

**Revisiting Field  
Dependence/Independence,  
Perception, Creativity and Artistic  
Outcomes**

John Krenik, MAE

**NAEA National Convention**

**Fort Worth TX, March 7-10, 2013**

# FDI: artists and perception

- How students perceive their world impacts how and why they create art as they do. Field dependence/independence (FDI) provides some answers as to how artists see the world differently than nonartists.

# Conceptual Framework

- Need to determine direction of position in a field
- Tilting-room-chair apparatus/Rod and Frame Test
- Perception of the upright
- Embedded Figures Test
- Based on information processing tendencies
- Intelligence tests unable to demonstrate discriminant validity
- FDI measures ability, not cognitive style

# Characteristics of FDI

• Field Dependence	Field Independence
<ul style="list-style-type: none"><li>• Global thinking</li><li>• Holists</li><li>• Haptic (emotionally created art)</li><li>• Avoidants</li><li>• Females</li><li>• Curious about new information</li><li>• Conform to judgments of others</li><li>• Social, prefer to be physically close</li><li>• Work in social services</li><li>• Formal art style</li><li>• Score lower in mathematical reasoning</li></ul>	<ul style="list-style-type: none"><li>• Analytical thinking</li><li>• Serialists</li><li>• Intellectually created art</li><li>• Ambivalence</li><li>• Males</li><li>• Curious about problem-solving</li><li>• Higher risk takers</li><li>• Impersonal, use more body language</li><li>• Work in sciences</li><li>• Informal art style</li><li>• Score higher in mathematical reasoning</li></ul>

# FDI & Perception

- FDI is a way of perceiving
- Internal/external referents
- Processing; speed & information strategies
- Restructuring ill defined problems
- Working memory load
- Perspectivism & visual processing

# FDI, Perception, & Classroom Implications

Field Dependents	Field Independents
<ul style="list-style-type: none"><li>• Depend on teacher 'how to' demo's &amp;</li><li>• Learn by watching others</li><li>• Less likely to structure learning</li><li>• Tactile</li></ul>	<ul style="list-style-type: none"><li>• Learn independently</li><li>• Structure their own learning</li><li>• Technical</li></ul>

# FDI, Perception, & Classroom Implications

- FI are consistently independent in FDI tests
- FDI can be used in documenting students' analytical patterns of thinking and structuring abilities
- Differences between how students think while perceiving may guide and inform instruction.
- FDI is about how a person views objects in space relative to where they are
- In visual arts: how a person views objects in space relative to their viewpoint.
- FDI tests: withholding distraction or perceiving?

# FDI, Perception & Technology

- GEFT was used to determine FDI, and the *HyperLyme* computer program achievement posttest was used to determine which preset learning goals were more effective. The findings indicated
- In the Angeli & Valanides (2004) comparative study, textual and textual-and-visual representations were compared in software problem solving (what was the outcome?).
- FI students experience presence in virtual worlds more so than FD students likely to experience visual vertigo



# FDI, Perception & Technology, & Classroom Implications

## Field Dependent

- Scored highest in linear concept map recall
- Students lag FI consistently in technology
- Benefit from apprenticeship and online inquiry
- Challenged with hypertext learning

## Field Independents

- Scored highest in hierarchical concept maps
- Superior technology skills
- Learn technology best independently
- Thrive on hypertext learning

# FDI & Creativity

- Creativity is positively correlated with the sense of presence
- Perception is required for problem-solving activities that require intelligence, creativity, and separating parts from the whole
- The concept of FDI has been used extensively in creativity testing, as well as to validate creativity tests
- Because of the extensive use of FDI in creativity testing researchers often use tests such as the Embedded Figures Test to test for creativity

# FDI Creativity, & Classroom Implications

## Field Dependent

- Less creative
- Less mobile and flexible between FDI
- Slow reaction
- Step-by-step directions for projects
- Experience difficulties with problem-finding and problem-solving,
- Especially so with critical thinking and restructuring
- Feed off emotions and create emotional artwork

## Field Independents

- Very creative
- More mobile and flexible between FDI
- Quick reaction
- Make connections quicker
- Analyze perceptive information quicker with greater ease and accuracy
- Do well with ill-structured problems such as problem-based learning

# Artistic Ability & FDI

- By identifying students' learning styles as well as FDI learning tendencies, teachers could target artistic areas addressing improved success
- FDI can be viewed as a degree of cognitive conflicting critical thought process using both hemispheres of the brain

# FDI, Artistic Ability & Classroom Implications

Field Dependent	Field Independents
<ul style="list-style-type: none"><li>• Respond enthusiastically to artwork with social and expressive content</li><li>• Learn better with a skills-based approach</li><li>• Draw figures with few clues of male/female characteristics and are very keen at facial recognition</li><li>• Extremely adept at face recognition and remembering people</li><li>• Less sophisticated drawings</li><li>• Misrepresent objects because of perceptive errors</li></ul>	<ul style="list-style-type: none"><li>• Drawings tend to have more structure, detail, and greater spatial relationships with greater accuracy in proportions</li><li>• Respond favorably to ill-structured, abstract or ideational artwork and artwork requiring critical response through analysis and restructuring</li><li>• Learn best in a problem-based learning approach</li><li>• Most sophisticated drawings</li><li>• Better at drawing three dimensional objects</li></ul>

# Haptic & FDI

- Children tend to fall under haptic or visual perception categories (Victor Lowenfeld, 1965).
- Haptic students draw according to how they internally feel the subject, whereas visual students draw what they perceive outside themselves
- Haptic tendencies are also mostly Field Dependent and Visual perception tendencies mostly Field Independent.

# FDI, Haptic & Classroom Implications

## Field Dependent/Haptic

- Approach to creating art projects with an intuitive nature dependent on subjective feeling
- Impatient, changeable, complicated, imaginative, confused, and appear to have internal conflicts
- opinionated, rebellious, and given to excessive exhibition
- Depend on explicit directions
- Experience proportion difficulties

## Field Independents

- Approach to creating art projects with visual perception
- Moderate, patient, steady, and realistic, industrious, obliging, and conforming
- Understand abstract concepts better
- Score higher in spatial ability
- Understand linear perspective concepts quicker
- Learn new novel motor skills quicker

# FDI and Teaching Style

FD Teaching Style	FI Teaching Style
<ul style="list-style-type: none"><li>• Many opportunities for for student interaction</li><li>• Encourage students to take part in curricular decisions and classroom structure</li><li>• Discussion over discovery</li></ul>	<ul style="list-style-type: none"><li>• Emphasizing cognitive aspects of art education</li><li>• Tend to use negative reinforcement (Witkin et al.).</li><li>• Use questioning tactics more often and for different purposes</li></ul>



# FDI Teachers and Students

FD Teachers, Students	FI Teachers, Students
<ul style="list-style-type: none"><li>• Use questions primarily to check for understanding (Witkin et al.).</li><li>• FD students have a serious disability over FI students in the present educational system.</li><li>• FD student being likely to respond positively to negative reinforcement (Witkin et al.).</li></ul>	<ul style="list-style-type: none"><li>• Tend to correct students incorrect answers by telling them the correct answer rather than by having the student find the correct answer themselves (Witkin et al.)</li><li>• Increase performance for both field dependent and field independent students</li></ul>

# FDI & Artist/Nonartist

- Artists scored significantly higher than nonartists on Witkin's Embedded Figures Test (1956) (Mayo & Bell, 1972).
- People who say they cannot draw actually may have difficulty processing spatial information (Silver, 1989).
- People who say they cannot draw may also experience difficulty visualizing geometric problems (Lowenfeld, & Brittain, 1987).
- Visual memory is related to drawing accurately (McManus et.al, 2010).
- Visual storage in memory is like a library of structures for the artist to recall when needed

# Conclusions

- Artists score higher than nonartists on FDI tests (EFT, CEFT, GEFT) & are better at ignoring distractions
- Artists have greater perception skills and draw with greater accuracy than nonartists
- Artists have FD tendencies, nonartists have FD tendencies generally
- FI/artists have greater visual memory & storage,
- Those who say they cannot draw(FD) also lack perceptual skills, and visuospatial memory

# Contact Information

- [www.johnkrenik.com](http://www.johnkrenik.com)
- [John.krenik@waldenu.edu](mailto:John.krenik@waldenu.edu)