Theory into practice

Five theories about learning, and their implications for course and activity design

This resource shows how different ideas about learning can be translated into curriculum design outcomes, including design for digital activities and environments. The first row outlines the theories. The second row maps each theory to other ways of thinking about learning that you may be familiar with: Laurillard's six learning types (2012), Kalantzis and Cope's four activity types (2020) and Bloom's taxonomy of learning outcomes (1956, revised 2001). This step is particularly useful for translating between broad theories and practical activities in the curriculum.

The remaining rows offer some design principles that arise from each set of ideas:

- General principles
- Student progression
- Typical learning activities (this row can be cross referenced to the Learning Activities cards)
- Assessment, including taxonomic verbs (this row can be cross referenced to Bloom's Digital Taxonomy).
- Learning spaces, tools and environments (this row can be cross referenced to resources on Educational Media and on Choosing and Using Tools for Learning)

An earlier version of this table appeared in Beetham, H. (2006/2010/2019) Designing learning activities, in H Beetham and R. Sharpe (Eds) Rethinking Learning for a Digital Age. Routledge.

	Associative	Constructive (individual)	Constructive (social)	Situative	Critical
THEORY	People learn by association: through stimulus-response conditioning (classic 'behaviourism'), or by linking concepts in a chain of reasoning, or steps in a sequence of actions. Instruction aims at accurate performance, eg. when factual material is committed to memory or when skilled performance is reproduced. Associative theories are less concerned with how concepts or skills are internalised and more with how different regimes of instruction support performance. Structured activities and rapid feedback on performance are key to learning.	People learn by actively investigating the world around them: planning, acting, receiving feedback, and drawing conclusions. New learning must be integrated into the learner's existing conceptual or competency structures, or those structures must be reformed (this is often termed 'threshold' learning). Learned structures or rubrics can then be applied to new contexts and expressed in new ways. Learning tasks should challenge existing concepts and support the construction of new ones. Active discovery and intrinsic feedback are key to learning.	Individual exploration is scaffolded by social interactions. Peer learners and teachers play a key role in developing a shared understanding of the task, and providing feedback to each learner. Emerging concepts and skills are supported by the group, allowing learners to achieve beyond their own current capabilities. Learning depends on social resources such as language(s), tools, designed environments, and agreed norms of shared action (e.g. rules, roles, divisions of labour). Shared tasks and rules are key to learning.	People learn by participating in authentic settings and social groups, progressing from novice to expert through observation, practice and mentoring. Situativity emphasises the social context of learning, and this context is close – or identical – to the real-world setting in which the learner will practice the role and associated skills they are learning. The social environment provides motivation and identity rewards as well as scaffolding development. Participation is not only the method: it is also the end goal. Authentic tasks and roles are key to learning.	People learn when they are motivated to change aspects of their situation, or issues facing their community. Learning involves become more conscious of the situation, the forces contributing to it, and alternatives. Learners must be able to make a difference through their learning, and this may be played out in the roles and power dynamics of the classroom and/or in actions beyond it. Meaningful tasks linked to other aspects of learners' lives, collective action, and shared understanding are key to learning.
MAPS TO	Maps to Laurillard's (2012) *learning by acquisition* (concepts), and *learning by practice* (skills) Maps to '*overt instruction (conceptualising*') in Kalantzis and Cope Bloom's '*remember*' action verbs are particularly relevant to associative learning goals.	Maps to Laurillard's (2012) *learning by investigation* Maps to '*Transformed practice (applying)*' in Kalantzis and Cope Bloom's '*understand*' '*apply*' and (perhaps) '*analyze*' action verbs are particularly relevant to constructivist learning goals.	Maps to Laurillard's (2012) *learning by investigation + learning by collaboration.* Maps to '*Transformed practice (applying)*' in Kalantzis and Cope Bloom's '*understand*' '*apply*' and (perhaps) '*analyze*' action verbs are particularly relevant to constructivist learning goals.	Maps to Laurillard's (2012) *learning by acquisition/ practice + learning by collaboration.* Maps to '*Situated practice (experiencing)*' in Kalantzis and Cope Bloom's '*understand*' and '*apply*' action verbs are relevant to novices, while '*evaluate*' and '*create*' are relevant to expert learners.	Maps to '*Critical framing (analyzing)*' in Kalantzis and Cope, and '*Transformed practice (applying)*'. Bloom's '*analyze*,' '*evaluate*' and '*create*' action verbs are relevant to critical learning. Through values-led action, other outcomes such as '*understand*' can emerge (this would be understood as consciousness).

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DESIGN PRINCIPLES	• Break down concepts/skills into component units • Structure learning tasks/ materials according to the typical order of acquisition • Provide predictable routines of activity and feedback, ideally with micro-rewards • Stage practice/recall at regular and lengthening intervals (e.g. after 1 hour, 1 day, 1 week) • Support intrinsic learning by emphasising patterns, rubrics, routines • Adapt teaching to learner performance (start, stop, review)	• Design tasks to support active sense-making through structured problems • Elicit pre-existing concepts and strategies from learners • Look for conceptual 'thresholds' where existing frames give way to new ones; focus teaching on these transitions • Include opportunities for reflection and integration especially at transitions • Encourage transfer of concepts/skills from one problem space to another • Adapt teaching to existing concepts/skills and to misconceptions and errors	• Design collaborative tasks • Elicit pre-existing concepts and strategies from learners • Encourage experimentation, and a variety of approaches • Look for conceptual thresholds and support students to co-teach each other around these • Include opportunities for discussion and reflection • Encourage students to coach, challenge and feed back to each other, as well as modelling this in teaching • Adapt teaching to group dynamics and existing skill sets/adopted roles	• Support participation in authentic situations and practices • Elaborate opportunities for learning • Clarify habits, attitudes and values • Support the development of roles and identities • Create safe environments for reflection • Include feedback from mentors and peers • Facilitate learning dialogues and relationships • Adapt teaching to the needs and goals of learners and the opportunities of the situation	▪ Link new ideas to learners' lived experiences. ▪ Provide authentic projects with meaningful outcomes ▪ Elicit and value alternative points of view, and put them into contestation ▪ Elaborate contexts., especially of power and privilege ▪ Ask '*who gains; who loses*?' ▪ Adapt teaching to the emerging relationships and interests of the group ▪ Develop the teaching/ learning relationship as a safe space to challenge authorities and received ideas
PROGRESSION	• Progress from simple to complex (skills or concepts) • Move from linear sequences to spatial or grammar-like structures • Add new levels of challenge/difficulty • Develop, self-monitoring and self-assessment	• Progress from simple, intensive problems to complex, extensive problems • Move from closed to open problem spaces • Learners take progressively more direction over the task(s) • Develop meta-cognitive skills e.g. reflection	• As for constructive learning but also: • Move from closed to more open groups/networks for learning • Develop peer learning and coaching/mentoring skills	• Progress from novice to expert tasks and roles • Manage more complex relationships • Engage with different roles, perspectives and cultures • Develop repertoire and judgement	• Progress from single-loop criticality (applying critical tools, rules and rubrics) to double loop (examining power dynamics, seeing alternative perspectives, challenging rules, rubrics and tools) • Progress from understanding to critique to taking action • Develop repertoire and judgement

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ACTIVITIES	• Follow a method, protocol, or rule (practice until accurate) • Follow a prescribed route through materials • Represent/reproduce a concept or argument • Perform a skill • Answer recall-based questions	• Solve a problem and present an outcome, result or solution • Develop a new example or application • Explain a concept or analyse a practice/ performance • Answer applied questions •	• Solve a problem and present a shared outcome, result or solution • Contribute to a shared project • Co-teach or peer review others' work • Reflect/comment on a shared task	• Respond to a problem, situation or challenge • Produce artefacts suitable to role and setting • Record and reflect on performance in situ • Gather expert feedback • Co-mentor others • Present work in a public setting	• Respond to a problem, situation or challenge • Critique, review, contrast, contextualise • Develop alternative solutions and counter-factual proposals • Challenge received methods and perspectives • Take action with others
ASSESSMENT	• Assess accurate reproduction • Assessment criteria tightly coupled to desired outcomes • Give regular feedback e.g. on components of the task • Quizzes, MCQs, short answers, practicals, online tests. All at progressively spaced intervals. • Measurement of skilled performance. • Taxonomic verbs: remember, perform	• Assess conceptual understanding (applied knowledge and skills) • Credit process as well as outcomes • Credit varieties of performance and/or innovative solutions • Provide feedback when it matters e.g. thresholds • Taxonomic verbs: understand, apply, analyse, explain	• Assess conceptual understanding • Credit process and participation as well as outcomes • Credit collaboration • Develop peer-evaluation and shared responsibility • Collaborative assessments, or individual submissions based on shared work • Taxonomic verbs: understand, apply, analyse, explain, share (+ collaborate)	• Assess situated performance or practice • Take full account of context • Credit participation • Provide feedback from a range of others • Credit authenticity, e.g. involving identities, values, beliefs, judgement • Taxonomic verbs: apply, evaluate (+ collaborate)	• Assess situated performance or practice • Credit authenticity, involving identities, values, beliefs, judgement • Credit original and challenging solutions • Require critical reflection on outcomes and premises • Involve students in designing assessment rubrics and standards • Taxonomic verbs: apply, analyse, evaluate, create

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LEARNING ENVIRONMENT	• Structured learning resources and pathways with regular questions and tests • Online MCQs and quizzes with intrinsic feedback • Simulations aimed at accurate reproduction or performance • One-to-one tutoring or one-to-many instruction e.g. lecture capture, video, multimedia learning resources • Learning and study apps e.g. brain training, language learning, revision tools Focus on direct instruction, and feedback	• Active learning environments e.g. exploratory simulations, games, virtual worlds • Online research tools • Tools for analysis and calculation; authentic tools of the discipline • Productivity tools e.g. for writing, image-making, presentation • Wide range of learning resources, ideally in different media • Mind-mapping and other visual presentation tools • Note making, recording and collating apps Focus on student interaction with tools and resources, tutor facilitated	• Collaborative learning environments (including wikis, shared design spaces, shared authoring and presentation apps) • Shared simulations and games • Online research and curation tools; shared resources • Authentic tools of the discipline • Discussion spaces, forums, break-out rooms • Social referencing, bookmarking, annotation and commenting apps Focus on learner collaboration, tutor facilitated	• Collaborative learning environments • Simulations and virtual worlds (highly authentic) • Reflective tools e.g. blogs, vlogs, podcasts • e-Portfolio applications • Online curation and presentation spaces e.g. virtual galleries, social media channels, web sites, blogs • Professional, vocational and other networks of practice • Authentic tools of the discipline or specialist role Focus on learner participation and identity-building	As for situative learning Focus on learner participation and collective identity-building