

Perspectives on Project Zero's First 50 Years



PROJECT ZERO
FIFTY YEARS
**HARVARD GRADUATE
SCHOOL OF EDUCATION**



At the beginning, PZ's research focused on investigating cognitive processing in the arts. This seminal work led researchers to expand to broader aspects of human potential including learning, critical thinking, creativity, and intelligence. In the recent decades, PZ research built on these rich traditions by exploring further fundamental questions of human potential as they relate to contemporary issues facing an array of educational settings—schools, families, museums, and businesses. To celebrate 50 years, PZers looked across the vast body of research and developed an organizing framework that includes nine research areas representative of many facets of the five decades of work. These nine areas include: The Arts, Assessment, Character and Ethics, Civic Agency, Creativity, Developing Understanding, Global Competencies, Intelligences, and Thinking. PZ created a brief overview of each of the 9 areas as stand-alone “booklets.” Each of the four-page booklets describes PZ's research in the area along with a set of “PZ perspectives,” notes some big questions that are launching PZ into the future, lists key PZ projects, highlights important PZ quotes, offers a sample of notable PZ publications, and visualizes the main frameworks and ideas.

The artwork and graphic elements featured on these pages was created by our collaborators, dpict, a local graphic facilitation and design firm, along with Matt Riecken, PZ's digital learning specialist.

THE ARTS

The story of PZ's influences in arts & education is at the core of the story of PZ itself. The role of the arts in education and the nature of learning in and through the arts – from PZ's conception to current-day projects, including Arts Propel, Artful Thinking, collaborations with the Silk Road Ensemble, and more – have been central to PZ's research.

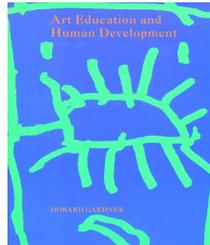


BIG QUESTIONS

How can encounters with works of art help us discover and articulate compelling questions?

What questions catalyzed major strands of research at Project Zero over the last 50 years?

What questions inspire us as learners, teachers, artists, and researchers—and how might we pursue them, artistically or otherwise?

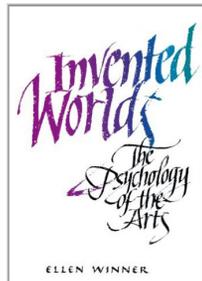


PZ PERSPECTIVES

Curiosity and questions are linked to the human needs to survive and to make meaning. Indeed, they are the genesis of all learning.

Works of art are designed to engage people in consideration of the deep complexities of human experience. They have the power to provoke curiosity and the desire to come to deeper understandings.

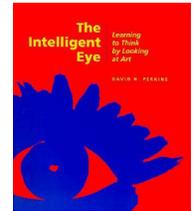
The work of artists is to inquire and explore through making. In a sense, they make their learning visible in their products. In turn, their works catalyze curiosity and inquiry in others. Cycles of inquiry, research, and learning are inherent in all serious artistic experiences.



KEY PROJECTS

- | | |
|-----------------------------------|--------------------------------------|
| Figurative Language (1974 – 1988) | ArtWorks for Schools (1996-2001) |
| Arts PROPEL (1986 – 1992) | Studio Thinking Project (2001-2004) |
| Project Co-Arts (1991 – 1996) | ArtWorks for Schools (1996-2001) |
| Project MUSE (1994 – 1996) | The Qualities of Quality (2006-2009) |

“The liberal borders of art help us to carry good thinking dispositions nurtured in the context of art to the wider world. Art is an extrovert. Art connects because artists make it connect, because artists strive to express not just the anatomy of bodies but the anatomy of the human condition and of the universe that impinges on it. If most disciplines build moats, art builds bridges.” – David Perkins



“Crafted by artists, these havens are works of art in progress in a world in which the arts, like many of the individuals these centers serve, are devalued. There are safe havens, then, for art and culture as well as for the communities served. These are safe havens for the artists who daily reflect upon and revise their on-going works in progress, crafting their own versions of educational effectiveness and broadening the definition of learning through art as it can realize a myriad of goals.” – Jessica Davis



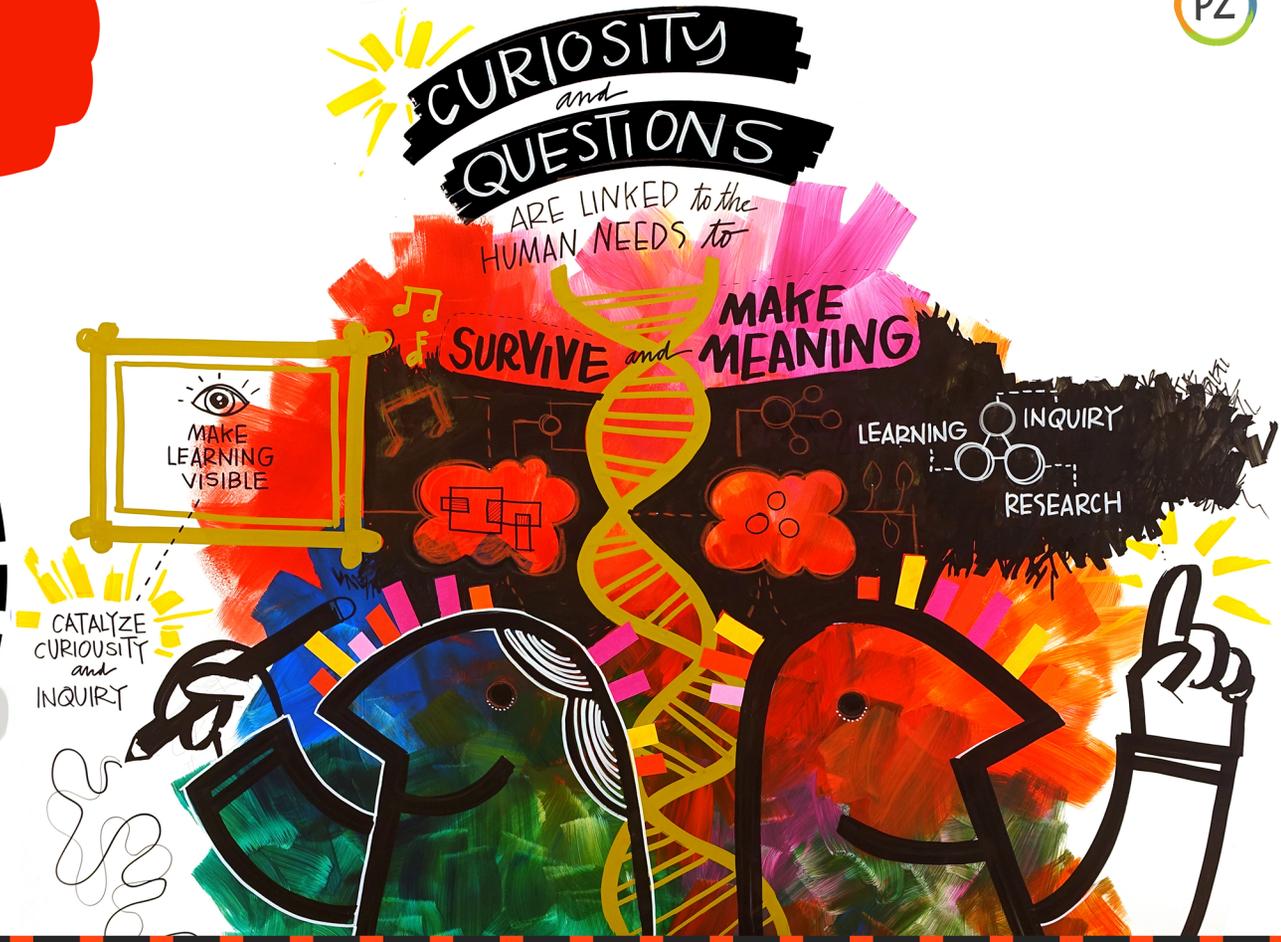
“In the arts, there are levels of development, as well as stages of expertise, and these should form a backdrop for any educational regimen. And yet, it is my belief that artistic forms of knowledge and expression are less sequential, more holistic and organic, than other forms of knowing and that to attempt to fragment them and to break them into separate concepts or subdisciplines is especially risky. . . We must be careful not to sacrifice this special nature of the arts – indeed, we might do well to allow this form of understanding to infiltrate other areas of the curriculum.” – Howard Gardner

the ARTS

WHAT QUESTIONS CATALYZED MAJOR STRANDS of RESEARCH @PROJECT ZERO OVER the LAST 50 YEARS?

HOW CAN ENCOUNTERS with WORKS of ART HELP US DISCOVER and ARTICULATE COMPELLING QUESTIONS?

WHAT QUESTIONS INSPIRE US as LEARNERS TEACHERS ARTISTS RESEARCHERS and HOW MIGHT WE PURSUE THEM, ARTISTICALLY or OTHER WISE?



The LIBERAL BORDERS of ART HELP US to CARRY GOOD THINKING DISPOSITIONS NURTURED in the CONTEXT of ART to the WIDER WORLD. ART IS an EXTROVERT. ART CONNECTS because ARTISTS MAKE IT CONNECT, because ARTISTS STRIVE to EXPRESS NOT JUST the ANATOMY of BODIES, but the ANATOMY of the HUMAN CONDITION and of the UNIVERSE THAT IMPINGES ON IT. IF MOST DISCIPLINES BUILD MOATS, ART BUILDS BRIDGES.

- David Perkins, The Intelligent Eye

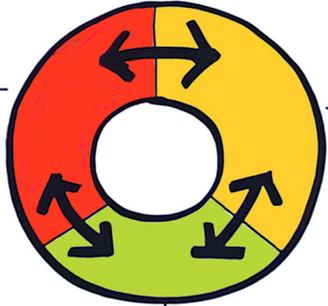
- ### NOTABLE PZ PROJECTS
- ARTS PROPEL
 - FIGURATIVE LANGUAGE
 - PROJECT CO-ARTS
 - PROJECT MUSE
 - ARTWORKS FOR SCHOOLS
 - STUDIO THINKING PROJECT
 - ARTFUL THINKING
 - THE QUALITIES OF QUALITY

KEY FRAMEWORKS

AGENCY BY DESIGN

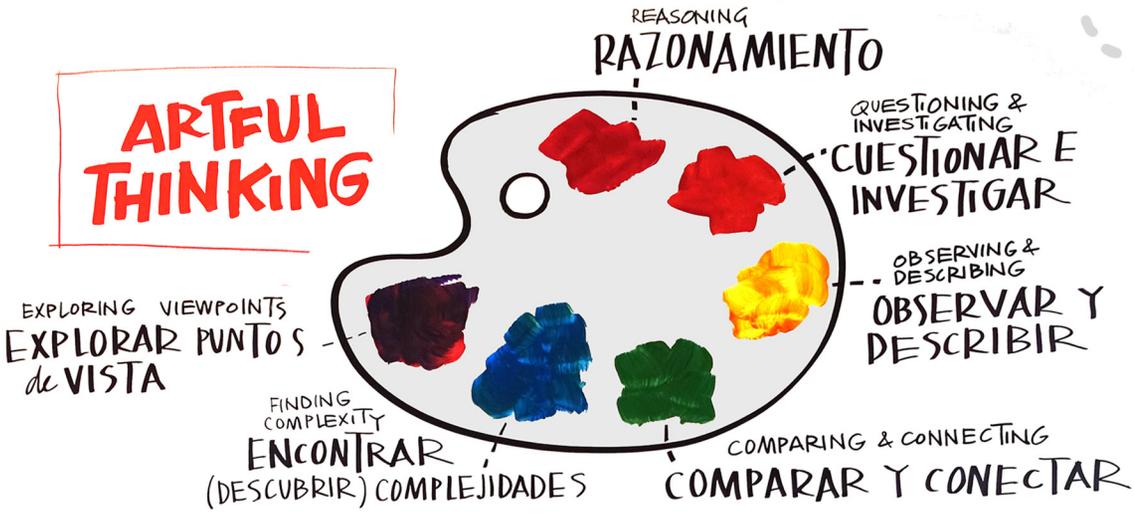
LOOKING CLOSELY

EXPLORING COMPLEXITY

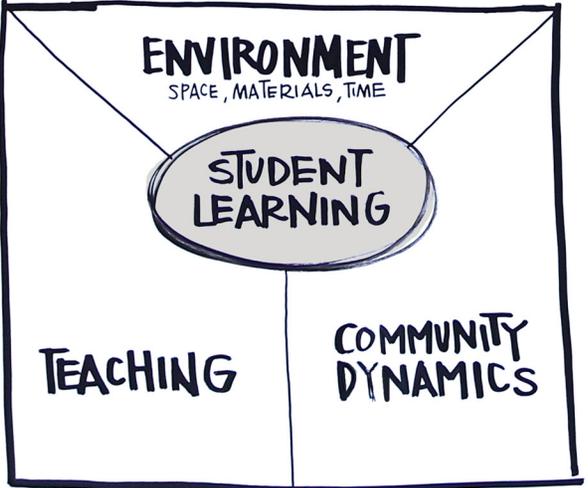
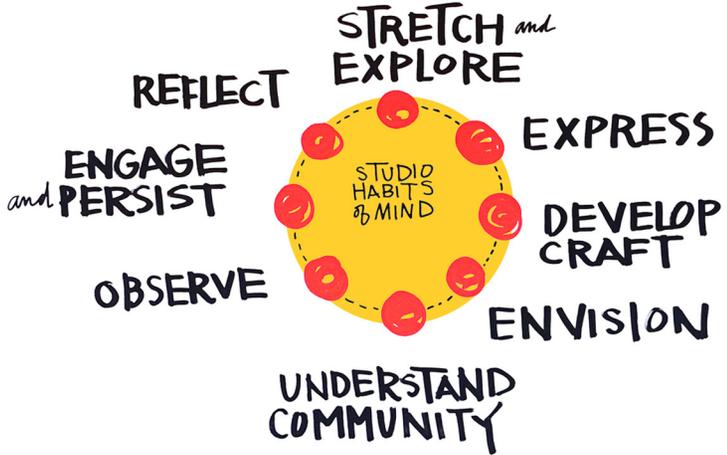


FINDING OPPORTUNITY

ARTFUL THINKING



QUALITIES of QUALITY



ASSESSMENT REIMAGINED

Assessment, evaluation, and documentation are essential to any teaching and learning process, and the way learning is documented and assessed directly influences what gets taught. Our re-imagining of assessment involves a number of “shifts” from traditional notions: assessment of process as well as product (when, what); teachers and students as protagonists in the assessment process (who); assessment driven by the most important goals we hold for students, whether numbers capture them or not (why); and assessment as a collective and relationship-building process (how, where).

BIG QUESTIONS

What does learning look like?

How can we reimagine assessment as a pivotal moment of learning?

What are the characteristics of authentic or “effective” assessment?

How do we know if, what, and how students understand?

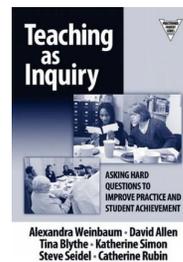
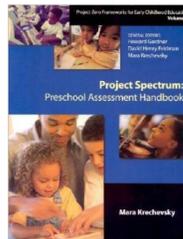
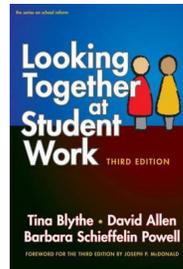
PZ PERSPECTIVES

Assessment is an episode of learning.

We spend too much time judging children and not enough time trying to help them.

Human beings differ from one another and there is absolutely no reason to teach and assess all individuals in the identical way.

Students and teachers should be active protagonists in (not passive recipients of) the assessment process.



KEY PROJECTS

Project Spectrum (1984 – 1993)

Arts PROPEL (1986 – 1992)

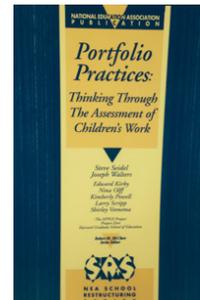
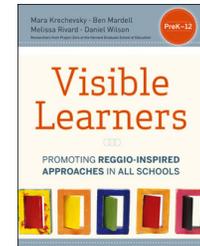
Making Learning Visible (1997 – 2012)

The Evidence Project (1998 – 2002)

“Documentation can provide evidence of learning not captured by most standardized tests, like students listening to and learning from each other, using their imaginations, thinking critically and creatively, developing a sense of esthetics and emotional understanding, and understanding what it means to be members of a democratic society.” - Mara Krechevsky

“Failing to finish a timed, multi-item achievement test in biology is a lesson in the American romance with speed, efficiency, and technology as much as in the structure of a scientific domain.” - Dennie Wolf

“If the goal of education is simply to raise scores on the current crop of standardized tests, then teachers should spend their time training children on the tests, and we would have no need for research. But as researchers, we want to explore what is possible—in terms of the extraordinary capacities of children, the potentials of serious teachers, and the needs for an educated and engaged citizenry.” - Howard Gardner



ASSESSMENT

WHAT DOES LEARNING LOOK LIKE?

HOW DO WE KNOW IF/WHAT/HOW STUDENTS HAVE UNDERSTOOD

HOW CAN WE REIMAGINE ASSESSMENT as a PIVOTAL MOMENT of LEARNING?

WHAT ARE the CHARACTERISTICS of AUTHENTIC/EFFECTIVE ASSESSMENT?

ASSESSMENT *is an* EPISODE of LEARNING



WE SPEND TOO MUCH TIME JUDGING CHILDREN and NOT ENOUGH TIME TRYING to HELP THEM.

STUDENTS & TEACHERS SHOULD BE **ACTIVE PROTAGONISTS** in the ASSESSMENT PROCESS



"HUMAN BEINGS DIFFER from ONE ANOTHER and there is ABSOLUTELY NO NEED to TEACH & ASSESS ALL INDIVIDUALS in the IDENTICAL WAY." HOWARD GARDNER

TO SOLELY USE STANDARDIZED ACHIEVEMENT TESTS IS LIKE CASTING a NET into the SEA—a NET THAT IS INTENTIONALLY DESIGNED to LET the **MOST INTERESTING FISH GET AWAY**. THEN, to DESCRIBE the ONES THAT ARE CAUGHT STRICTLY in TERMS of THEIR WEIGHT and LENGTH IS to RADICALLY REDUCE WHAT WE KNOW ABOUT THEM. TO FURTHER CONCLUDE THAT ALL the CONTENTS of the SEA CONSIST of FISH LIKE THOSE in the NET COMPOUNDS the ERROR FURTHER. **WE NEED MORE KINDS of FISH**. WE NEED to KNOW MORE about THOSE WE CATCH. **WE NEED NEW NETS.**

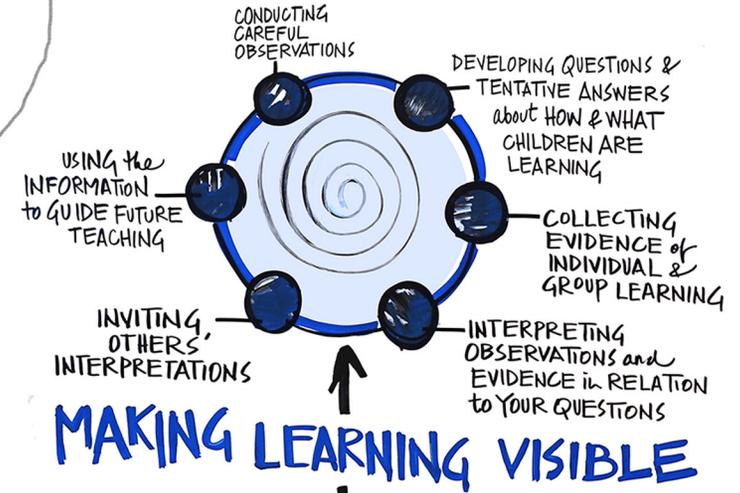
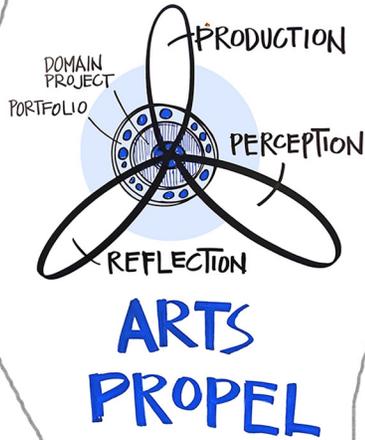
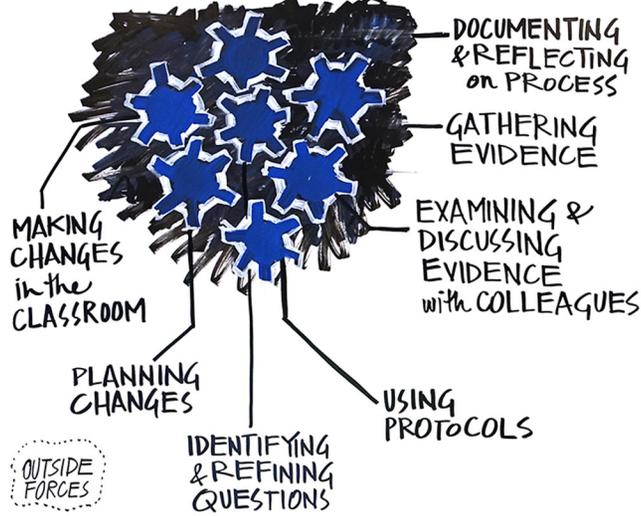
-William T. Randolph
Commissioner of Ed State of Colorado

NOTABLE PZ PROJECTS

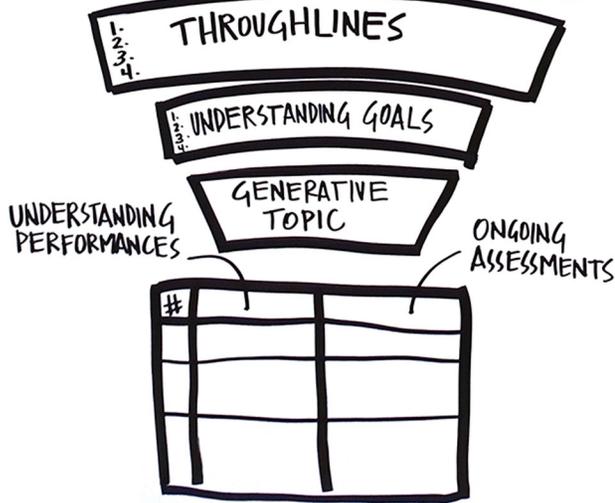
- PROJECT SPECTRUM
- ARTS PROPEL
- THE EVIDENCE PROJECT
- TEACHING FOR UNDERSTANDING
- MAKING LEARNING VISIBLE
- MASSACHUSETTS SCHOOLS NETWORK

KEY FRAMEWORKS

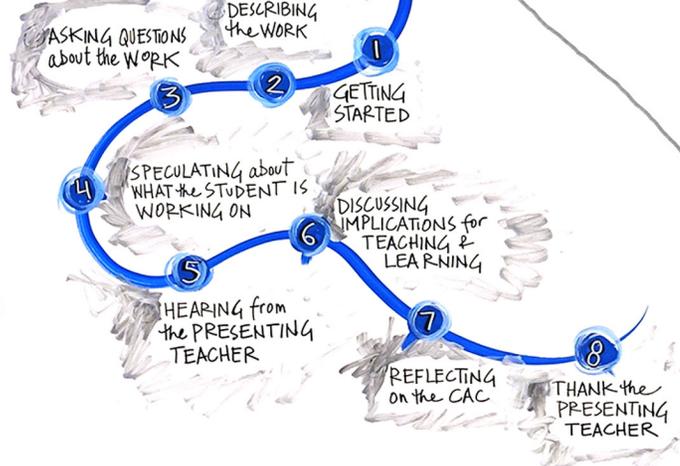
The EVIDENCE PROCESS



TEACHING for UNDERSTANDING



The COLLABORATIVE ASSESSMENT of STUDENT WORK

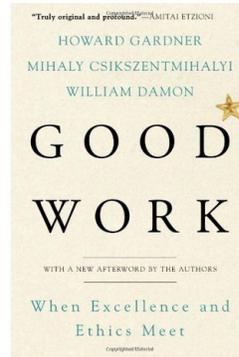


5 FEATURES of DOCUMENTATION

- ① INVOLVES a SPECIFIC QUESTION THAT GUIDES the PROCESS
- ② INVOLVES COLLECTIVELY ANALYZING, INTERPRETING, and EVALUATING INDIVIDUAL and GROUP OBSERVATIONS
- ③ MAKES USE of MULTIPLE LANGUAGES
- ④ MAKES LEARNING VISIBLE; IT IS NOT PRIVATE.
- ⑤ NOT ONLY RETROSPECTIVE, IT IS ALSO PROSPECTIVE

CHARACTER AND ETHICS

The development of good character has been a fundamental interest at Project Zero for decades. We've examined the issue of character, from its development in childhood to its realization at the workplace and in the broader community.



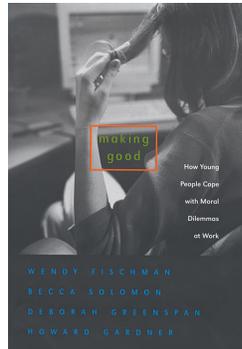
BIG QUESTIONS

What does it mean to do good work? To be a good citizen?

How do we help young people become the kind of persons of whom we can be proud? What are the obstacles?

Is 'good character' a role that one can assume, or is it a more complex, longer lasting developmental phenomenon?

Why do students cheat? What can make them not cheat? Not even think of cheating? Be constructive with peers?



PZ PERSPECTIVES

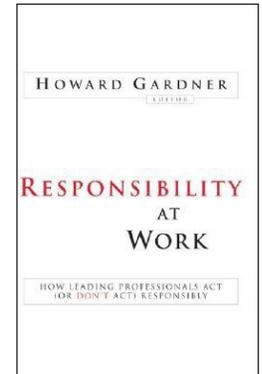
Good work is work that is excellent in quality, personally engaging, and carried out in an ethical way.

Similarly the good citizen is well informed, involved in civic activities, and ponders the effects of his/her civic involvement on others in the community.

There is an important distinction between neighborly morality—the kind of behaviors endorsed or prohibited in religious texts—we learn these when we are young and are expected to honor them with neighbors; and the ethics of roles, the kinds of behaviors, attitudes, and principles that we associate with professional roles.

Professions are impressive human inventions and they presuppose that individuals strive to work in a disinterested way; they are at risk in a digital, neoliberal era.

Institutional contexts and role models play crucial roles in determining individual character, including whether one cheats and whether one behaves in a disinterested professional way.



KEY PROJECTS

Good Work (1995 – current)

Good Play (2007 – 2016)

Good Collaboration (2012 – 2015)

Family Dinner Project (2014 – current)



CHARACTER/ETHICS

WHAT DOES IT MEAN to DO GOOD WORK? to BE a GOOD CITIZEN?

IS 'GOOD CHARACTER' a ROLE THAT ONE CAN ASSUME, OR is it a MORE COMPLEX, LONGER LASTING DEVELOPMENTAL PHENOMENON?

HOW DO WE HELP YOUNG PEOPLE BECOME the KIND of PERSONS of WHOM WE CAN BE PROUD? WHAT are the OBSTACLES?

WHY DO STUDENTS CHEAT? WHAT CAN MAKE THEM NOT CHEAT, OR EVEN THINK of CHEATING? ... BE CONSTRUCTIVE with PEERS?

GOOD WORK

CARRIED OUT in an **ETHICAL WAY**

WELL INFORMED

INVOLVED in **CIVIC ACTIVITIES**

GOOD CITIZEN

PONDERS the **EFFECTS** of THEIR INVOLVEMENT on OTHERS in the COMMUNITY

EXCELLENT QUALITY
PERSONALLY ENGAGING

INSTITUTIONAL CONTEXTS and ROLE MODELS PLAY CRUCIAL ROLES in DETERMINING INDIVIDUAL CHARACTER

NEIGHBORLY MORALITY
v.
ETHICS of ROLES



PROFESSIONS PRESUPPOSE that INDIVIDUALS STRIVE to WORK in a DISINTERESTED WAY — @ RISK in a DIGITAL, NEOLIBERAL ERA.

TO ACT or NOT to ACT,

and THEN to ACT WISELY or FOOLISHLY OR DESTRUCTIVELY — THOSE ARE the QUESTIONS.

NOTABLE PZ PROJECTS

- GOOD WORK
- GOOD PLAY
- GOOD COLLABORATION
- FAMILY DINNER PROJECT

KEY FRAMEWORKS

the GOOD WORK TOOLKIT

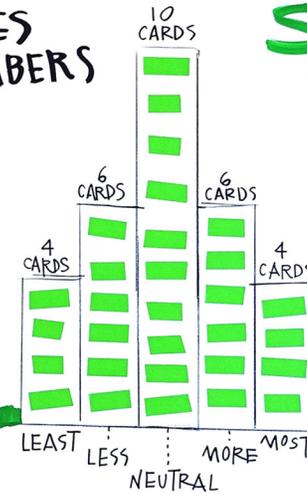


an APPROACH to ENGAGE INDIVIDUALS and GROUPS in REFLECTION and CONVERSATION about GOOD WORK

STIMULATE CONVERSATIONS with PEERS, COLLEAGUES and FAMILY MEMBERS

VALUE SORT

REFLECT UPON WHAT is MOST IMPORTANT to you PERSONALLY



CIVIC AGENCY

Project Zero's research considers civic agency as a multifaceted capability, a set of skills and dispositions to support one to participate in today's interconnected world. When we support learners to be effective and reflective agents of positive social change, we expand their notions of the who, what, and where of civic engagement, and prepare them for deep engagement in their communities, and with critical problems facing our world, both offline and online.

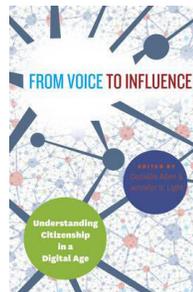
BIG QUESTIONS

What is civic agency and how do we help young people develop it in today's world?

How does the digital world present positive opportunities and risks for the development and enactment of civic agency?

What specific pedagogical/classroom moves can support the development of civic skills, inclinations, and agency among school aged children?

How can we consider young children (as well as older students) as civic agents?



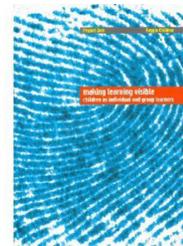
PZ PERSPECTIVES

Civic agency is multi-faceted and involves listening to diverse perspectives, imagining and advocating for a better world.

Digital and social media pose new civic opportunities (investigating issues, sharing one's voice in creative ways, and mobilizing for change) and new challenges (news literacy, surveillance, uncivil exchanges).

We can support civic agency among school-aged children by using specific pedagogical/classroom moves.

Young children (as well as older students) can be as civic agents if we give them opportunities.



KEY PROJECTS

Making Learning Visible (1997 - 2012)

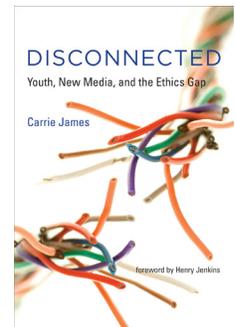
Youth and Participatory Politics (2013 - 2017)

Children are Citizens (2013 - current)

"If we are to embrace an education for participatory readiness, we need to aim our pedagogic and curricular work at...the idea of civic agency as the activity of co-creating a way of life." – Danielle Allen

"Among the most significant blessings of the digital landscape are the opportunities afforded to youth to be active participants in the public sphere – sharing their voices, showing support for and mobilizing others on behalf of social justice issues." – Carrie James

"Children are not just future or hypothetical citizens, or citizens in training, but rather they are citizens of the here and now, with the right to express their opinions and participate in the civic and cultural life of their communities." – Ben Mardell & Mara Krechevsky



CIVIC AGENCY

WHAT *is* CIVIC AGENCY and HOW DO WE HELP YOUNG PEOPLE DEVELOP IT?



CHILDREN ARE NOT JUST FUTURE or HYPOTHETICAL CITIZENS, OR CITIZENS in TRAINING, but RATHER THEY ARE **CITIZENS** of the **HERE & NOW**, with the RIGHT to EXPRESS THEIR OPINIONS and PARTICIPATE in the **CIVIC** and **CULTURAL LIFE** of THEIR COMMUNITIES.

- Ben Mardell and Mara Krechevsky

NOTABLE PZ PROJECTS

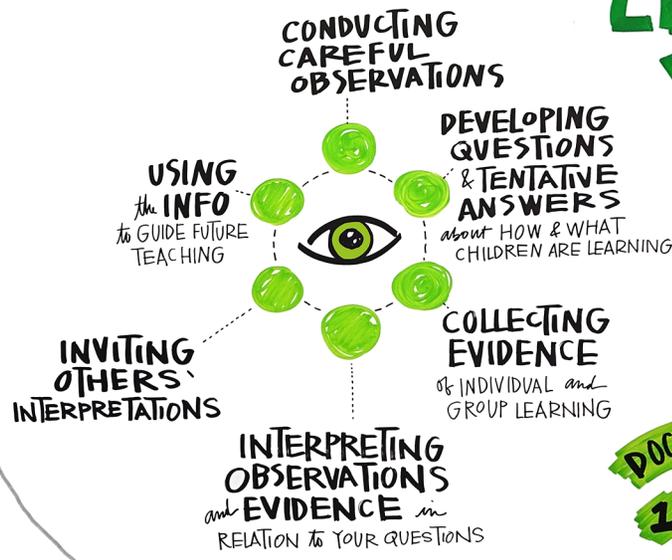
- COMMON SENSE MEDIA
- MAKING LEARNING VISIBLE
- CHILDREN AS CITIZENS
- THE GOOD PARTICIPATION PROJECT
- OUT OF EDEN LEARN
- HUMANITIES AND THE LIBERAL ARTS ASSESSMENT

KEY FRAMEWORKS

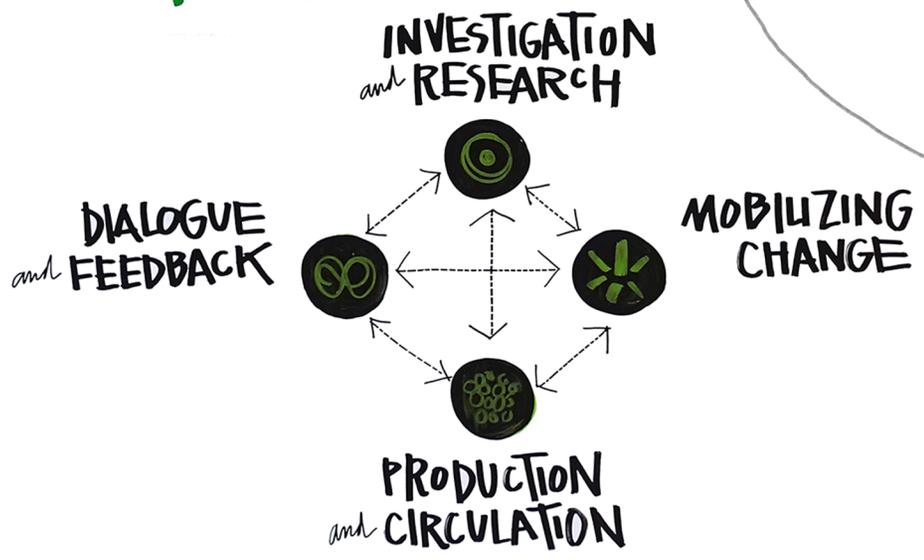
MAKING LEARNING VISIBLE

5 FEATURES of DOCUMENTATION

- 1 INVOLVES a SPECIFIC QUESTION that GUIDES the PROCESS, OFTEN with an EPISTEMOLOGICAL FOCUS.
- 2 INVOLVES COLLECTIVELY ANALYZING, INTERPRETING and EVALUATING INDIVIDUAL and GROUP OBSERVATIONS; IT IS STRENGTHENED BY MULTIPLE PERSPECTIVES
- 3 MAKES USE of MULTIPLE LANGUAGES (DIFFERENT WAYS of REPRESENTING & EXPRESSING THINKING in VARIOUS MEDIA & SYMBOL SYSTEMS)
- 4 MAKES LEARNING VISIBLE; IT IS NOT PRIVATE
- 5 NOT ONLY RETROSPECTIVE, IT IS ALSO PROSPECTIVE. IT SHAPES the DESIGN of FUTURE CONTEXTS for LEARNING.



CORE PRACTICES of PARTICIPATORY POLITICS



CREATIVITY

Project Zero's exploration of creativity can be described in three waves. The first wave identified creativity as an individual act of human invention, delving deeply into distinct portraits of creativity embodied by creative "giants", as well as how breakthrough thinking and cognitive insight operate in the creative processes of artists. The second wave situated creativity within complex systems, exploring how knowledge and cognition are distributed across objects, individuals, artifacts, and tools in the environment. The current wave frames creativity as cultural participation, such as school cultures that value and support playful learning, or maker-centered movements that encourage learners to look closely, explore complexity, and find opportunity.

BIG QUESTIONS

What is creativity and how does it develop?

How have our conceptions of creativity changed over the past fifty years?

How do we introduce issues of access and equity into the creativity in education conversation?

What will the creativity of the future look like?

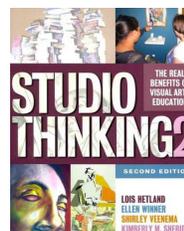
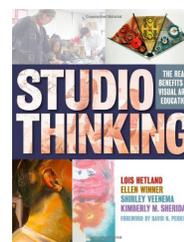
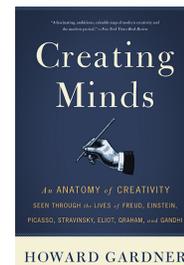
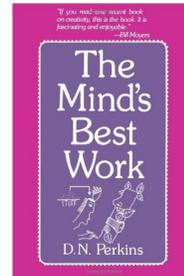
PZ PERSPECTIVES

Creativity and the arts are inherently linked, but the arts are not the only domain where creativity takes flight.

Creativity is a distributed and participatory process.

Creativity exists at the intersection of the individual, the domain, and the field.

Individuals are not creative, ideas are creative.



KEY PROJECTS

Studio Thinking Project (2003 - 2007)

Artful Thinking (2004 - 2007)

Agency by Design (2012 - current)

Creating Communities of Innovation (2016 - current)

"Creativity involves... humanly created design—that is something with a particular structure adapted to its intended purpose. The creative person asks of his or her abilities that they operate in certain directions. It is the sort of thinking that could well transfer to the classroom if students were doing those things, but in most classrooms they aren't."

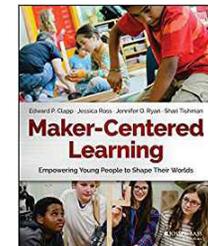
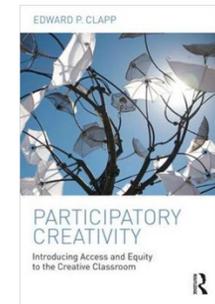
- David Perkins

"There's a big difference between educating for creativity and educating students for factory work. It's a serious endeavor to shift the weight of schooling's work-related legacy and reframe schools as places to aim for the higher cognitive processes of creative and critical thinking."

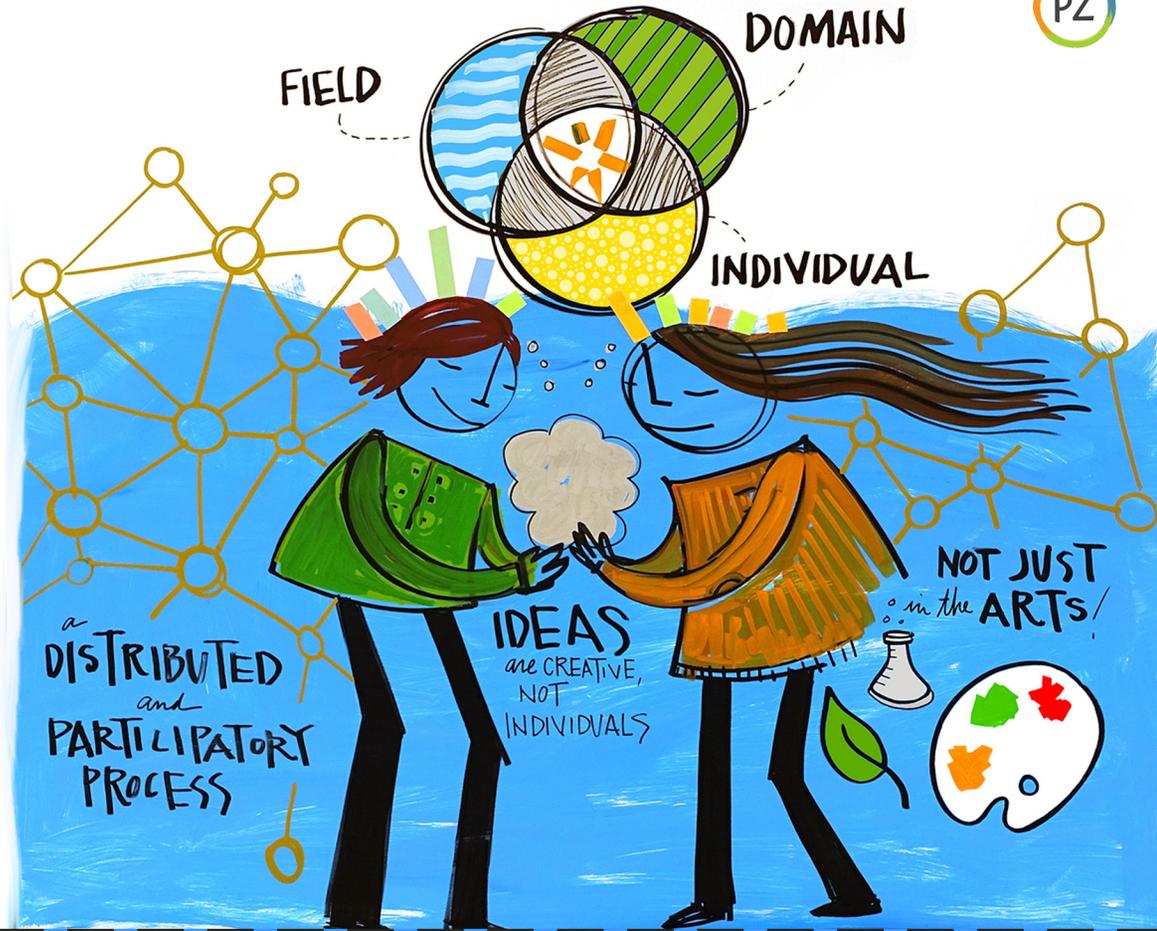
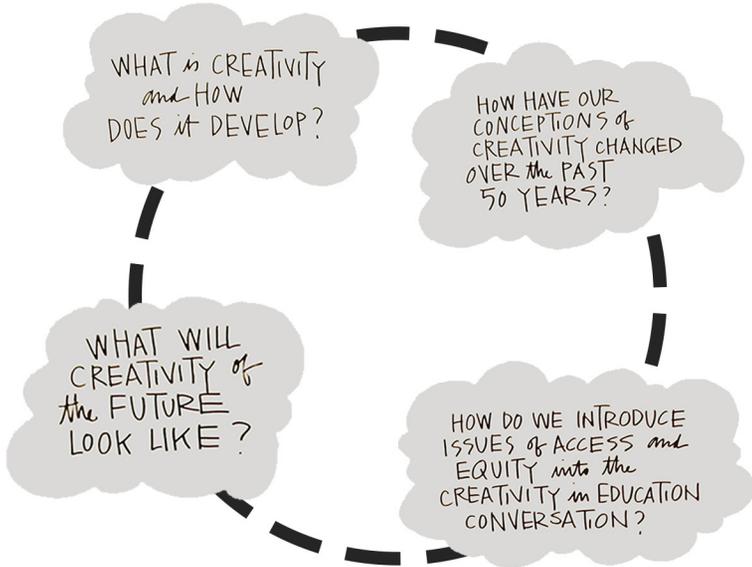
- Lois Hetland

"Just as it makes little sense for an individual to be considered unqualifiedly smart or dumb, so, too, the search for 'general creative' individuals and the devising of tests that allegedly tap 'creativity' seemed to me to be forlorn pursuits. If intelligence is pluralistic, so, a fortiori, is creativity."

- Howard Gardner



CREATIVITY



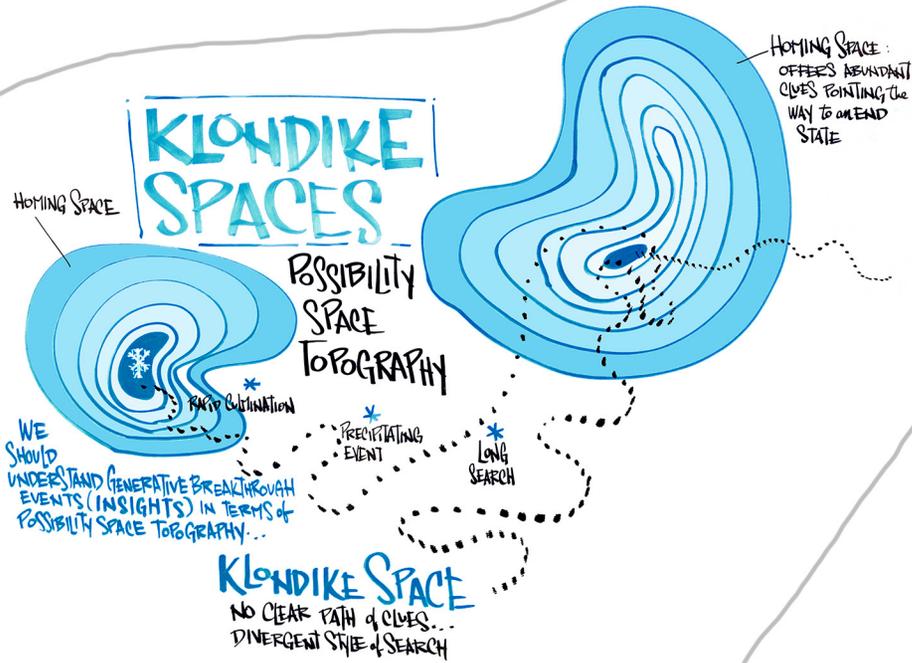
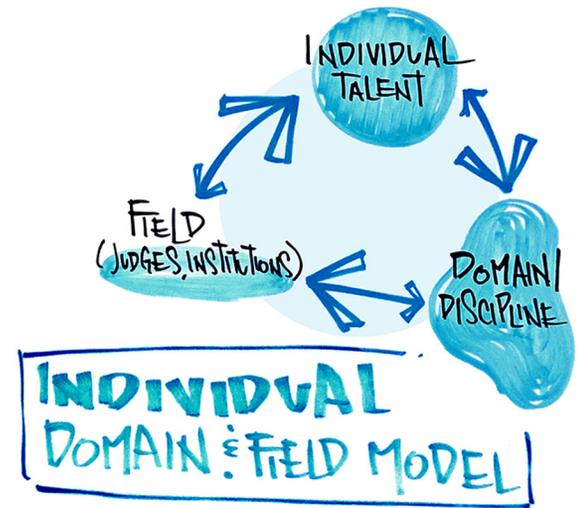
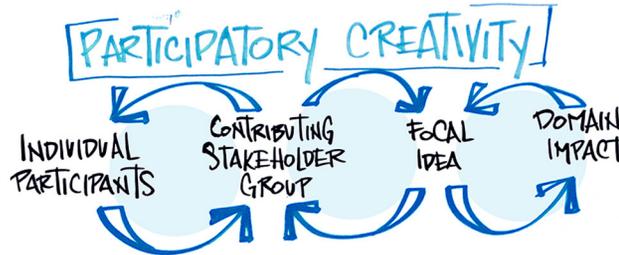
WHEN ARTS EDUCATORS TALK about DEVELOPING STUDENTS' CAPACITY to THINK CREATIVELY, THEY GENERALLY CONCEIVE of CREATIVITY as an EXTENDED PROCESS INVOLVING MANY STEPS, RATHER THAN a SINGLE "AHA" MOMENT of INSIGHT. CREATIVITY IS FULL of STARTS and STOPS and TURNS and IMPROVISATIONS and LEAPS and BOUNDS... CREATIVITY MOVES FORWARD through a PROCESS of GENERATING QUESTIONS, EXPLORING PROBLEMS, and SEEKING MULTIPLE OPTIONS, and as IT UNFOLDS, IT INCLUDES CYCLES of CRITIQUE, REVISION, and REFLECTION.

- Steve Seidel, Shari Tishman, Ellen Winner, Lois Hetland, and Patricia Palmer

NOTABLE PZ PROJECTS

- CREATING COMMUNITIES OF INNOVATION
- CULTURES OF THINKING
- VISIBLE THINKING
- AGENCY BY DESIGN
- STUDIO HABITS OF MIND
- ARTFUL THINKING

KEY FRAMEWORKS



GLOBAL COMPETENCIES

Every generation confronts the challenge of discerning what capacities and dispositions are the most important to nurture among its young people at a given moment in time. Today, given profound economic, digital, demographic, and environmental forces at work, promoting cultural and global understanding is clearly a priority at Project Zero. We see global thinking as the capacity to understand ourselves as well as people living in contexts different to our own; to make sense of the global issues of our times and take action toward societal wellbeing and sustainability; and to do so effectively and ethically in today's digital landscapes.

BIG QUESTIONS

How can we prepare our youth well for the changing demands of living in a globally connected and disconnected world?

How can we work deliberately and respectfully to expand opportunities for global and intercultural understanding for all children?

In what ways can we leverage our capacity to reach less well-served children and youth?

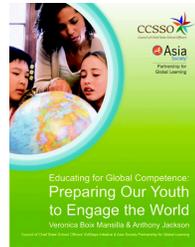
PZ PERSPECTIVES

Global competence involves cognitive, socio-emotional, and ethical dimensions as students investigate the world, recognize perspectives, communicate ideas, and take action.

Thoughtful cross-cultural inquiry and exchange involves examining our own perspectives, assumptions, and everyday lives as much as it does learning about those of other people.

Observing the world and listening to others carefully is a key component of cross-cultural exchange in our information-rich era of social media..

At this contentious and unstable moment, teaching for global competence and thoughtful cross-cultural inquiry is an urgent practical and moral necessity.



KEY PROJECTS

Interdisciplinary & Global Studies (2007 – current)

Future of Learning (2012 – 2016)

World In Portland (2012 – 2013)

Out of Eden Learn (2013 – current)

“In the interconnected world in which the vast majority of human beings now live, it is not enough to state what each individual or group needs to survive on its own turf. In the long run, it is not possible for parts of the world to thrive while others remain desperately poor and deeply frustrated. ... Further, the world of the future—with its ubiquitous search engines, robots, and other computational devices—will demand capacities that until now have been mere options.” – Howard Gardner

“Contemporary societies are marked by new global trends—economic, cultural, technological, and environmental shifts that are part of a rapid and uneven wave of globalization. The growing global interdependence that characterizes our time calls for a generation of individuals who can engage in effective global problem solving and participate simultaneously in local, national, and global civic life. Put simply, preparing our students to participate fully in today's and tomorrow's world demands that we nurture their global competence.” – Veronica Boix Mansilla

“In today's world, working collaboratively with people from different cultural backgrounds is a necessity, especially given contemporary patterns of migration, the interconnectedness of the global economy, and the complexity of collective challenges like environmental degradation and rising extremism. At the same time, public discourse is increasingly divisive and laden with stereotypes and mistrust. Now more than ever, we need to offer students opportunities to engage meaningfully with people who have different perspectives and life experiences from their own.” – Liz Dawes Duraisingh



EDUCATING with the WORLD in MIND



- **INQUIRING INTO and UNDERSTANDING** the WORLD and its LOCAL and GLOBAL CONNECTIONS
- **TAKING and VALUING MULTIPLE PERSPECTIVES**, INCLUDING ONE'S OWN
- **COMMUNICATING RESPECTFULLY** ACROSS DIFFERENCE
- **TAKING ACTION to PROMOTE SOCIAL ENVIRONMENTAL WELL-BEING**

YOUNG PEOPLE TODAY ARE GROWING UP in a TIME of TRANSFORMATION - a PERIOD THAT IS CHARACTERIZED by TECHNOLOGICAL ADVANCEMENT, UNPRECEDENTED MIGRATION FLOWS, ENVIRONMENTAL DEGRADATION, and ECONOMIC and POLITICAL POLARIZATION. UNEVEN GLOBAL DYNAMICS ARE GIVING RISE to UNPRECEDENTED OPPORTUNITIES to LEARN and GROW; THEY ARE ALSO DEEPENING EXPERIENCES of EXCLUSION and CULTURAL DISCONNECTION. AGAINST THIS BACKDROP, **SUPPORTING ALL YOUNG PEOPLE** to BECOME GLOBALLY & INTERCULTURALLY COMPETENT BECOMES an **URGENT EDUCATIONAL RESPONSIBILITY**.

-Veronica Boix Mansilla & Liz Dawes Duraisingh

NOTABLE PZ PROJECTS

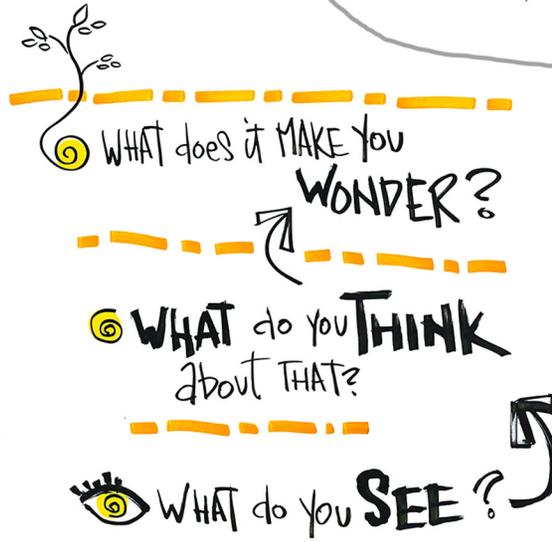
- TEACHING FOR UNDERSTANDING
- ID GLOBAL
- CULTURES OF THINKING
- FUTURE OF LEARNING
- GOOD WORK
- OUT OF EDEN LEARN
- WORLD IN PORTLAND
- CREATING COMMUNITIES OF INNOVATION

KEY FRAMEWORKS

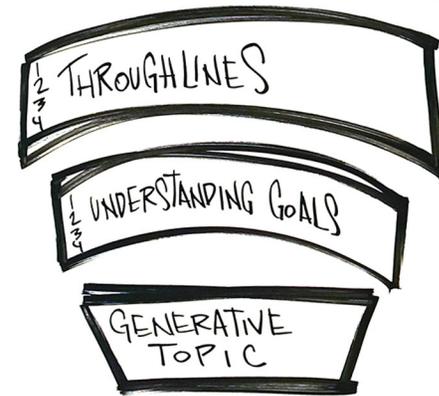
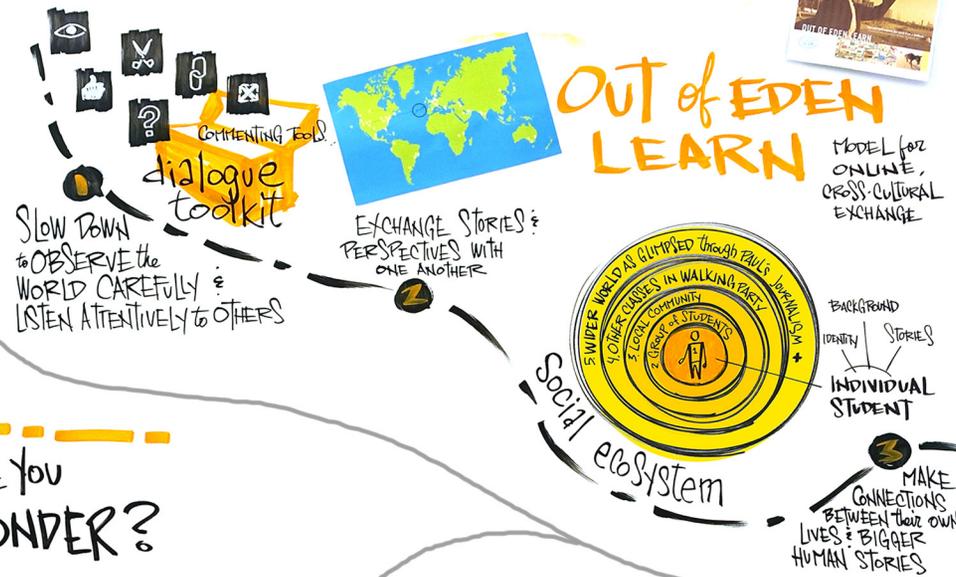
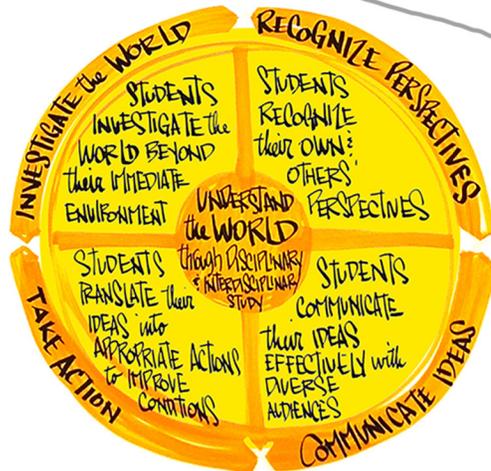
GLOBAL THINKING ROUTINES

focused
deep
visible
CHARACTERISTICS of GLOBAL THINKING ROUTINES
structured

3 Y flexible
WHY MIGHT this MATTER to ME?
WHY MIGHT it MATTER to PEOPLE AROUND ME?
WHY MIGHT it MATTER to the WORLD?



GLOBAL COMPETENCE



#	UNDERSTANDING PERFORMANCES	ONGOING ASSESSMENTS

TEACHING for UNDERSTANDING

INTELLIGENCES

Perhaps best known is Project Zero's pioneering research that broke with decades of psychological tradition built on innate and unitary concepts of human intelligence. It challenged the popular view that intelligence is fixed, general, and can be measured by standardized linguistic and logical tests. Led by Gardner & Perkins, PZ put forward to the field of educational psychology a radical view that intelligence is a learned ability to find/solve problems and create products of value in a culture. They revealed a robust set learnable dispositions that are foundations of intelligent behavior and a set of multiple intelligences that are developed and expressed within and across cultural contexts.

BIG QUESTIONS

- What is the nature of intelligent behavior
- How is intelligence expressed within and across cultures?
- How does intelligence and intelligent behavior develop?
- What if, instead of asking "how smart am I," we asked "how am I smart?"

PZ PERSPECTIVES

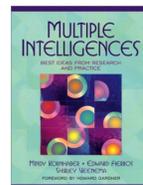
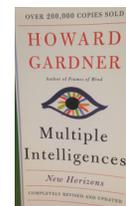
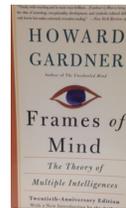
Human intelligence, rather than innate and unitary, is a learned ability to find/solve problems and create products of value in a culture.

There are several distinct intelligences that operate in problem solving and finding, and product creation (e.g. verbal, logical/mathematical, bodily-kinesthetic, etc.). These intelligences are not mutually exclusive and every human has a unique profile of them.

Intelligences are not fixed at birth; they are the result of a constant interaction of biological and environmental factors.

Intelligence is expressed in our performances, products, and ideas, not through a test score. How the intelligences are expressed is culturally defined.

Dispositions play a critical role in human problem finding and solving; the attitudes learners exhibit when performing – whether they are open or closed minded, adventurous or narrow in their thinking, careful or careless – strongly predict the extent to which they engage in and develop intelligent behaviors.



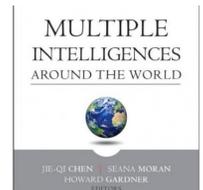
Intelligence represents potential that will or will not be brought to bear, depending on the values, available opportunities, and personal decisions made by individuals of a particular culture.

A goal of education must be to increase intelligence by creating opportunities for problem finding and solving experiences that emphasize the cultivation of appropriate dispositions and the teaching of relevant skills.

FRAMEWORKS

Seven key critical thinking dispositions that provide the best leverage on the kinds of thinking and learning challenges young people in our society face (Tishman, 1994):

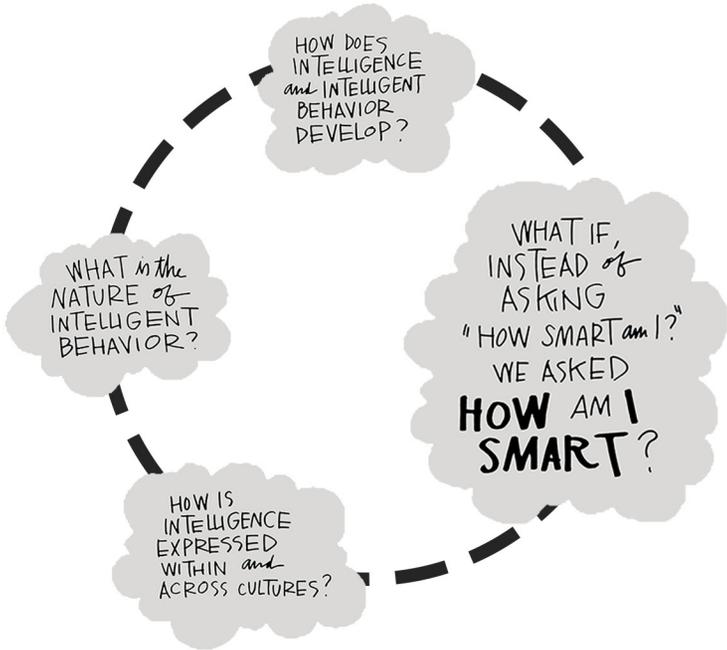
- The disposition to be broad and adventurous.
- The disposition toward wondering, problem finding, and investigating.
- The disposition to build explanations and understandings.
- The disposition to make plans and be strategic.
- The disposition to be intellectually careful.
- The disposition to seek and evaluate reasons.
- The disposition to be metacognitive.



Once we realize that people have very different kinds of minds, different kinds of strengths—some people are good at thinking spatially, some in thinking with language, others are very logical, other people need to be hands-on and explore actively and try things out—then education, which treats everybody the same way, is actually the most unfair education. - Howard Gardner

Passions, motivations, sensitivities, and values all seem likely to play a role in intelligence. To define intelligence as a matter of ability without also honoring the other elements that enliven it is to fail to capture its human spark." - Dave Perkins, Shari Tishman, Ron Ritchhart, Kiki Donis, and Al Andrade.

INTELLIGENCE



HUMAN INTELLIGENCE is a **LEARNED ABILITY** to FIND/SOLVE PROBLEMS and CREATE PRODUCTS of VALUE in a CULTURE

AVAILABLE OPPORTUNITIES
PERSONAL DECISIONS
VALUES
REPRESENTS a **POTENTIAL** THAT WILL OR WILL NOT BE BROUGHT TO BEAR

NOT FIXED at BIRTH!
EXPRESSED in **PERFORMANCES and PRODUCTS** of **IDEAS**
NOT THROUGH TEST SCORES. HOW in CULTURALLY DEFINED.



DISPOSITIONS PLAY a CRITICAL ROLE
OPEN MINDED vs **CLOSED MINDED**
ADVENTUROUS vs **NARROW** in THINKING
CAREFUL vs **CARELESS**

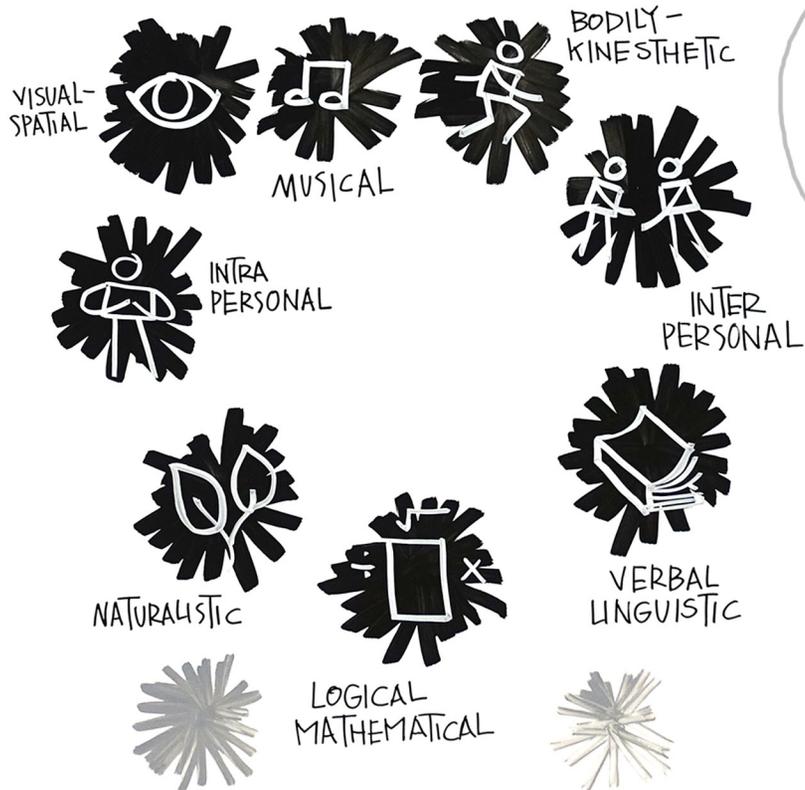
a GOAL of EDUCATION MUST BE to INCREASE INTELLIGENCE BY CREATING OPPORTUNITIES for PROBLEM FINDING and SOLVING EXPERIENCES

IT MAY BE DIFFICULT to EXPLAIN INTELLIGENT BEHAVIOR in EVERY DAY CONTEXTS SOLELY in TERMS of ABILITIES.
PASSIONS, MOTIVATIONS, SENSITIVITIES and VALUES ALL SEEM LIKELY to **PLAY a ROLE** in **INTELLIGENCE**.
 To DEFINE INTELLIGENCE as a MATTER of ABILITY without ALSO HONORING the OTHER ELEMENTS THAT ENLIVEN IT IS to FAIL to **CAPTURE ITS HUMAN SPARK.**
 -David Perkins and Shari Tishman

NOTABLE PZ PROJECTS
MULTIPLE INTELLIGENCES
PROJECT SPECTRUM
INNOVATING WITH INTELLIGENCE

KEY FRAMEWORKS

MULTIPLE INTELLIGENCES



the TRIADIC NOTION



THINKING DISPOSITIONS

7 CRITICAL THINKING DISPOSITIONS
 that PROVIDE the BEST LEVERAGE on the KINDS of THINKING & LEARNING CHALLENGES THAT YOUNG PEOPLE in OUR SOCIETY FACE

- BE BROAD and ADVENTUROUS
- WONDER, FIND PROBLEMS, INVESTIGATE
- MAKE PLANS and BE STRATEGIC
- BE INTELLECTUALLY CAREFUL
- BUILD EXPLANATIONS & UNDERSTANDINGS
- SEEK and EVALUATE REASONS
- BE METACOGNITIVE

THINKING

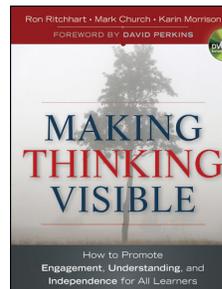
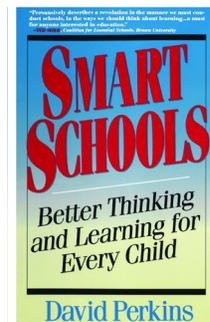
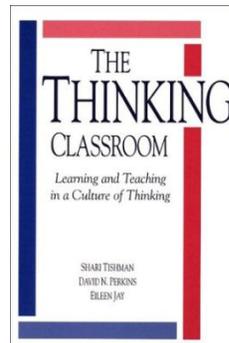
We believe that good thinking is as much a matter of disposition as it is of skill. Motivations, attitudes, values and habits of mind all play key roles in good thinking, and in large part, these elements determine whether people use their thinking skills when it counts. Learning is a consequence of thinking, and developing a culture of thinking is critical if we want to produce the feelings, energy, and even joy that can propel learning forward and motivate learners to do what at times can be hard and challenging mental work.

BIG QUESTIONS

- What are the ingredients of good thinking?
- Can good thinking be taught? How?
- What does good thinking have to do with good learning?

PZ PERSPECTIVES

- Learning as a consequence of thinking.
- Thinking as visible.
- Thinking as dispositional.
- Thinking as distributed.



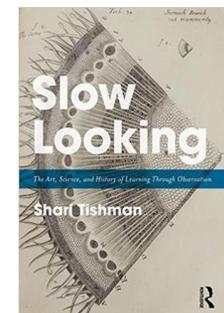
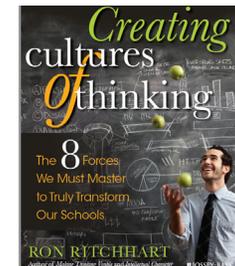
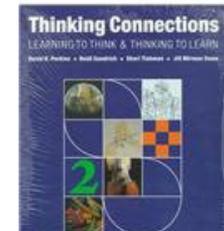
KEY PROJECTS

- Patterns of Thinking (1989 – 1998)
- Visible Thinking (1998 – 2005)
- Artful Thinking (2004 – 2007)
- Cultures of Thinking (2013 – current)

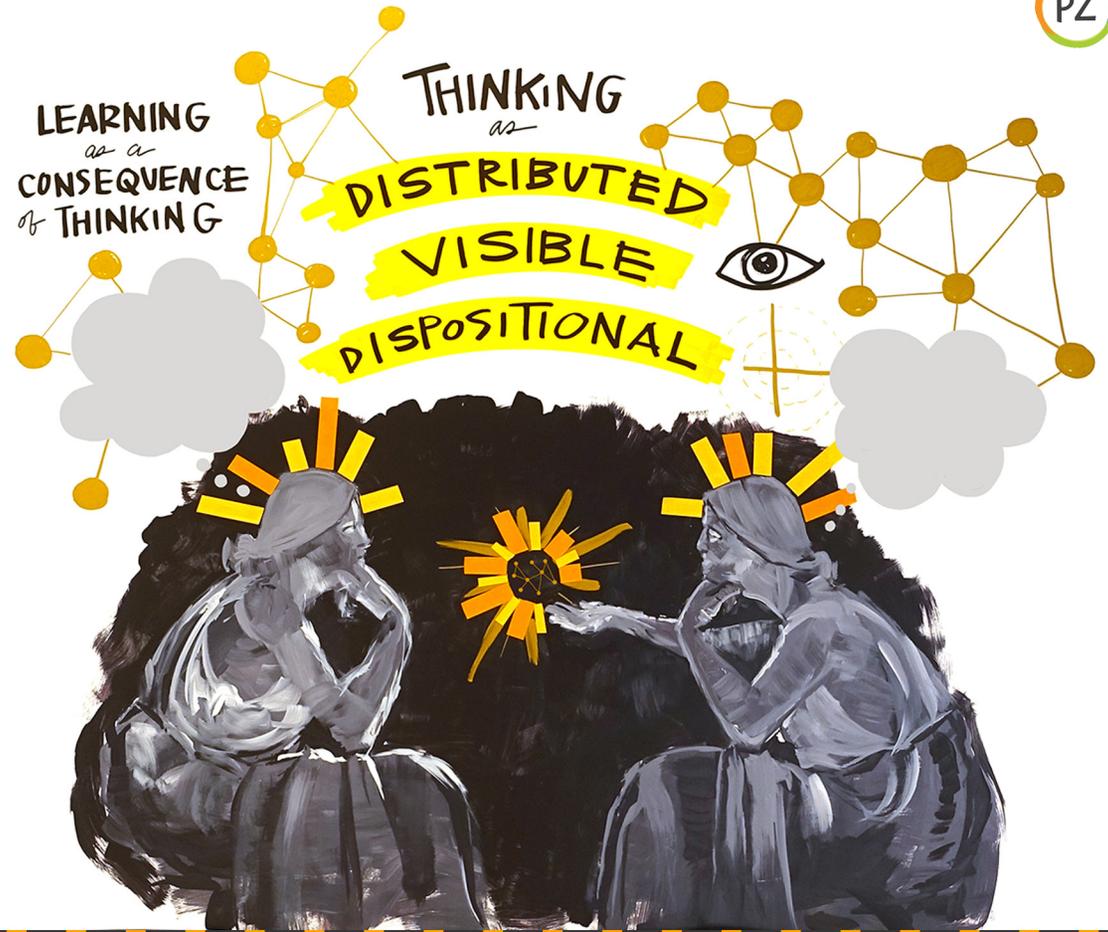
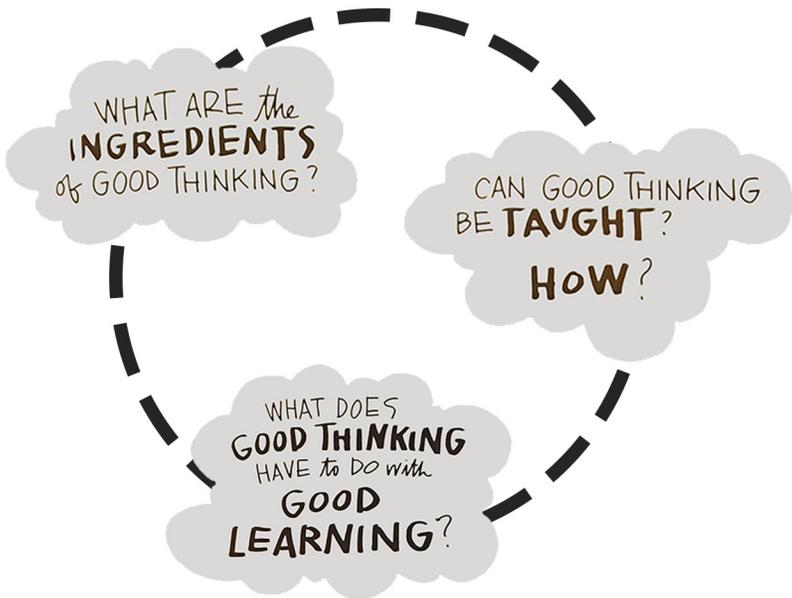
“Good thinking is as much a matter of disposition as it is of skill. Motivations, attitudes, values and habits of mind all play key roles in good thinking, and in large part it is these elements that determine whether people use their thinking skills when it counts.”
– Shari Tishman

“How intelligence really works matters in a very concrete practical way – arguably it matters much more than whether the earth circles around the sun or vice versa.”
– David Perkins

“A culture of thinking produces the feelings, energy, and even joy that can propel learning forward and motivate us to do what at times can be hard and challenging mental work.”
– Ron Ritchhart



THINKING



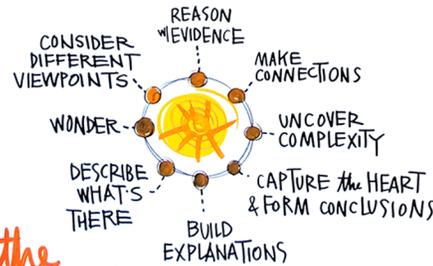
GOOD THINKING IS as MUCH a MATTER of **DISPOSITION** as IT IS of **SKILL**. **MOTIVATIONS, ATTITUDES, VALUES** and **HABITS** of MIND ALL PLAY **KEY ROLES** in **GOOD THINKING**, and in **LARGE PART** IT IS **THESE ELEMENTS** THAT DETERMINE WHETHER PEOPLE USE **THEIR THINKING SKILLS** WHEN IT COUNTS.

-Shari Tishman

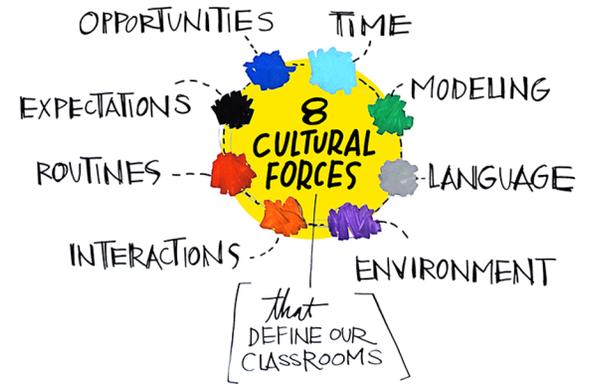
- NOTABLE PZ PROJECTS**
- VISIBLE THINKING**
 - ARTFUL THINKING**
 - CULTURES OF THINKING**
 - PATTERNS OF THINKING**

KEY FRAMEWORKS

CULTURES of THINKING



the UNDERSTANDING MAP



the TRIADIC NOTION of THINKING DISPOSITIONS

ABILITY



SENSITIVITY INCLINATION

VISIBLE THINKING

- GOAL ORIENTED
- GET USED OVER & OVER AGAIN in the CLASSROOM
- CONSIST of ONLY a FEW STEPS
- EASY to LEARN and TEACH
- EASY to SUPPORT
- USED ACROSS a VARIETY of CONTEX
- USED BY GROUPS OR INDIVIDUALS

THINKING ROUTINES

CIRCLE of VIEW-POINTS

COMPASS POINTS

WHAT MAKES YOU SAY THAT?

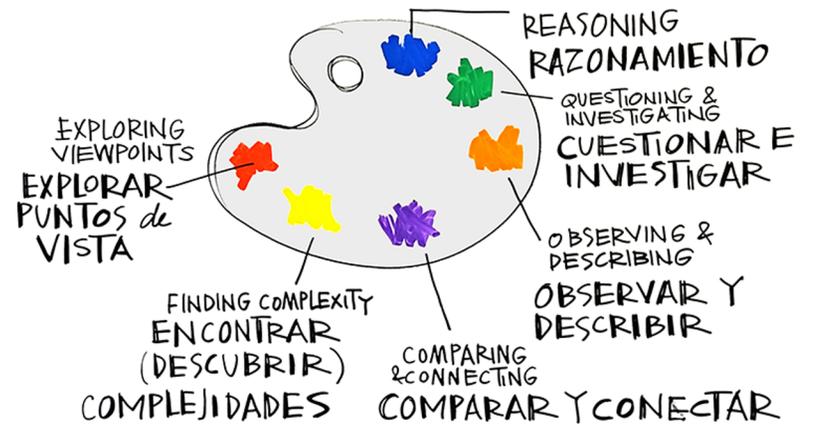
I USED to THINK... BUT NOW I THINK...

THINK/Puzzle/EXPLORE

THINK PAIR SHARE

SEE/THINK/WONDER

ARTEFUL THINKING



UNDERSTANDING

Project Zero's research proposes a performance-based conception of "understanding," i.e. understanding is the capability to perform flexibly with knowledge in novel situations. It goes beyond having the correct mental models, and is actionable and generative in further learning and in real life. Understanding includes the capacity for transfer, as well as the ability to restructure concepts rather than just add information. It is an agentic process, an on-going quest carried by the learner.

BIG QUESTIONS

What is the nature of deep understanding and why does it matter?

What are the challenges to developing deep understanding?

What are the behaviors of learners who demonstrate adaptive expertise—knowing how to develop deep understanding?

In what ways can education support the development of deep understanding and adaptive expertise?

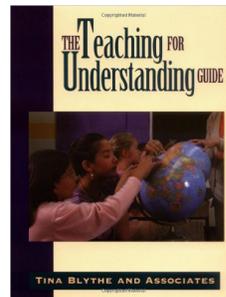
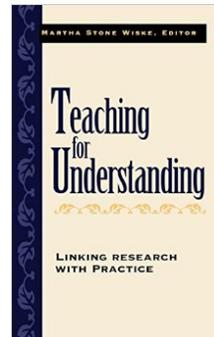
PZ PERSPECTIVES

Depth of understanding is more empowering than broad, superficial coverage.

Understanding is revealed through performances as opposed to what we know in our heads.

Deeper understanding involves restructuring schemas that we hold and developing a broader repertoire of schemas.

Learning how to learn new and challenging content—developing adaptive expertise—should be a central focus on education.



KEY PROJECTS

Practical Intelligence for School (1988 - 1995)

Teaching for Understanding (1990 - 1996)

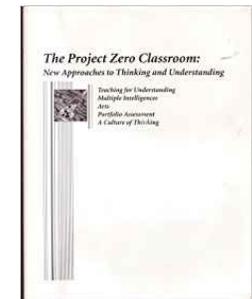
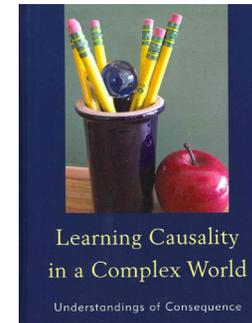
Understanding of Consequence (1998 - 2005)

EcoLearn Projects (2009 - current)

"People understand something when they can think and act flexibly with what they know about it in new situations, not just rehearse information and execute routine skills." - David Perkins

"Learning is like a geode. A topic can look plain and uninteresting on the surface but as you dive deeply into it, it reveals the hidden gems within." - Tina Grotzer

"Generative topics are readily linked to students' previous experiences (both in and out of school) and to important ideas within and across disciplines. They often have a bottomless quality; in that inquiry into the topic leads to deeper questions." - Martha Stone Wiske



EcoMuvE

UNDERSTANDING

DEPTH of UNDERSTANDING is MORE EMPOWERING than BROAD, SUPERFICIAL KNOWLEDGE

UNDERSTANDING is REVEALED THROUGH PERFORMANCES (as OPPOSED to WHAT is in OUR HEAD)

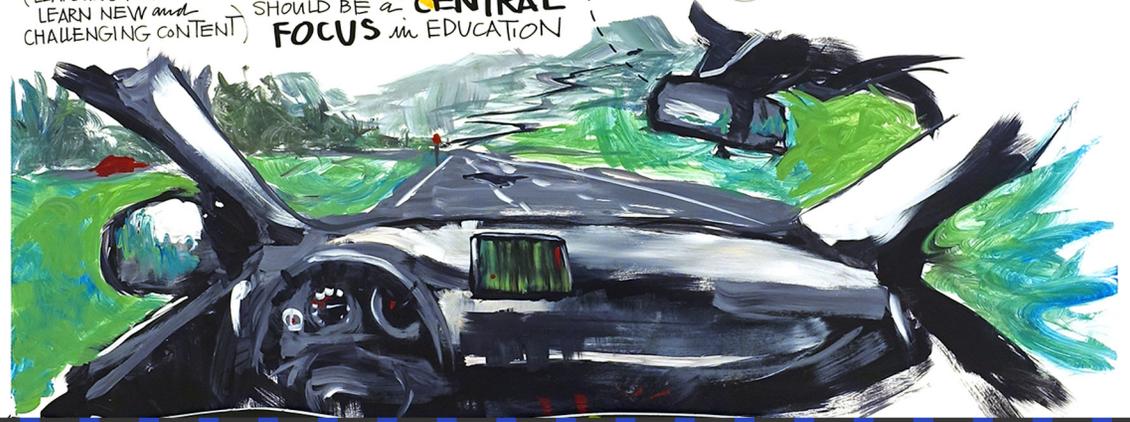
DEVELOPING ADAPTIVE EXPERTISE

(LEARNING HOW TO LEARN NEW and CHALLENGING CONTENT)

SHOULD BE a CENTRAL FOCUS in EDUCATION

DEEPER UNDERSTANDING INVOLVES RESTRUCTURING SCHEMAS

THAT WE HOLD and DEVELOPING a BROADER REPERTOIRE of SCHEMAS



WHAT is the NATURE of DEEP UNDERSTANDING and WHY DOES it MATTER?

in WHAT WAYS CAN EDUCATION SUPPORT the DEVELOPMENT of DEEP UNDERSTANDING and ADAPTIVE EXPERTISE?

WHAT are the BEHAVIORS of LEARNERS WHO DEMONSTRATE ADAPTIVE EXPERTISE — KNOWING HOW to DEVELOP DEEP UNDERSTANDING?

WHAT are the CHALLENGES to DEVELOPING DEEP UNDERSTANDING?

BIG UNDERSTANDINGS ARE the BUILDING BLOCKS of LIFEWORTHY LEARNING. THEY ARE BIG in INSIGHT, BIG in ACTION, BIG in ETHICS, and BIG in OPPORTUNITY, and THEREFORE BIG in the LIVES LEARNERS ARE LIKELY to LIVE.

-David Perkins

NOTABLE PZ PROJECTS

- TEACHING FOR UNDERSTANDING
- UNDERSTANDINGS OF CONSEQUENCE
- PRACTICAL INTELLIGENCE FOR SCHOOLS
- THINKING DISPOSITIONS
- ECOLEARN PROJECTS

KEY FRAMEWORKS

RECAST

REVEAL CAUSAL STRUCTURE
HELPING STUDENTS RECAST
their EXPLANATION by DRAWING,
their ATTENTION to DIFFERENT,
UNDERLYING CAUSAL
STRUCTURES



the TRIADIC NOTION of THINKING DISPOSITIONS



TEACHING for UNDERSTANDING



#	UNDERSTANDING PERFORMANCES	ONGOING ASSESSMENTS
INTRODUCTORY →		
GUIDED INQUIRY →		
CULMINATING →		

- 1 WHAT DO WE MOST WANT LEARNERS to UNDERSTAND?
- 2 How WILL THEY DEVELOP that UNDERSTANDING?
- 3 How WILL WE (i they) KNOW IF THEY ARE UNDERSTANDING?