

# Inquiry-Based Learning

## DESCRIPTION

"Inquiry-based learning describes an environment in which learning is driven by a process of inquiry owned by the student. Starting with a scenario and with the guidance of a facilitator, students identify their own issues and questions. They then examine the resources they need to research the topic, thereby acquiring the requisite knowledge. Knowledge so gained is more readily retained because it has been acquired by experience and relation to a real problem" (Center for Excellence in Enquiry-Based Learning, 2010). The inquiry-based learning approach includes problem-based learning, project-based learning, and design-based learning. Inquiry-based learning "allows students to progress from simply holding and finding factual information to being able to apply new knowledge in novel and different ways" (Coffman, 2009). Unsurprisingly, research (Hattie, 2008) indicates that inquiry-based learning provides a significant, positive learning impact on process-based outcomes (e.g. tasks involving critical thinking, problem-solving, etc.). In contrast, inquiry-based learning has a much smaller—but still positive—impact on content-based outcomes (e.g. tasks involving memorization and conceptual knowledge). In short, inquiry-based learning is a robust, well-suited approach for process-based outcomes, particularly outcomes related to critical thinking, self-regulated/self-directed learning, problem-solving/problem-based learning, 21st century skills, scaffolding, metacognition, and collaborative learning. Best practices for designing and implementing inquiry-based learning include:

- Make use of concept mapping and brainstorming to assist in exploring big idea questions
- Include scaffolding during inquiry activities
- Based on learning objectives, embed the digital tools necessary for learners to gather, analyze, and interpret data
- Use databases, raw data, primary source documents, images, and films to support inquiry activities
- Include interactive simulations and models that allow for inquiry to take place
- Use journaling to capture information on learning changes
- Provide a digital repository for the collection of portfolio pieces
- Embed rubrics and checklists prominently within inquiry activities
- Provide feedback continually throughout the process
- Collect log data from learner interaction with simulations and interactive models

For collaborative inquiry-based learning, additional best practices include:

- Tools for synchronous communication between learners and experts in the field to get a real-world perspective on an issue or concept
- Wikis, cloud computing, and other asynchronous and synchronous tools should also be used to support collaboration

## CAPABILITIES

- Assessment: Open-ended assignment (multi-step)
- Assessment: Project
- Assessment: Active learning experience

## SAMPLE DESIGN IMPLEMENTATIONS

- Robust Technology: Adaptive/personalized, content-agnostic software for collaborative inquiry
- Simple Technology: Asking students to research an open-ended problem
- Content Support: Content focused on supporting the inquiry process



## PRACTICES THAT FOSTER EFFECTIVE LEARNING

### LEARNER IMPACTS

- Behavior
- Achievement
- Self-regulation



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## SELF-ASSESSMENT INSTRUMENT



Principle Criteria	Integration (4-5 points)	Exploration (2-3 points)	Consideration (1 point)	Not Applicable (0 Points)	Total Points
<b>Purpose/ Model</b>	The product strategy is aligned to inquiry-based learning as a core principle of a learner-centered product.	The product team is exploring inquiry-based learning as a core LDP for creating a more learner-centered product.    The product strategy is exploring integrating an evidence-based model of inquiry-based learning.	The product team considers inquiry-based learning to be an important LDP for creating a more learner-centered product.    The product strategy considers inquiry-based learning at a high level but does not currently align to an evidence-based model.	The inquiry-based learning LDP does NOT align to the product strategy and is not necessary to explore further.	= ____
<b>Inquiry-based Learning Application</b>	The product uses empirically-based recommendations concerning inquiry-based learning.	Principle is applied only to a specific area of the product and more learner feedback is needed to improve principle application.	Product team thinks applying this principle would add value to their product strategy.    Product team has applied similar principles to their product strategy.	This principle is NOT currently being applied to any area of the product and is NOT needed to improve the product.	= ____
<b>Inquiry-based Learning Delivery</b>	The impact on a capability or service aligned to this principle has been gathered/reported on.	Product team is in early discussions about partnering with LD team to validate this principle with learners.    Product team has specific capabilities they need to validate this principle with.	Product team needs more information about how this principle might be tested with learners using LD's validation services.	This principle does NOT need to be validated in order to inform product design & development.	= ____
<b>Learner Characteristics</b>	Design & development are currently using validation reports to further align the principle and the product strategy.	Product team is currently exploring how validation results and recommendations could be used in product design & development.	Product team feels there is time in the schedule to include validation data to inform product design & development.    Product team needs a consultation to learn more about validation services and results reports.	Validation data will NOT be used to inform product design & development.	= ____
<b>Formative/ Summative Applications</b>	The formative and summative applications make proper use of inquiry-based learning LDP recommendations for creating assessments.	Product team is currently exploring how recommendations for designing assessments for inquiry-based learning could be used in product design & development.	Product team feels there is time in the schedule to include time spent on assessment application design & development.    Product team needs a consultation to learn more about designing inquiry-based learning assessments.	Formative/summative applications will NOT be used to inform product design & development.	= ____