Help Availability	Robust support materials specifically for AI, with responsive technical support for AI-related inquiries.	AI support materials are less thorough.	Lack of AI-focused support materials and channels.	
	Hypermediality	AI enhances multimedia content creation and integration.	AI has limited impact on improving or managing multimedia content.	AI disrupts multimedia content usage or introduces complexities without adding value.	
	Responsiveness	The AI provides rapid and accurate responses to queries.	Occasional delays or inaccuracies in AI responses.	Slow response times and frequent inaccuracies hindering the learning process.	
	Ethics and Bias	The AI tool includes features to mitigate bias and promote ethical use.	Some efforts to address AI ethics and bias, but they are not fully effective or comprehensive.	No consideration of ethics and bias, leading to potential harm or unfair outcomes.	

	Adaptability and Personalization	The AI personalizes learning experiences effectively, adapting to individual progress and feedback.	Limited personalization options that do not cater to all learning preferences.	Lack of adaptability, leading to a one-size-fits-all approach that does not support individual learning goals.	
<b>Accessibility</b>	Accessibility standards	The AI tool complies with international accessibility standards and includes features like text-to-speech, alternative text for images, and screen reader compatibility.	The tool has some limited capacity to meet accessibility guidelines.	The tool fails to meet basic accessibility standards, making it difficult or impossible for users with disabilities to utilize it effectively.	
	User-focused participation	The AI tool facilitates equal participation for all users, with adaptive interfaces that cater to a range of abilities and preferences.	Some users may experience difficulty with certain features, but workarounds are available.	The AI tool creates barriers to participation for users with disabilities, offering no alternatives or adaptations.	
	Required Equipment	The AI tool works on a wide range of devices and does not require specialized equipment.	The tool performs best with certain types of equipment but remains functional on less optimal setups.	The tool requires the latest or specialized equipment, limiting access for users.	
	Cost of Use	The AI tool is free or offers significant value for its cost, with transparent pricing models.	The tool has some cost barriers, but discounts or institutional licenses can reduce expenses.	The high cost of the tool significantly limits its accessibility to a broader user base.	
	Understand-ability	The AI tool provides explanations for its outputs, making them comprehensible to all users.	Some AI-generated content may require additional context or explanation.	Outputs from the AI tool are often unclear or complex, creating a barrier to understanding.	
	Inclusivity	The AI tool demonstrates inclusivity in its design and interaction, with input from diverse user groups during its development.	The AI tool is somewhat inclusive but may not fully represent the diversity of the user population.	The tool reflects biases or lacks consideration for diversity, leading to exclusive or unfair outcomes for certain groups.	

<b>Technical</b>	Integration/ Embedding within an LMS	The AI tool is fully integrated within the LMS with seamless data exchange and functionality.	The tool is mostly integrated, but some features may not be available directly within the LMS.	The tool operates independently of the LMS, requiring separate logins and management, which could disrupt the learning experience.	
	Desktop / Laptop Operating Systems	The AI tool is compatible with a wide range of operating systems and does not require extensive resources.	The tool works on most systems but is optimized for certain OS, which could limit some users.	Compatibility is limited to a few operating systems, excluding users.	
	Browser	The AI tool functions well across all major web browsers without any significant differences in performance or features.	The tool works on most browsers but has enhanced features or better performance on specific ones.	The tool only works on one or a select few browsers, limiting accessibility and convenience.	
	Additional Downloads	No additional downloads are required to use the AI tool, or any required software is lightweight and easy to install.	Some additional downloads are necessary, but they do not significantly impact the ease of setup or use.	The tool requires multiple or resource-intensive downloads, complicating setup and use, and possibly violating institutional IT policies.	
	Model Update Frequency	The AI tool receives frequent updates to ensure it remains effective and secure.	Updates are infrequent, leading to occasional lapses in performance or relevance.	The tool rarely or never updates, leading to outdated or insecure performance.	
	Data Processing Requirements	The AI tool efficiently processes data without requiring extensive system resources.	The tool requires moderate resources, which may slow down other operations or be unavailable on older systems.	High resource demands make the tool impractical for users without access to powerful computing resources.	
	Network Dependency	The AI tool can function with minimal connectivity or has offline capabilities.	The tool requires a stable internet connection for most functionalities.	Constant, high-speed internet is essential, rendering the tool unusable in low-connectivity environments.	

<b>Mobile Design</b>	Access	The AI tool is fully functional on mobile devices, offering a responsive design that adapts to different screen sizes and mobile operating systems.	The tool is usable on mobile but with some features limited or not as user-friendly as the desktop version.	The tool has poor mobile compatibility, significantly hindering usability on smartphones and tablets.	
	Functionality	All core functionalities of the AI tool are available and optimized for mobile use, with a user interface designed for touch navigation.	Some core functionalities are compromised or less intuitive on mobile.	Key functionalities of the AI tool are unavailable on mobile, severely impacting its utility.	
	Offline Access	The AI tool offers substantial offline functionality, allowing users to interact with the tool without an active internet connection.	Limited offline functionality is available, which may restrict the use of some AI features.	No offline functionality, requiring users to have an active internet connection to use the AI tool.	
<b>Privacy, Data Protection, and Rights</b>	Sign Up/ Sign In	The AI tool uses secure authentication methods and offers options for anonymity where appropriate.	The tool requires some personal information for sign-up but has transparent policies on data usage.	The sign-up process lacks secure authentication or unnecessarily requires extensive personal information.	
	Data Privacy and Ownership	The AI tool has clear policies stating user ownership of data and uses end-to-end encryption to protect data privacy.	Data privacy policies are in place but may contain some ambiguous terms; encryption standards are used but may not be the highest available.	Unclear or unfavorable data ownership policies, with inadequate data privacy protections.	
	Archiving, Saving, and Exporting Data	Users can easily archive, save, and export their data in multiple formats, with the AI tool providing clear data management options.	Some limitations exist on data formats or the ease of exporting data, but the tool still supports essential data management functions.	The tool does not allow users to archive, save, or export their data, or it makes the process unnecessarily complex.	

	Transparency and Explainability	The tool offers a high level of transparency and provides explanations for AI-driven decisions or outputs.	Some transparency is provided, but the explanations for AI processes are not always clear or complete.	The AI operates as a "black box," with little to no insight provided into its data processing or decision-making.	
	Data Minimization and Retention	The tool adheres to data minimization principles, only collecting necessary data and not retaining it longer than needed.	The tool collects more data than necessary for functionality or retains data longer than typical standards suggest.	The tool collects excessive data without clear justification and retains it indefinitely.	
	User Control Over Data	Users have full control over their data, with options to modify, delete, or restrict processing of their data.	Users have some control, but there may be limitations on how they can manage their data within the AI system.	Users have little to no control over their data once it is entered into the AI system.	
<b>Social Presence</b>	Collaboration	The AI tool enhances collaboration through features like group chats, forums, and intelligent matchmaking for study partners or groups based on skills and learning goals.	The tool supports some collaborative functions, but some features may not be as robust or user-friendly as desired.	Collaboration is hindered by the tool, either through lack of supportive features or by creating barriers to effective group work.	
	User Accountability	The AI tool tracks user contributions in a transparent and fair manner, encouraging active participation and individual accountability.	The tool tracks contributions but may not be fully transparent or may occasionally misattribute work.	The tool lacks mechanisms to ensure accountability, leading to potential disputes over contributions.	
	Diffusion	The AI tool effectively disseminates information, fostering knowledge sharing and community building.	Information is generally shared well, but some features may limit the reach or effectiveness of knowledge diffusion.	The tool impedes the spread of knowledge due to poor design or restrictive sharing capabilities.	

	Mediated Communication	The AI tool supports context-aware communication, enhancing social presence and interaction.	AI-mediated communication is generally effective, but sometimes lacks the subtlety of human interaction.	Communication via the AI tool is often stilted or misunderstood, impeding social presence.	
	Bias in Collaboration	The AI tool actively mitigates bias, promoting equity in collaboration and participation.	The tool has some safeguards against bias, but they may not be comprehensive.	The AI tool may inadvertently amplify biases, affecting collaboration and social dynamics.	
	Feedback and Improvement	The tool incorporates user feedback to continually improve its support for social presence and collaborative learning.	There is some mechanism for feedback, but improvements are slow or do not adequately address user concerns.	The tool lacks a feedback loop, missing opportunities for improvement and failing to adapt to user needs.	
<b>Teaching Presence</b>	Facilitation	The AI tool facilitates meaningful learning experiences, effectively guiding students through the learning process and providing timely support.	The tool aids in facilitation but may require additional instructor intervention for optimal guidance.	The AI tool's facilitation is limited or misaligned with instructional goals, necessitating significant instructor effort to maintain teaching presence.	
	Customization	The AI tool allows for extensive customization to align with varied instructional strategies and learning objectives.	Some level of customization is possible, but the tool may not accommodate all pedagogical approaches.	The tool offers little to no customization, forcing instructors to adapt their teaching to the tool rather than the other way around.	
	Learning Analytics	The AI tool provides learning analytics that are accurate, timely, and actionable, presented in a user-friendly format that is easy to interpret, with data privacy fully maintained.	The learning analytics are somewhat helpful but may not cover all aspects of the learning process or provide real-time data. Some interpretation of the analytics is required. There may be concerns about how data is collected.	The tool does not support the collection of learning analytics.	

	AI-Driven Pedagogical Support	The AI tool is adaptable to various pedagogical approaches and theories.	The tool supports some teaching methodologies but is not fully flexible across different pedagogical approaches.	The tool is rigid and does not effectively support varied pedagogical approaches.	
	Responsiveness	The AI dynamically adjusts content and instruction to meet students' individual learning needs and pace.	The AI provides some level of responsive content adjustment but may not capture all student needs.	The AI's responsiveness to student needs is minimal or non-existent, hindering personalized learning experiences.	
<b>Cognitive Presence</b>	Enhancement of Cognitive Task(s)	The AI tool actively supports a range of cognitive tasks, enhancing learning efficiency and effectiveness.	The tool provides some cognitive support, but it may not be comprehensive across all task types.	The tool does little to enhance cognitive tasks, possibly hindering cognitive engagement due to poor design or functionality.	
	Higher Order Thinking	The AI tool stimulates higher-order thinking by challenging students with complex problems and encouraging analysis, evaluation, and synthesis of information.	The tool occasionally supports higher-order thinking but may not consistently provide the necessary complexity or depth.	The tool focuses on lower-level cognitive skills, with minimal opportunities for developing higher-order thinking.	
	Metacognitive Engagement	The AI tool promotes metacognitive strategies, helping learners to plan, monitor, and evaluate their understanding and learning processes.	There is some support for metacognitive engagement, but it is not deeply integrated into the tool's functionality.	The tool lacks features that support metacognitive engagement, missing opportunities to foster self-regulated learning.	
<b>Ethics</b>	Bias and Fairness	The AI tool has been audited for bias, and mechanisms are in place to ensure fairness across diverse user groups.	Efforts to mitigate bias are in place, but occasional issues may arise that require manual correction.	The tool has known biases or has not been audited for bias, potentially perpetuating systemic inequalities.	

	Transparency	The AI provides clear explanations for its outputs, and the decision-making process is well-documented and accessible to users.	Some level of transparency is provided, but it can be challenging for users to understand the full decision-making process.	The decision-making process is opaque, and users have little to no understanding of how or why decisions are made.	
	Impact on Well-being	The AI tool is designed with user well-being as a priority, actively promoting positive outcomes and minimizing harm.	The tool considers user well-being, but there may be unintended negative impacts that are not fully addressed.	The tool does not consider the well-being of users, leading to potential harm or negative impacts on mental, emotional, or social health.	
<b>Environment</b>	Energy Efficiency	The AI tool is designed for high energy efficiency, with optimization to reduce power consumption during both training and inference.	The tool is reasonably energy-efficient but could be improved with further optimization.	The tool requires a significant amount of power with no apparent efforts to improve energy efficiency, leading to high operational costs and environmental impact.	
	Carbon Footprint	The AI tool's provider transparently reports on the carbon footprint and actively works to minimize it, such as by using carbon offsetting or efficient data centers.	Some information about the tool's carbon footprint is available, but comprehensive details or mitigation efforts are lacking.	There is little to no information on the tool's carbon footprint, and there are no efforts to measure or mitigate it.	
	Sustainable Practices	The provider commits to sustainable practices, using renewable energy sources and employing green policies in their operations.	The provider has some sustainable practices in place, but there is room for significant improvement.	The provider does not use renewable energy or have a sustainability policy, indicating a lack of commitment to environmental responsibility.	



