

Kinkhorst & Zitter	4C/ID Merriënboer	Rowland & Adams	Goodyear
Educational Strategy		WHY? Problem situation (in terms of larger performance system)	
Professional Practice		HOW? Instructional method	PEDAGOGICAL FRAMEWORK: <ul style="list-style-type: none"> - Philosophy - High level pedagogy - Pedagogical strategy - Pedagogical tactics
Organisational Constraints			ORGANISATIONAL
LEARNING ENVIRONMENT			
LEARNING SPACE			
LEARNING PROCESS IN ZoPD		WHO? Learners	
Commitment			
Activities			
Products/Services			
Workflow			STUDENT ACTIVITY
Transfer of Learning outcomes			LEARNING OUTCOMES
Self-regulation			
Self-assessment			
Feedback & Assessments: Peers, Coaches, Experts, Clients		HOW WELL? Assessment	
DESIGN SPACE			
SCAFFOLDS → Elicits, Affords			EDUCATIONAL SETTING
Learning goals		WHY? Goal (in terms of instructional system itself)	
Products & Services: Type, Criteria, Resources	LEARNING TASKS (concrete, authentic, whole-task experiences) PART-TASK PRACTICE (practice items to reach high level of automaticity) SUPPORTIVE INFORMATION: 'theory' JIT-INFORMATION: step-by-step knowledge needed to perform recurrent skills	WHAT? Content HOW WELL? Assessment	TASKS
Settings: Groupings, Roles, Interaction support		WHEN & WHERE? Instructional setting	ENVIRONMENT ORGANISATIONAL FORMS
Assignment + Workflow	TASKS TASK CLASS: equivalent tasks, from simple → complex SEQUENCE OF TASK CLASSES: simplest version of task → complex like professionals encounter		

Kinkhorst & Zitter	4C/ID Merriënboer
Educational Strategy	'Complex learning is always involved with achieving integrated sets of learning goals – multiple performance objectives. (...) It is foremost dealing with learning to coordinate and integrate the separate skills that constitute real-life task performance'.
Professional Practice	'The final task class represents all tasks, including the most complex ones that professionals encounter in the real world'.
Organisational Constraints	
LEARNING ENVIRONMENT	
LEARNING SPACE	
LEARNING PROCESS IN ZoPD	
Commitment	
Activities	
Products/Services	
Workflow	
Transfer of Learning outcomes	'The 4C/ID-model should be used to develop training programs for complex skills and when transfer is the overarching learning outcome'.
Self-regulation	
Self-assessment	
Feedback & Assessments: Peers, Coaches, Experts, Clients	'A final part of supportive information relates to feedback that is provided on the quality of performance. This so-called cognitive feedback refers to the non-recurrent aspects of performance only and should thus promote schema construction'. 'A final part of JIT information relates to feedback that is provided on the recurrent aspects of performance. Like all JIT information, this feedback should promote compilation'.
DESIGN SPACE	'Blueprints developed according to the 4C/ID-model mark the transition from the design phase to the production or development phase. The model does not provide detailed guidelines for this development phase'.
SCAFFOLDS → Elicits, Affords	
Learning goals	'Integration and coordinated performance of task-specific constituent skills'. 'complex, "whole-task" learning'.
Products & Services: Type, Criteria, Resources	LEARNING TASKS (concrete, authentic, whole-task experiences). 'Much support is given for learning tasks early in a task class, and no support is given for the final learning task in a task class'. PART-TASK PRACTICE (practice items to reach high level of automaticity). SUPPORTIVE INFORMATION: 'theory'. 'Obviously, learners need information in order to work fruitfully on non-recurrent aspects of learning tasks and to genuinely learn from tasks'. JIT-INFORMATION: step-by-step knowledge needed to perform recurrent skills. 'JIT information is quickly faded away as learners gain more expertise (a principle called <i>fading</i>)'.
Settings: Groupings, Roles, Interaction support	'Real or simulated task environment'
Assignment + Workflow	TASKS TASK CLASS: equivalent tasks, from simple → complex. 'Learners will start their work on relatively simple learning tasks and progress toward more complex tasks'. SEQUENCE OF TASK CLASSES: simplest version of task → complex like professionals encounter. 'The final task class represents all tasks, including the most complex ones that professionals encounter in the real world'.

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Educational Strategy	HOW? Instructional method 'Learners & Instructional Method: How good is this method for these learners?' 'Content & Instructional Method: How well will the instructional method lead to learning the content?'. 'Instructional Setting & Instructional Method: What methods can and should be used in the setting?'.
Professional Practice	WHY? Problem situation (in terms of larger performance system) 'Problem situation & Goal: Will meeting the goal satisfy a larger system need (i.e., reduce gaps between current and desired performance)?'.
Organisational Constraints	
LEARNING ENVIRONMENT	
LEARNING SPACE	
LEARNING PROCESS IN ZoPD	WHO? Learners 'Goal & Learners: (1) Are these the right learners, that is, do they have sufficient entry knowledge/skill to succeed, and are they the ones who really need to reach the goal? (2) Are goals/objectives written in a way that matches learners in terms of their abilities, knowledge and skills?' 'Learners & Content: Is the content appropriate for the learners in terms of such things as quantity, level, emphases, frame of reference, and learning skills?'. 'Learners & Instructional Setting: Is this the best setting for this audience? '.
Commitment	'Problem situation & Learners: How are learners involved in and affected by the problem?'
Activities	'Goals and Instructional Method: To what extent do the behaviors elicited by instructional methods match those implied by the goal?' 'Instructional Method & Assessment: How consistent are strategies for teaching and testing, for example do they involve the same types of behaviors on the part of the learners?'
Products/Services	
Workflow	
Transfer of Learning outcomes	'Problem situation & Instructional setting: To what extent does the instructional setting promote transfer to the performance arena and thus respond better to the need?'
Self-regulation	
Self-assessment	
Feedback & Assessments: Peers, Coaches, Experts, Clients	HOW WELL? Assessment 'Problem situation & Assessment: How, how well, and to what levels is the extent to which the instructional system removes the need (solves the problem or improves performance) determined?' 'Goal & Assessment: Does assessment truly measure how well the instructional system accomplishes the goal?'. 'Learners & Assessment: How well does the assessment match the learners' needs, experiences, and abilities?'. 'Instructional Setting & Assessment: (1) What options for assessments are available, feasible, appropriate, and desirable in the instructional setting? (2) How good can and will testing be if done in this setting? '.
DESIGN SPACE	'The system emerges more from the relationships among parts than from the parts themselves, then the system of ISD is most evident not in the separate steps or activities, but in the logic or orderly pattern among them'.
SCAFFOLDS → Elicits, Affords	'Problem situation & Instructional method: to what extent are instructional methods relevant to the situation and the issues that triggered creation of the instructional system?'
Learning goals	WHY? Goal (in terms of instructional system itself) 'Problem situation & Content: What knowledge and skills are required to meet the need, that is, to reduce a gap in performance'.
Products & Services: Type, Criteria, Resources	WHAT? Content 'Goal & Content: What content is necessary and sufficient to meet the goal?'. HOW WELL? Assessment 'Content & Assessment: To what degree is there congruence between what is taught and what is tested?'
Settings: Groupings, Roles, Interaction support	WHEN & WHERE? Instructional setting 'Goal & Instructional Setting: 'To what extent do the instructional setting and associated technologies, tools and resources support reaching the goal?'. 'Content & Instructional Setting: To what extent does the setting support learning the content?'

Assignment + Workflow	
Kinkhorst & Zitter	Goodyear
Educational Strategy	'Networked learning: learning in which ICT is used to promote connections: between one learner and other learners; between learners and tutors; between a learning community and its learning resources'.
Professional Practice	<p>PEDAGOGICAL FRAMEWORK:</p> <ul style="list-style-type: none"> - Philosophy ('how we think people learn, what knowledge consists of, how we think people should be treated, etc.') - High level pedagogy ('broad approaches such as problem based learning, cognitive apprenticeship, collaborative knowledge building') - Pedagogical strategy ('eg. the use of an online debate') - Pedagogical tactics ('the detailed methods we use to set tasks for students, encourage their participation, offer guidance and feedback, etc.).
Organisational Constraints	<p>ORGANISATIONAL</p> <p>'Both the pedagogical framework and the educational setting exist within an organisational context, such as within a university, a corporation or a virtual learning institute. The organisational context exerts its influence mainly by conditioning (a) the design and management of the educational setting and (b) processes through which a pedagogical framework feeds into the design and management of an educational setting'.</p>
LEARNING ENVIRONMENT	'Concrete educational activity in a real world setting. (...) The real world, concrete activities, processes, people and artefacts involved in a learning activity'.
LEARNING SPACE	
LEARNING PROCESS IN ZoPD	
Commitment	
Activities	'Tasks are what managers set – they are the prescribed work. Activity is what people actually do'.
Products/Services	'If we want learners to take more responsibility for their own learning, we have to rely on them to make their own interpretations of learning tasks'.
Workflow	STUDENT ACTIVITY
Transfer of Learning outcomes	LEARNING OUTCOMES
Self-regulation	
Self-assessment	
Feedback & Assessments: Peers, Coaches, Experts, Clients	Pedagogical tactics ('the detailed methods we use to set tasks for students, encourage their participation, offer guidance and feedback, etc.).
DESIGN SPACE	
SCAFFOLDS → Elicits, Affords	EDUCATIONAL SETTING
Learning goals	
Products & Services: Type, Criteria, Resources	<p>TASKS</p> <ul style="list-style-type: none"> - Pedagogical strategy ('eg. the use of an online debate') - Pedagogical tactics ('the detailed methods we use to set tasks for students, encourage their participation, offer guidance and feedback, etc.). <p>'The design and management of the learning environment. (...) the physical/digital environment in which learners work'.</p> <p>'(...) design the learning environment so that it is compatible with activity rather than task'.</p>
Settings: Groupings, Roles, Interaction support	<p>ENVIRONMENT</p> <p>ORGANISATIONAL FORMS</p> <p>Pedagogical strategy ('eg. the use of an online debate')</p> <p>'The design and management of the learning environment. (...) the physical/digital environment in which learners work'.</p> <p>'social environment (...) it also need 'organisational forms' (classes, study groups, project teams, roles, etc.)'.</p>
Assignment + Workflow	<p>TASKS</p> <p>'(...) the design of good learning tasks. A learning task is a specification for learner activity'.</p>

References

Merriënboer van, J., Clark, R. & Roock de, M. (2002). Blueprints for Complex Learning: The 4C/ID-Model. *ETR&D*, 50(2), 39-64.
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