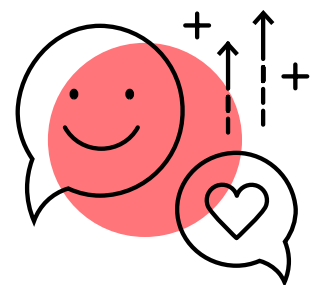




Learning Design Principles
Welcoming Experience

Social & Collaborative Learning



Summary

What are Pearson's Learning Design Principles?



Our Learning Foundations describe the optimal conditions for learning and reflect the learner experience we hope our products will create. We do this by incorporating our Learning Design Principles.

Each of our Learning Design Principles goes into detail about a key principle, supporting product design and marketing by describing:

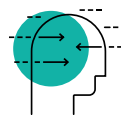
- the research that informs the principle
- why it matters in learning
- how we can apply it in practice

Our portfolio of Learning Design Principles will continue to grow over time.



Welcoming Experience

- Motivation & Mindset
- Social & Collaborative Learning



Minds in Mind

- Developing Understanding
- Attention & Cognitive Load
- Active Learning, Memory & Practice
- Desirable Difficulty & Scaffolding
- Feedback for Learning



Learning Behavior

- Self-Regulated Learning & Metacognition



Purposeful Design

- Objective Design
- Assessment & Evidence-Centered Design
- Personalized Learning & Adaptive Systems
- Authentic Learning



Learn Anywhere

- English Performance Standards
- Digital & Virtual Learning

Social & Collaborative Learning

Human beings are naturally social. We're wired to respond to the people around us. How do we tap into these natural instincts to improve learner outcomes?

Social learning is when learning takes place in a social setting, and learners learn by observing other people in the setting. Social settings can be places, like classrooms, or digital environments. The nature of the environment, the composition of the group, and the requirements and complexity of the task can all affect learning.

Collaborative learning is when groups of about 2–6 learners intentionally work, negotiate, decide, and/or construct knowledge together to reach a complex common goal. This often requires well-structured goals and well-defined responsibilities to be effective. Collaborative learning naturally involves elements of social learning, so the two concepts are inextricably linked, and it's important to understand both.

Social learning can happen when learners are:

- observing others
- interacting with others
- learning directly from others
- teaching others

When interacting with others, learners have opportunities to co-construct, develop, stress-test, and deepen their knowledge.

Why it matters

- Social learning can increase feelings of belonging, motivation to learn, and engagement with the learning experience, all of which can support learning achievement.
- True collaborative learning leads to better learner outcomes than cooperative, competitive, or individualistic learning.
- Collaboration is inherent in nearly all professional work and most models of 21st-century skills feature collaboration as a key skill for workforce readiness. This means that being able to collaborate effectively sets learners up for career success.

Impact

When we successfully incorporate this principle into learning experiences, we can have an impact on these learner outcomes:

- learners are motivated to learn because they are learning as part of a wider group
- learners experience a sense of belonging because group norms ensure everyone feels welcomed and included
- learners trust their peers because psychological safety is established within the group
- learners co-construct knowledge and learn through observation because interaction and peer modeling are encouraged
- learners are able to apply their knowledge because tasks are sufficiently challenging to require collaboration



Social & Collaborative Learning

The big ideas

1

Because humans are social animals, we naturally **pick up on social cues** and learn from others in social settings.

I am tuned into and enjoy being with others.

2

People can learn to do something by **watching others** and trying it out on their own.

I can learn new things by watching others do it, then practicing it myself.

3

When learners **feel they belong** in the learning environment, they are more motivated to learn.

I belong in this group, so this learning is for me.

4

There are lots of different ways to learn together. The **more collaborative** learning is, and the more learners can construct new knowledge together, **the better**.

I can learn things by collaborating that I might not manage alone.

5

Explicitly agreeing **ways of working** together up front leads to better collaborative learning.

I have guidance on how to best work with other people.

6

Many of the benefits of social learning can still take place when the **other participants are virtual**, rather than human.

Learning from a virtual person still feels natural.

Our natural social tendencies

Because humans are social animals, we naturally pick up on social cues and learn from others in social settings.

What it feels like for learners

I am tuned into and enjoy being with others.

- **Humans typically enjoy social interaction**

We are naturally alert and sensitive to social information, the majority of which is communicated non-verbally. It makes sense for learning experiences to work with, rather than against, learners' natural social tendencies.

- **Humans automatically learn from watching others**

Learning from watching others is effective in in-person observational learning; may be impaired in remote learning, where learners may have reduced access to other people's facial expressions or gestures; and does not work as well in asynchronous learning.

- **Humans automatically match their attention to others**

Children and caregivers match their attention automatically. This "joint attention" is important for language learning and social cognition

development. Social attention cueing helps learners focus on the most important parts of the environment and also helps build rapport.

- **People are inherently curious and enjoy learning**

This natural motivation can be affected by feelings of autonomy, competence, and relatedness. A social learning environment can help or hinder feelings of relatedness, increasing or decreasing learners' natural motivation — which then affects learning.

What it means for designing learning experiences

- Offer opportunities for social interaction when appropriate to increase engagement
 - Evaluate the potential positive benefits of social interaction carefully in terms of the objectives before incorporating social learning elements.
- Make nonverbal cues (e.g., facial expressions, gestures) accessible during online learning whenever possible
- Present clarity around how social interaction is being used in the learning experience
- Increase feelings of relatedness by offering opportunities for empathy and for emotional peer support
- Be mindful of social learning of undesired behaviors

Learning by observing

People can learn to do something by watching others and trying it out on their own.

What it feels like for learners

I can learn new things by watching others do it, then practicing it myself.

Social learning occurs through watching, trying, seeing how others react, and learning. People can learn socially from many sources.

- **People can learn by observing good examples, or models**

A model can be a live demonstration, direct visual or verbal instruction, or a symbolic model — such as a movie, story, TV program, social media content, or an example of how someone else solved a problem. Learning from models is more efficient than trial and error.

- Learning by observing involves 3 phases:

- **Watch:** Learners observe the model and pay attention to the relationship between the model's actions and the outcome
- **Try:** Learners emulate the model's behaviors and compare themselves to peers when possible

- **Learn:** Learners reflect on their performance through self-observation (becoming aware of their own behavior), self-judgement (assessing their performance against goals or standards) and self-reaction (responding to their assessment by changing their thinking or behavior). Learners can make it their own by adapting their behavior and going beyond emulating what they initially observed

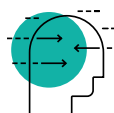
We are strategic and rational about **who** we observe and emulate in order to learn, and **when**.

Who we imitate:

- the majority
- people with a track record of success
- people we see as being like us

When we imitate:

- when we've attempted the behavior ourselves without success
- when learning it on your own would be too hard
- when we feel uncertain



See this Learning Design Principle:
Attention & Cognitive Load

What it means for designing learning experiences

- Draw learners' attention to key features of a learning situation or behavior
- Give direct instruction to support learning of more complex behaviors
- Foster transferable learning by encouraging emulation (goal-directed imitation) rather than blind imitation of a model's actions
- Offer low-stakes environments for learners to try out new behaviors and make (and learn from) errors, and opportunities for learners to recall what they have learned
- Encourage individuals to compare their performance to the model, and consider how they might improve
- Leverage peer feedback, particularly when there are limited instructional resources and there are clear goals and guidelines for feedback
- Provide models that learners are likely to emulate
- Provide models when learners are likely to look to them

Feelings of belonging

When learners feel they belong in the learning environment, they are more motivated to learn.

What it feels like for learners

I belong in this group, so this learning is for me.

The benefits of collaborative learning are heightened when members of the group feel they **belong** and are **psychologically safe** together.

Belonging is the degree to which learners feel connected to the people in the learning environment that their contributions are valued and important. It is the feeling that you fit in and are accepted, needed, and are a part of the group. Humans need to feel like they belong.

In education, belonging is related to achievement. This may be especially important at transitional times like the first year of college.

Psychological safety is when a group of individuals share the belief that it is safe to take interpersonal risks. A psychologically safe learning experience leads to learners:

- respecting each other's knowledge and skills
- being respected for being themselves and saying what they think

- having positive intentions in interpersonal interactions
- engaging in constructive conflict
- feeling comfortable taking risks
- focusing on the group's collective goals rather than on their own protection

Intentionally formed **learning communities** can foster a sense of belonging and provide a rich environment for social learning.

A **learning community** is an environment where learners work together as active agents in their own learning, co-constructing knowledge and supporting one another. Compared to traditional, didactic learning environments, learning communities foster stronger feelings of belonging.

A **community of practice** is a group of people sharing and critically interrogating their practice in an ongoing, reflective, collaborative, learning-oriented, growth-promoting way. Communities of practice promote learning by providing models for new members to emulate, and an evolving body of social and academic knowledge.



See this Learning Design Principle:
Motivation & Mindset

What it means for designing learning experiences

- Foster feelings of belonging in learning experiences, especially when learners are in a time of transition
 - Design experiences to support coordination among individuals in achieving a group goal.
 - Design experiences that provide expectations and diversification of both roles and responsibilities.
- Foster psychological safety through:
 - supportive leadership behaviors, supportive organizational practice, and shared team rewards and collective responsibility
 - participation of all learners, such as neurodiverse, shy or socially anxious students
- Intentionally structure groups or communities to support belonging and social learning

Ways of learning together

There are lots of different ways to learn together. The more collaborative learning is, and the more learners can construct new knowledge together, the better.

What it feels like for learners

I can learn things by collaborating that I might not manage alone.

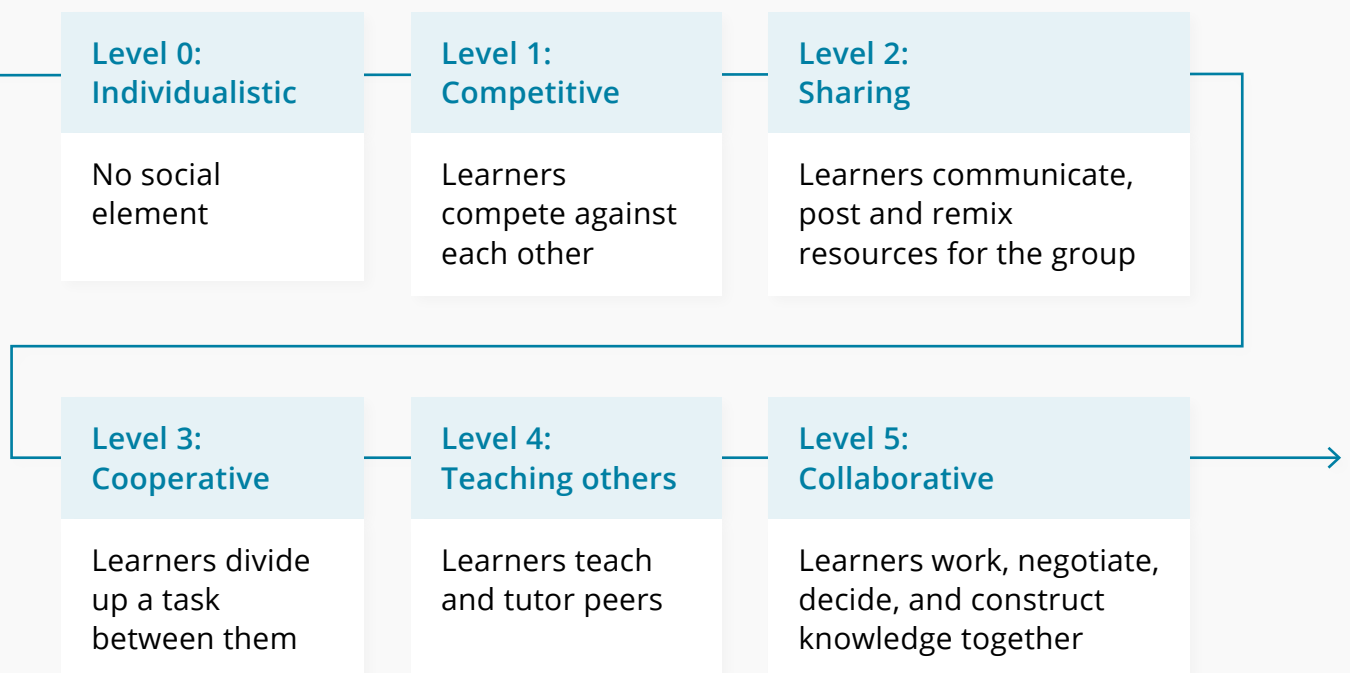
Collaborative learning incorporates more knowledge-building and positive interdependence than any other way of

learning together. It also offers social, motivational, and cognitive learning benefits.

The more a learning experience encourages knowledge-building (co-generating new ideas together that no individual member could come up with on their own) and has positive interdependence (where a learner can only succeed when the group succeeds), the better its impact on learning.

Collaborative learning is most effective when **small groups (about 2-6)** of learners with **different characteristics** work together **mutually** and **equitably** to complete a **complex task**.

Though it leads to strong learning outcomes, collaborative learning is not the right format for every situation.



Ways of learning together

- **Individualistic learning:** learning independently, with no social interactions
 - Tends to be the default learning mode, particularly in Western cultures. It can be appropriate for many learning tasks.
 - It is useful to contrast this against other modes to determine what's appropriate.
- **Competitive learning:** when learners compete against each other
 - Characterized by **competition between peers** and negative interdependence.
 - Can be fun, interesting, engaging, and enjoyable — but tends to have less of a positive impact than collaborative learning.
- **Sharing:** when learners communicate, post resources for each other, and/or remix ideas
 - Can improve engagement, confidence, and critical thinking.
 - However, learners do not work together to build new knowledge or understanding at this level.
- **Cooperative learning:** when learners divide up a task and each work on their section independently
 - Many “group work” tasks in both the classroom and the workplace use this structure.
 - Lacks a complex synthesis task that requires learners to bring and build ideas together.
- **Teaching others:** when learners teach and tutor other learners
 - This is **not** collaborative learning, but it can still powerfully boost learning
 - Many of the benefits of social learning still apply when a learner prepares to teach another, even when they do not go on to actually teach them.
- **Collaborative learning:** when groups of about 2-6 learners intentionally work, negotiate, decide, and/or construct knowledge together to reach a complex common goal
 - Group members should be alike in terms of status and knowledge and engage in an even exchange of ideas.
 - Tasks should be complex, too difficult for any individual to complete by themselves, and collaboration must be a key part of achieving the objective.

Collaborative learning is most effective when there is:

- **positive interdependence:** when each member of the group believes they can only achieve their own goals if the other members achieve theirs as well
- **promotive interaction:** when members of the group encourage success in each other, such as by offering assistance or praise
- **individual accountability:** when group members are judged for their individual contributions as well as for the group's overall outcome
- **social skill:** such as communication, conflict management, establishing common ground, and building trust
- **group processing:** when members reflect on how the group is working together and whether to change their behavior or strategies

What it means for designing learning experiences

- Collaboration should be central to the learning outcome: for example, learners will successfully develop collaboration skills aligned to organizational goals through the learning experience
- Keep in mind, an individual task “made bigger” is not a well-structured collaborative learning activity
- Provide complex tasks where it is too difficult for any individual to complete by themselves, but possible to achieve by collaborating with capable peers
- Encourage knowledge-building over knowledge-telling
- Design experiences to include individual and group reflection
- Design experiences to promote group discussion
- Promote collaborative group efforts by basing rewards on the individual learning of all the members

Frameworks for collaboration

Explicitly agreeing ways of working together up front leads to better collaborative learning.

What it feels like for learners

I have guidance on how to best work with other people.

Sometimes, when learners want to maintain their status and be seen positively, and there is a lack of individual accountability, collaborative learning groups can experience:

- **dominating:** one member takes over and demands to do all the work themselves
- **free-riding:** one or more members stop contributing and leave others to pick up the slack
- **social loafing:** working together harms learning and productivity instead of improving it, and the quality of the group's work is lower than the members could achieve alone

Simply engaging in collaborative learning does not necessarily build collaboration skills. Instead, collaboration skills must be explicitly highlighted, taught, and assessed.

Collaboration skills are a combination of:

- **interpersonal skills:** conflict resolution, collaborative problem-solving, communication
- **self-management skills:** goal-setting and performance management, planning and task coordination
- **Clear expectations**
Groups of learners will work better together, and engage less in destructive behaviors, if there are clear expectations around communication, member responsibilities, and the task itself from the start of the learning experience. Expectations can be set by an instructor or decided among the group.
- **Challenging tasks**
The task must be challenging enough that collaboration is essential to completing it. The group members might not be motivated to work together if this is not the case.
Groups must understand what standard their work will be held to. This could take the form of a rubric or a model assignment.
- **Group learning & metacognition**
Group metacognition is a group's collective awareness of their progress, which allows them to optimize the way they work and achieve a good outcome.



See this Learning Design Principle:
Self-Regulated Learning & Metacognition

What it means for designing learning experiences

- Determine whether the learning experience should teach collaboration skills or simply use collaboration as a tool
 - If teaching collaboration skills, highlight those skills as they appear in the tasks, and provide resources for improving those skills if necessary.
 - Include assessments of collaboration skills as part of the individual or group assessment.
- Foster psychological safety, feelings of belonging, and group cohesion to encourage mutually beneficial interactions between group members and honest communication
- Develop unique group roles centered on group processes, not specific sections of the project
- Offer opportunities for group reflection
- When providing feedback, offer individual feedback privately, and offer an opportunity for the group to respond to group feedback
- Avoid pitfalls of collaboration by:
 - fostering individual accountability as well as group accountability
 - setting clear expectations around communication, member responsibilities, and the task itself from the start of the learning experience
 - encouraging group metacognition, such as group problem-solving, or collectively evaluate the quality of the group's collaboration

Teaching and learning with virtual others

Many of the benefits of social learning can still take place when the other participants are virtual, rather than human.

What it feels like for learners

Learning from a virtual person still feels natural.

Like computer game characters, pedagogical agents use human-like gestures, natural language, and facial expressions to interact. This means they can activate many of the same benefits of social learning with humans. People tend to interact with and respond to digital and virtual characters in much the same way as we do with other people.

Agents can act as instructors, as conversation partners, or as less knowledgeable figures who need teaching (known as **teachable agents**).

Learning from a virtual other

Pedagogical agents are anthropomorphic virtual characters that serve various instructional goals in online learning environments.

Pedagogical agents can support learning by:

- individualizing instruction and offering personalized feedback
- serving as models for observational learning
- making learners feel like they belong and are welcome, by offering empathy and providing a supportive relationship
- providing non-verbal cues and gestures
- making learning fun, increasing motivation

Simply adding a virtual character to online learning is not enough to improve learner outcomes. The agent's behavior also needs to be grounded in good pedagogy.

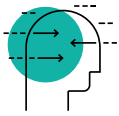
Teaching a virtual other

Teachable agents are a specific kind of pedagogical agent that can reason based on knowledge taught to them by learners.

- Since teachable agents act as a less knowledgeable partner, interacting with teachable agents can create the same learning benefits as teaching another person.
- The agent's reasoning helps the learner assess whether the knowledge they conveyed to the agent was accurate or complete.



**See this Learning
Design Principle:**
Digital & Virtual Learning



**See this Learning
Design Principle:**
Feedback for Learning

What it means for designing learning experiences

For a pedagogical agent to be effective:

- use the same instructional principles you would for a human instructor
- utilize naturalistic gesture, facial expression and eye gaze
- use a conversational speech style
- while agents do not have to be exactly human-like, avoid a distracting uncanny valley response
- consider modeling the agent to be similar to your learner (e.g. gender, age)

For a teachable agent to be effective:

- the visual representation of the agent's knowledge, which learners manipulate to teach the agent, should be clear and well structured
- the agent should be able to act independently of the learner's direct instructions
- the agent should model good learning behaviors for the learner to emulate
- resources for building the learner's own knowledge should be available within the same learning environment as the agent

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Megan Imundo examines the features of educational settings which promote long-term learning and transfer of learning. She earned her bachelor's degree in psychology and cognitive science from Northwestern University. Currently, she is a Ph.D. candidate in cognitive psychology at the University of California, Los Angeles advised by Drs. Robert and Elizabeth Bjork. Megan strives to connect academic research and real-world practice and regularly collaborates with organizations who seek to leverage the science of learning in authentic learning contexts.



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Katherine McEldoon is a research-to-practice connector. After earning her Ph.D. in cognitive and learning sciences at Vanderbilt University and a post at Arizona State University's Learning Sciences Institute, she has worked in academia, government, and industry to ensure the best scientific insights support student learning, no matter the context. Katherine has most recently worked as Lead Learning Scientist on Pearson's Efficacy & Learning team, bringing evidence-based insights to Pearson's world of learners.



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