Guide to Assessing Educational Technologies

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Purpose

The Guide to Assessing Educational Technologies identifies key aspects of educational technologies important for supporting and enhancing teaching and learning and connects those to the principles of teaching excellence outlined in MacEwan University's Teaching Greatness Strategic Vision (2023). The guide consists of a short list of key characteristics, along with a more detailed definition, list of features and an example of how to apply these in an academic learning context designed to help assess the suitability of specific educational technologies[1] for adoption. The intent is for the key characteristics and features to be considered and used as a guideposts throughout the assessment, selection and implementation processes, to ensure that adopted technologies support and enhance teaching and learning.

Application

This guide can be applied by faculty, staff, administrators, departments and committees when assessing technology for educational use in curricular and co-curricular settings. This could be regarding the use of specific technology for a specific class, audience, learning purpose, or for university wide license. It is recognized that in specific educational contexts certain tools being assessed may still be useful even though they may not have all the key characteristics. However, the guide is not intended to be applied to an entire class of technology (i.e. Virtual Reality as a whole) but rather to a specific virtual reality headset or app experience intended for a specific educational purpose.

Benefits

The guide will contribute to a shared understanding of what aspects of technology are important for educational purposes and provide a baseline for the kinds of features that support these larger purposes as well as some overarching pedagogical goals to keep in mind when incorporating technologies into teaching and learning practices.

Key Characteristics – Background & Development Process

The key characteristics in the following section were drawn from educational technology assessment frameworks used by universities around the world including:

- University of Saskatchewan Evidence Based Learning Technology Ecosystem (LTE) Principles and LTE Assessment Rubric (2025)
- International Society for Technology in Education (ISTE) Standards – Teacher Ed Tech Evaluation Tool and Guide (2023)

[1] Educational Technologies refers to specific tools, software applications, hardware, cloud computing etc., used by educators with students and other learners for educational purposes.

- Rubric For Evaluating e-Learning Tools in Higher Education (Anstey and Watson 2018, EDUCAUSE) Used by University of Calgary, Carleton University, Memorial University and Western University.

These frameworks reference, are built upon, and incorporate, research and practice informed models such as:

- Enhance, Extend, Empower 3E Framework (Smyth, Bruce, Fotheringham and Mainka, 2011, Edinburgh Napier University) Used by University of Saskatchewan, London School of Economics, University of York and dozens other universities.
- Technology, Pedagogy, and Content Knowledge (TPACK) Model (Mishra & Koehler, 2006) Featured by the University of Calgary Taylor Institute for Teaching and Learning as a resource.

Criteria from all three of the above models were cross checked to identify common themes, then these were connected with the identified educational priorities in MacEwan University's Teaching Greatness Vision. The proposed characteristics, features and application examples follow the formatting of the University of Saskatchewan's framework.

MacEwan University Key Characteristics to Consider for Educational Technologies

Usable – Learners and educators can easily, quickly, and intuitively get started using technologies for their intended purposes with minimal learning curve.

Accessible – All learners and educators can access technologies without barriers regardless of ability, culture, language, sexuality, gender etc.

Designed for Learning– Learning goals are served by technologies, supporting evidence informed, enriched learning.

Sustainable – Learners and educators can expect ongoing supported access to university wide tools, knowing that technologies support economic and sustainability goals whenever possible.

Secure – Technologies should be consistent with MacEwan's privacy, IT security, and intellectual property policies, as applicable.

Implementation Guiding Goals (3E Framework)

To implement technologies that have these key characteristics and features, we encourage practices that **Enhance, Extend, and Empower** learning experiences:

- **Enhance** – Use technologies to enhance student learning beyond what traditional methods can support.
- **Extend** – Incorporate technologies that extend the range of student learning into the worlds of augmented and virtual reality.
- **Empower** – Empower students to use new-to-them technologies as part of their own distinctive learning journey.

These guiding goals help ensure that educational technologies are not just functional but are implemented in ways that are transformational, giving learners and faculty members more ways to engage, collaborate, and apply knowledge in meaningful ways.

Consistent Faculty Consultation

Toward these goals, faculty can provide input when consistently consulted in selection, assessment and implementation processes for educational technologies at the university. Additionally, where appropriate, technology can be piloted by faculty and students, so that their feedback can inform selection and implementation processes.

Usable

MacEwan University Strategic Vision: *Our commitment to "stripping away barriers," making sure our students can "hit the ground running," and "maximizing flexibility to meet students where they are, moving beyond traditional scheduling" (p. 2-6) means that ease of access and use/usability of technology and intuitive interface design is a priority.*

Definition

Educational technologies are necessarily intuitive, efficient, and easy to use, allowing both learners and educators to focus on achieving learning outcomes rather than navigating complex systems. Usability ensures that digital learning tools support education by reducing barriers to access, minimizing the learning curve, and integrating seamlessly with existing institutional technologies.

What This Means

For technology to be truly usable, it ideally would have the following:

- **Intuitive Design**: The user interface is clean, logical, and requires minimal training to understand. Common tasks are easily discoverable without extensive documentation.
- **Convenient Access:** Integration with single sign on (SSO) eliminates unnecessary downloads or extra accounts and enhances efficient access.
- **Minimal Onboarding Time**: Educator and learners can quickly and conveniently gain access (ideally remote access) to and start using the tool without needing lengthy setup processes or specialized technical support.
- **Consistent User Experience**: Technologies function consistently across devices, platforms, and operating systems.
- **Reliable, Interoperable and Compatible**: Technologies are responsive, load quickly, experience minimal down time and if warranted, work seamlessly with the university's learning management system (LMS), library resources, and other institutional platforms.
- **Efficient Task Execution**: Technologies enable users to perform essential tasks in as few steps as possible, removing unnecessary complexity and use of resources.

Example

A faculty member wants to introduce a new digital collaboration tool into their course. To ensure usability, they:

- Select a tool with a simple and intuitive design, where learners can contribute multimedia responses without technical challenges.
- Choose a platform that ideally integrates seamlessly with the university's LMS (mêskanâs) and SSO avoiding the need for additional accounts or software downloads.
- Ensure that the provider of the platform provides clear, concise onboarding materials, such as a short tutorial video and quick reference guide.
- Gather learner feedback throughout the semester to ensure contribution to learning goals, inform implementation and future decisions regarding use.

This approach aligns with MacEwan University's commitment to learning, ensuring that technology is not just available but genuinely supports teaching, learning, and learner success.

More Information

- Government of Canada Standards of Web Usability
- W3C Definition of Usability
- Stanford Usability Principals

Accessible

MacEwan University Strategic Vision: Regarding diversity, equity and inclusion, “We encourage and include diverse perspectives. A willingness to embrace new and different approaches is part of what makes us unique, including a continuous drive to improve our pedagogy and remain exceptional undergraduate teachers.” (p. 15)

At MacEwan University, our approach to learning technologies aligns with this commitment by ensuring that digital learning environments are equitably accessible across all demographics. We strive to create an inclusive learning experience where every learner has equitable opportunities to engage, succeed, and contribute to their academic journey.

Definition

MacEwan University is dedicated to fostering a learning environment accessible to all learners, faculty, and staff and sustainable for future generations. This means removing barriers to access while implementing technology practices that promote long-term usability, environmental responsibility, and equitable educational opportunities.

What This Means

- **Anywhere, Anytime, Accessibility** – Learners and educators can access learning materials and learning resources 24/7, on and offline, accommodating varying access to internet along with diverse schedules and commitments.
- **Disability and Learning Differences** – Technologies follow accessibility standards (e.g., WCAG, UDL), ensuring accessibility features are built in as well as being compatible with assistive technologies and diverse learning needs.
- **Inclusivity** – Technologies are designed with inclusive principles, offering multiple formats and adaptive features to accommodate diverse cultural and social needs, ensuring equitable access for all learners. There are no identifiable biases built into the technology that would diminish the learning experience for some.
- **Device Accessibility** – Technologies are designed to function across different devices and browsers, reducing technological barriers for learners.

Example

When considering a mobile app version of the Learning Management System (LMS) for university adoption, the following are present:

- The app is freely available on all platforms and can be logged into with MacEwan ID via single-single-on (SSO).
- Content from the app can be downloaded for offline use, to ensure equitable access for those with unreliable internet access or who are traveling/in-transit.
- Built in accessibility features such as text resizing and background customization.
- Compatibility with screen readers and other assistive technologies used by students through MacEwan University's Access and Disability Resources (ADR).
- If there is facial recognition, fingerprint or other biometric features used for logging in, these have been tested on a diverse population by the developer and have been demonstrated to work equally well for all.

By integrating accessibility into learning technologies, MacEwan University contributes to an inclusive, and equitable educational experience for all learners.

More Information

- **Access and Disability Resources** – Guidelines on making digital content accessible are available through our Access and Disability Resources (ADR).
- Web Content Accessibility Guidelines (WCAG) - Read more about the World Wide Web Consortium (W3C) Standards.
- Universal Design for Learning (UDL) Guidelines - Learn about implementing UDL to improve teaching for all, based on research into how humans learn.

Designed for Learning

MacEwan University Strategic Vision: *"Adaptable. Engaging. Memorable. Personal. All that comes from a nimble, flexible, well-rounded education that delivers lasting value. One where caring faculty help people connect their passions to their future paths. One that understands the learning journey goes well beyond the classroom. One that wants each unique individual to learn what they need, and to help them succeed. In short, the kind of education that MacEwan University delivers." (p. 2-4)*

At MacEwan University, our approach to learning technologies aligns with this element of our strategic vision by ensuring that digital learning environments remain **learning** environments. When we talk about a "learning journey" or helping students "learn what they need," the underlying constant is learning as a goal. Accordingly, our assessment of new technologies must always prioritize the fact that students come to MacEwan to learn alongside their instructors.

Definition

MacEwan University is where students come to learn. This requires that we ensure we are assessing all technologies primarily based on how they will aid undergraduates in achieving their learning goals. Providing evidence-informed, enriched learning experiences is our main objective.

What This Means

Below are four main elements ideally present in technologies informed by digital pedagogy. While the following aspects are crucial to supporting learning, the implementation and integration of the technology into existing pedagogical frameworks is equally important.

- **Active Engagement**: Technologies enhance active engagement by providing options for personalization, participation, collaboration, sharing, and creation, whether through collaboration, problem-solving, reflection, or interactivity. This includes hands-on activities, real-world problem-solving, and experiential learning.
- **Pedagogical Purpose and Clarity**: Technologies have a clear pedagogical purpose and directly support course objectives, ensuring they enhance learning by having a learner and user centered design rather than introducing distractions or additional workload for educators.
- **Customizable**: Customizability will ensure that the technology can be adapted for personal learner preferences as well as various classroom contexts, but also to real-world applications.

- **Aligned Assessment**: Technologies support assessment that aligns with course goals and provides meaningful feedback to students via real-time communication, peer review, and annotation. Data analytics will provide insights into engagement and performance, helping instructors tailor their teaching. The result will be assessment that is both formative and summative.

Faculty Consultation: Finally, for technologies informed by digital pedagogy to be implemented effectively, faculty consultation is essential. Faculty members are to be consulted before educational technologies are adopted by the university to ensure that educational technologies can ideally suit varied pedagogical environments and aid instructors in confronting an open-ended number of learning experiences.

Example

A faculty member recognizes that students are not engaging with the readings and discussion posts that have been assigned in the past. Seeking to encourage active engagement, the instructor considers tools that encourage collaboration such as a social annotation software that allows students to share questions and comments on the readings and respond to each other.

- Social annotation software directly responds the need for students to engage with the course readings and leverages collaboration to support active reading.
- To encourage engagement, it is best if the social annotation software allows for personalization as well as a plethora of options for different media (photos, videos, links) that students might want to share in relation to the reading.
- If the social annotation software captured each student's active engagement with the reading and in peer discussions of the reading this would assist with aligned assessment of student understanding of the reading.

This approach supports MacEwan's commitment to learning not only by offering a wider array of ways to learn, but also by better integrating the goals of students and instructors within a shared learning environment.

More Information

- MacEwan's Strategic Vision: For an expanded view of what "designed for learning" means at MacEwan, consult our institutional vision, organized around six strategic directions: Teaching Greatness, Smash the Calendar, Grand as a Griffin, Perpetual Motion, Trendsetters & Trendbreakers, and Our Place in O-day'min.
- University of Toronto Guide to Digital Pedagogy

Sustainable

MacEwan University Strategic Vision: "Whether it's our ecological footprint, our fiscal position or our relationships in community, we make choices with longevity in mind so we can serve undergraduate learners well." (p.15)

At MacEwan University, our approach to educational technologies keeps this commitment to longevity by ensuring that digital learning environments are sustainable from an ecological, financial and practical perspective.

Definition

MacEwan University is dedicated to fostering a learning environment sustainable for future generations. This means implementing technology practices that promote long-term usability, environmental responsibility, and equitable educational opportunities.

What This Means

- **Environmental Sustainability** – Adopting digital-first solutions and energy-efficient technologies with low carbon footprints provided by companies with environmentally ethical practices minimizes environmental impact.
- **Resource Sustainability** – Long-term digital learning strategies prioritize affordability, ongoing support, and interoperability to ensure enduring access.
- **Economic Sustainability** – Adopting cost-effective open educational resources (OER) where possible. When there is a choice, choose to engage with equitably priced technologies that recognize the needs and limitations of the educational sector and won't unduly burden the university or its learners in terms of cost.

Example

When investigating choices of applications, looking up the company's Environmental, Social and Governance (ESG) rating can provide information regarding company impacts in these areas and help evaluate the sustainability of a company and its products. By seeking information on a technology companies' environmental impact, ethical and governance practices we can better evaluate the sustainability of a company. This approach aligns with MacEwan University's commitment to sustainability. By integrating sustainability considerations into assessment of learning technologies, MacEwan University ensures a sustainable learning environment for all learners.

More Information

- **Sustainability Initiatives** – Learn about MacEwan's commitment to sustainability.
- Moro, C., Mills, K. A., Phelps, C., & Birt, J. (2023). The Triple-S framework: ensuring scalable, sustainable, and serviceable practices in educational technology. *International Journal of Educational Technology in Higher Education*, *20*(1), 7–7. https://doi.org/10.1186/s41239-022-00378-y

Secure

Security of personal information as well as intellectual property is an important baseline for productive participation and creation in an academic context.

The technology should be consistent with MacEwan's privacy, IT security, and intellectual property policies, as applicable.

More Information

- Information and Privacy Office
- IT Security
- MacEwan University's Intellectual Property Policy

Quick Guide to Assessing Educational Technologies

(Note: The Quick Guide is to be used for considering aspects of educational technologies. Depending on the specific educational context in which a technology is to be applied, it may not be appropriate for it to have all features listed)

Key Characteristics	Features
Usable Learners and educators can easily, quickly, and intuitively get started using technologies for their intended purposes with minimal learning curve.	• **Intuitive Design**: The user interface is clean, logical, and requires minimal training to understand. Common tasks are easily discoverable without extensive documentation. • **Convenient Access:** Integration with single sign on (SSO) eliminates unnecessary downloads or extra accounts and enhances efficient access. • **Minimal Onboarding Time**: Educator and learners can quickly and conveniently gain access (ideally remote access) to and start using the tool without needing lengthy setup processes or specialized technical support. • **Consistent User Experience**: Technologies function consistently across devices, platforms, and operating systems. • **Reliable, Interoperable and Compatible**: Technologies are responsive, load quickly, experience minimal down time and if warranted, work seamlessly with the university's learning management system (LMS), library resources, and other institutional platforms. • **Efficient Task Execution**: Technologies enable users to perform essential tasks in as few steps as possible, removing unnecessary complexity and use of resources.
Accessible All learners and educators can access technologies without barriers regardless of ability, culture, language, sexuality, gender etc.	• **Anywhere, Anytime, Accessibility** – Learners and educators can access learning materials and learning resources 24/7, on and offline, accommodating varying access to internet along with diverse schedules and commitments. • **Disability and Learning Differences** – Technologies follow accessibility standards (e.g., WCAG, UDL),

	ensuring accessibility features are built in as well as being compatible with assistive technologies and diverse learning needs. • **Inclusivity** – Technologies are designed with inclusive principles, offering multiple formats and adaptive features to accommodate diverse cultural and social needs, ensuring equitable access for all learners. There are no identifiable biases built into the technology that would diminish the learning experience for some. • **Device Accessibility** – Technologies are designed to function across different devices and browsers, reducing technological barriers for learners.
## Designed for Learning Learning goals are served by technologies, supporting evidence informed, enriched learning.	• **Active Engagement**: Technologies enhance active engagement by providing options for personalization, participation, collaboration, sharing, and creation, whether through collaboration, problem-solving, reflection, or interactivity. This includes hands-on activities, real-world problem-solving, and experiential learning. • **Pedagogical Purpose and Clarity**: Technologies have a clear pedagogical purpose and directly support course objectives, ensuring they enhance learning by having a learner and user centered design rather than introducing distractions or additional workload for educators. • **Customizable**: Customizability will ensure that the technology can be adapted for personal learner preferences as well as various classroom contexts, but also to real-world applications. • **Aligned Assessment**: Technologies support assessment that aligns with course goals and provides meaningful feedback to students via real-time communication, peer review, and annotation. Data analytics will provide insights into engagement and performance, helping instructors tailor their teaching. The result will be assessment that is both formative and summative.

	Faculty Consultation: Finally, for technologies informed by digital pedagogy to be implemented effectively, faculty consultation is essential. Faculty members are to be consulted before educational technologies are adopted by the university to ensure that educational technologies can ideally suit varied pedagogical environments and aid instructors in confronting an open-ended number of learning experiences.
## Sustainable Learners and educators can expect ongoing supported access to university wide tools, knowing that technologies support economic and sustainability goals whenever possible.	• **Environmental Sustainability** – Adopting digital-first solutions and energy-efficient technologies with low carbon footprints provided by companies with environmentally ethical practices minimizes environmental impact. • **Resource Sustainability** – Long-term digital learning strategies prioritize affordability, ongoing support, and interoperability to ensure enduring access. • **Economic Sustainability** – Adopting cost-effective open educational resources (OER) where possible. When there is a choice, choose to engage with equitably priced technologies that recognize the needs and limitations of the educational sector and won't unduly burden the university or its learners in terms of cost.
## Secure	For specifics, please refer to MacEwan's privacy, IT security, and intellectual property policies.