

“The Problem of Transfer, or What Students Misplace Along the Way”

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I. UNDERSTANDING TRANSFER

What is Transfer?

Wardle (2007) reviews classic conceptions of transfer:

Task-centered -- knowledge required to complete a task;

Individual -- “learned intelligent behavior” and “disposition”;
(Tuomi-Grohn and Engestrom 24).

Contextual --

Situated: “patterns of participatory processes across situations”
(Tuomi-Grohn and Engestrom 25).

Sociocultural: “relations between persons and activities”

Activity-based: “...the individual’s learning is understandable only if we understand the learning of the activity system” (30). “Transfer” is “learning” or “generalization” (Beach 40)

Activity-based perspectives approach transfer in structural and systemic turns. “David Guile and Michael Young adopt this same language, arguing that we must “reformulate transfer as a process of transition between activity systems” (77).

Questions: What is the Activity of Your Classroom, Field? In what frame does learning occur?

We can understand transfer, then, as both application and *misapplication*, or a failure to understand what is expected within an activity system.

Note: I use “misplace,” rather than “forget,” to indicate that the challenges of transfer are not merely the things left behind, but the things carried forward, things that might not work in new situations.

Kinds of Transfer

Perkins and Salomon (1992) establish a taxonomy of transfer:

near vs. far: depending on degree of closeness between new situations and old

high road vs. low road: depending on the degree of abstraction (mindfulness) or recognized similarity (reflexive) in application of prior knowledge.

forward-reaching: apply knowledge to future situations;

backward reaching: look to the past for relevant situations.

positive vs. negative: depending on whether transfer improve or interferes with performance.

Strategies for promoting transfer

Perkins and Salomon (1992) argue for **low road** and **high road** strategies:

Hugging (low road): make learning situations like the situations where transfer is desired, e.g, simulation games and problem-based learning:

Bridging (high road): teachers build bridges from contexts of learning to contexts of application, e.g, through analogies, models, explicit connections.

Transfer Depends on Metacognition...

Effective learning depends on thinking beyond the particular situation in which something was learned by a “process of reflecting on and directing one’s own thinking” (National Research Council, 2001, p. 78).

... and Motivation

Effective Learning Depends on establishing both **value** and **expectancies**

Value: attainment vs. intrinsic vs. instrumental

Expectancies: outcome and efficacy (Ambrose et. al., 2012)

Prior Knowledge Can Function in Three ways.

1. An individual's prior knowledge can match the demands of a new task;
2. An individual's prior knowledge might be a bad match;
3. An individual's prior knowledge might be at odds with a given situation.

Prior Knowledge Can Be Mapped to Habits of Mind:

Reiff and Bawarshi (2011) identify two kinds of students entering first year writing:

Boundary crossers: more likely to question and re-purpose genre knowledge

Boundary guarders: more likely to apply genres regardless of task

strict vs. loose boundary guarders: the "not" talk factor

In learning new things in new situations, we can choose to double-down on what has worked in the past, what we're used to, and allowing ourselves to learn new things.

Questions:

"What might we do to motivate those students exhibiting a boundary-guarding approach to take up a boundary-crossing one? And once students have boundary-crossed, what happens then? How can we support boundary-crossers and help them become more confident and competent composers?" (Robertson, Tacsik & Yancey, 2012)

A Typology of Prior Knowledge

Assemblage: grafting new knowledge onto old in the form of isolated bits

Remix: integrating new knowledge into the schema of the old

Critical Incidents: episodes that demand rethinking of prior knowledge in light of what went wrong

The assumption in many situations is that prior knowledge and motivation can get us to, and through, a new learning situation in a process of accretion. But this is not often the case. Our prior knowledge is limited in application or even plain wrong. We have to see things in a new way.

Threshold Concepts

According to Meyer and Land (2006), a *threshold concept* is one “without which the learner cannot progress” in any discipline (Meyer and Land, p. 1)

Threshold concepts are

troublesome: counter-intuitive, alien, difficult to grasp;

liminal: non-linear, recursive stage; beginning to think in a disciplinary way.

Zone of Proximal Development

An educational notion advanced by Russian psychologist Lev Vygotsky, the **zone of proximal development** (ZPD) has been defined as

“the distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance, or in collaboration with more capable peers” (Vygotsky, 1978, p. 86).

Wood et al. (1976, p. 90) offer the following definition of **scaffolding**:

“Those elements of the task that are initially beyond the learner’s capacity, thus permitting him to concentrate upon and complete only those elements that are within his range of competence.”

Students as Novices

Seeing things in a new way requires seeing ourselves as novices who are moving along a path to expertise. Expertise requires putting some things down to pick other things up, i.e., both learning and unlearning. Before students can be experts, they must first choose to be novices.

II. TEACHING FOR TRANSFER

Strategies to Improve Transfer

(adapted from Ambrose et. al., *How Learning Works* (2012))

Focus on Prior Knowledge:

Gauge the Extent of Prior Knowledge:

Use Exercises that Generate Prior Knowledge

Explicitly Link New Material to Prior Knowledge

Teach through Analogy and Example to Everyday Knowledge

Explicitly Identify Expected Prior Knowledge

Remediate Insufficient, Inaccurate Prior Knowledge

Highlight Conditions of Applicability

Explicitly Identify Discipline-Specific Conventions

Ask Students to Make and Test Predictions

Ask Students to Justify Their Reasoning

Provide Multiple Opportunities for Students to Use Accurate Knowledge

Allow Sufficient Time

Focus on How Students Organize Knowledge:

Concept Map: draw connections

Task Analysis: chart developments

Organizational Schema: spell out steps

Contrasting and Boundary Cases: analyze through comparison

Deep Features: emphasize underlying structures

Multiple Organizational Schema: encourage taxonomic thinking

Sorting: expose surface vs. deep learning

Focus on Teaching for Transfer

Discuss Conditions of Applicability

Apply Skills of Knowledge to Diverse Contexts

Generalize to Larger Principles

Specify Context to Identify Skills or Knowledge

Specify Skills or Knowledge to Identify Contexts

Focus on Motivation By Establishing Value and Expectancies

Connect Material to Students' Interests

Provide Authentic, Real World Tasks

Demonstrate Relevance of Higher-Level Skills to Future Endeavors

*Identify and Reward What **You** Value*

Articulate Expectations

Ensure Alignment of Goals, Assessment and Strategies

Provide Rubrics

Identify Appropriate Level of Challenge

Provide Opportunities for Early Success

Provide Targeted Feedback

Provide Opportunities to Reflect

Going Beyond Transfer

How does this notion of “transfer” help or hinder understanding?
What other terms might we usefully introduce?

Challenging the “application metaphor” of transfer, Wardle (2012) proposes:

“creative repurposing for expansive learning”

“problem-exploring (vs. answer-getting) dispositions”

Generalization

Uptake

Kathy Yancey advocates for “wild” over “domesticated” (or school) genres.

Transfer -- A Selective Bibliography

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Useful Links on Learning and/as Transfer

Concept Mapping:

"How to Construct a Concept Map," University of Delaware

<http://www.udel.edu/chem/white/teaching/ConceptMap.html>)

Tips on Teaching for Transfer: A "BDA" Framework

(http://www.udel.edu/dssep/transfer/teaching_for_transfer.htm)

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