Social Aspects of Creativity and Creative Autonomy

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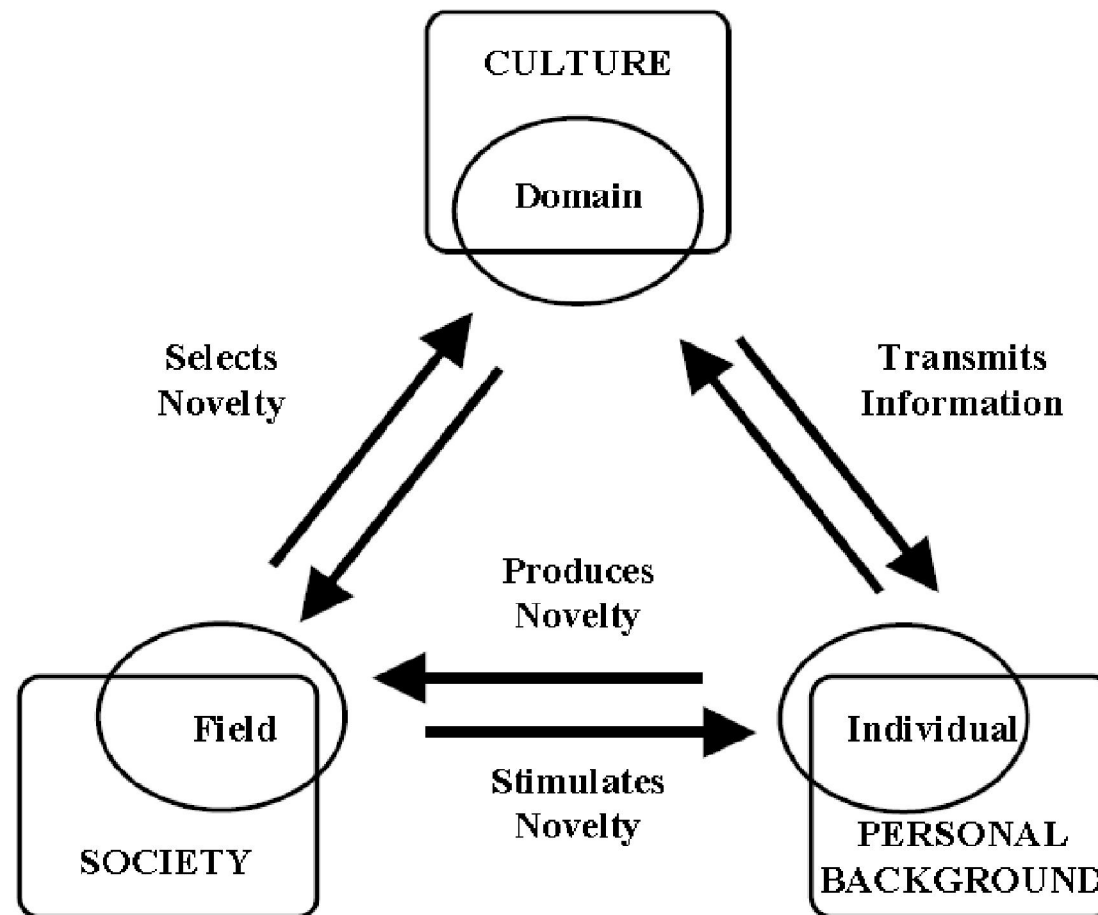
Social Aspects of Creativity

Saunders and Gero (2001)

Creativity is a socio-cultural activity

Source of pictures in this lecture: Saunders and Gero (2001)

Socio-cultural aspects

- The context and background of creativity

- Interaction, development

- The audience of results

- What and where is the impact?
  - Historical creativity (h-creativity) is a social aspect

- …

- What could be a minimal computational model of socio-cultural creativity?

A model of social artificial creativity

Saunders and Gero (2001)

- A society of agents in a cultural environment

- No agent can direct the behaviour of others

- No rules dictate global behaviour

- Agents interact with other agents to exchange artefacts and evaluations

- Agents interact with the environment to access cultural symbols

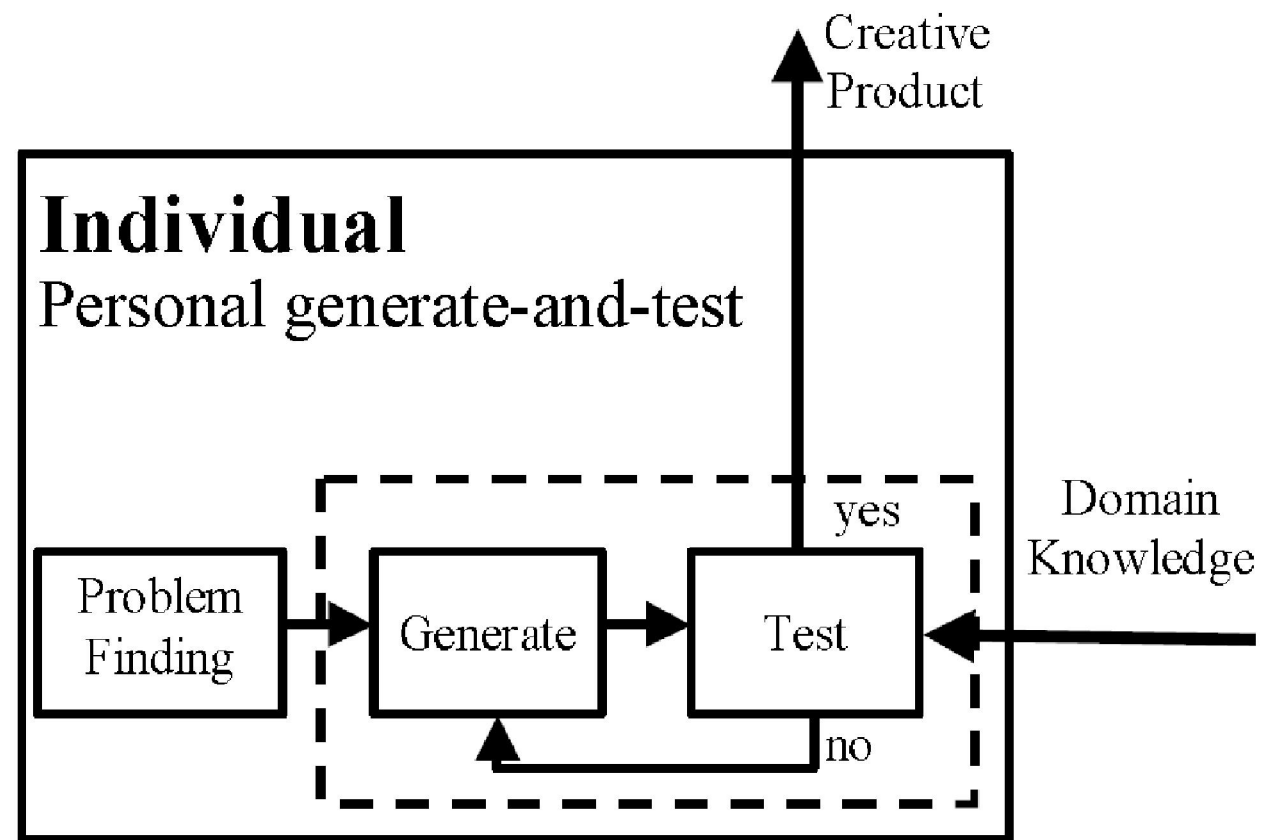- Agents evaluate the creativity of artefacts and other agents

Social aspects in creativity

- The notions of whom and what are creative arise from multiple notions held by the individual agents
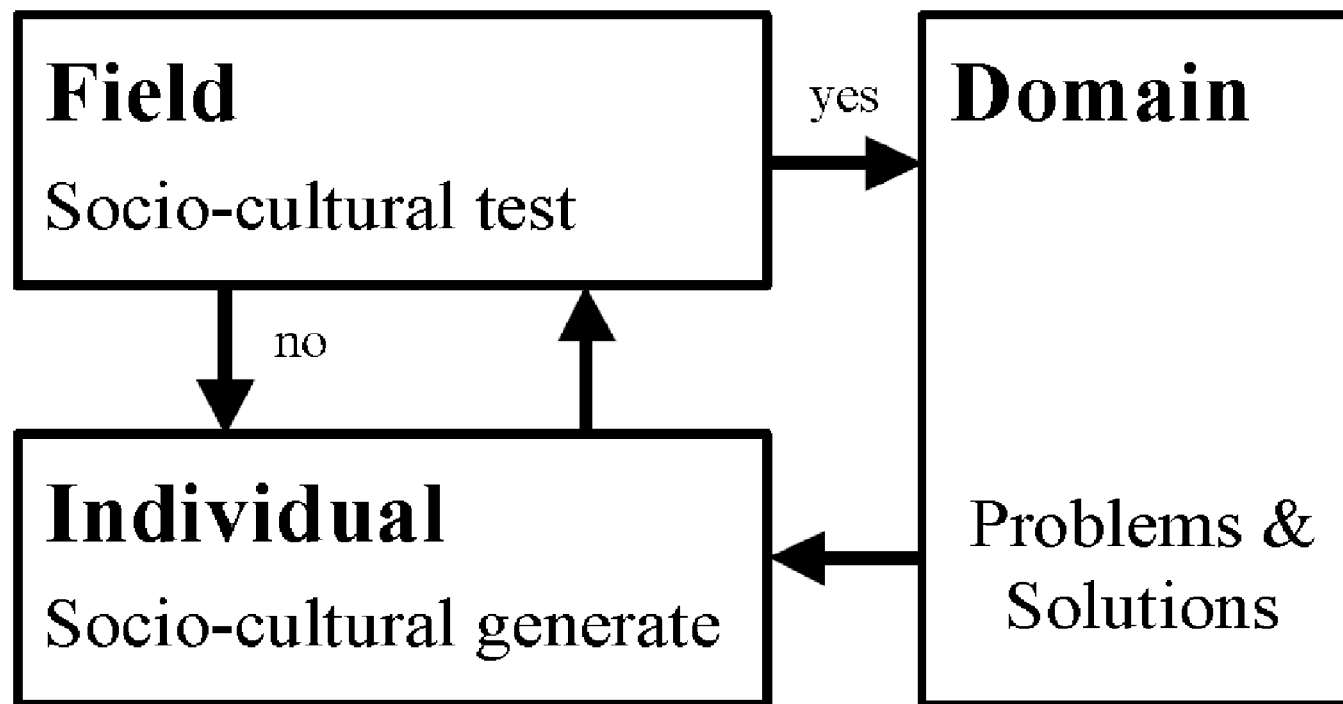- Macro-level creativity from micro-level interactions
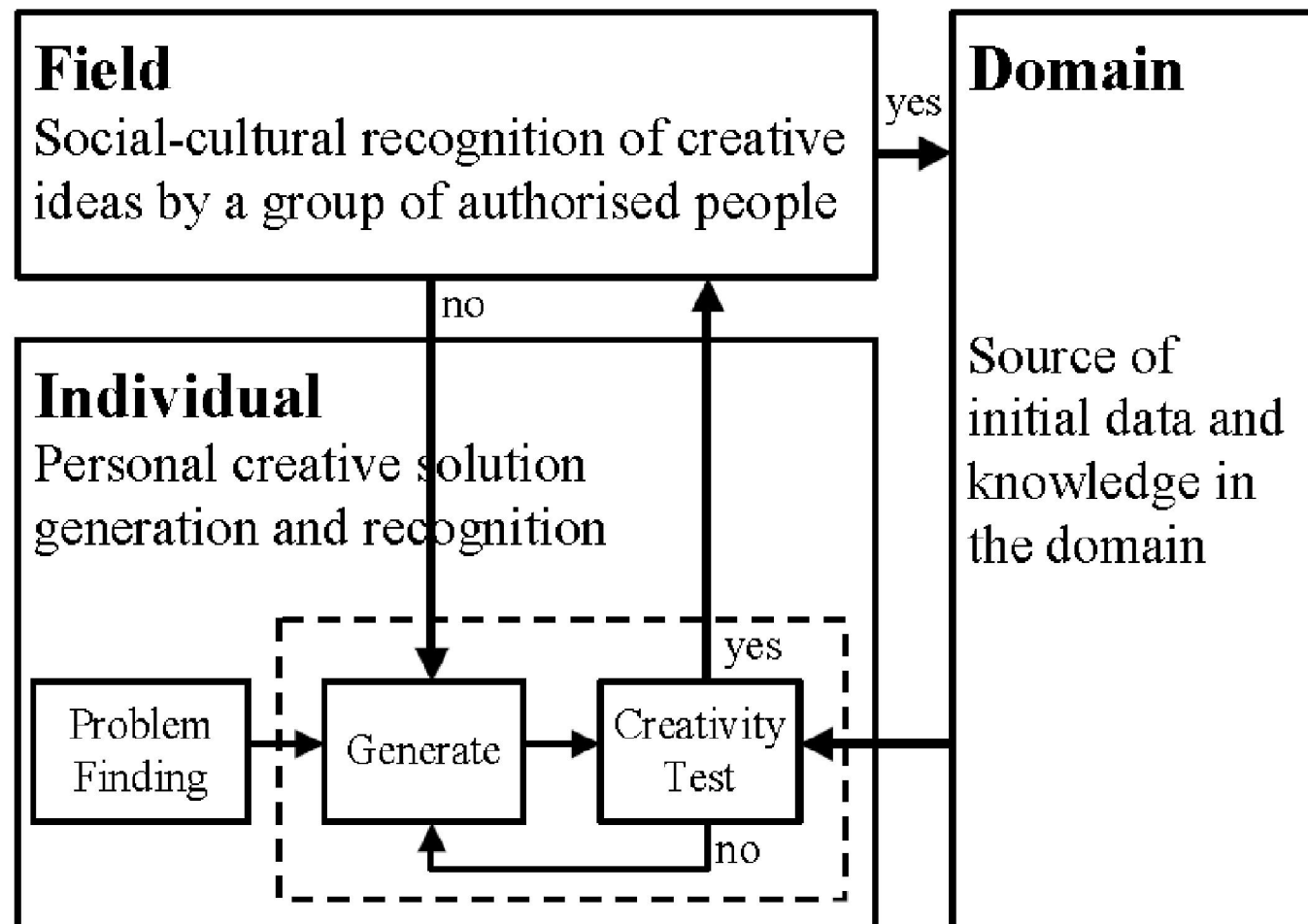
Individual's generate-and-test model

Individual
Personal generate-and-test

Problem Finding → Generate → Test

yes → Creative Product

Domain Knowledge

no

Cf. personal creativity (p-creativity)

Socio-cultural generate-and-test model

Field
Socio-cultural test

yes → Domain

no

Individual
Socio-cultural generate

Problems & Solutions

Cf. historical creativity (h-creativity)

A dual generate-and-test model

Creative Autonomy

Jennings (2010)

"The difference between greater and lesser creativity lies not it how you solve problems, but rather in what problems you choose to solve."

- Getzels and Csikszentmihalyi

- What is the programmer's influence on what a creative program creates?

Criteria for Creative Autonomy (1/3), Jennings (2010)

1. **Autonomous Evaluation**:
    The system can evaluate its liking of a creation without seeking opinions from an outside source.

    o   Any opinion is formed by the system itself

    o   However, it may consult others at other times

    o   Examples: preprogrammed evaluation, evaluation function learned from the user

Criteria for Creative Autonomy (2/3)

2. **Autonomous Change:**
   The system initiates and guides changes to its standards without being explicitly directed when and how to do so.

   o External event and evaluations may prompt and guide changes

   o The system decides when and how to change them

   o The system decides if new standards are acceptable

   o Fixed or learned evaluation functions can be used to bootstrap the process

Criteria for Creative Autonomy (3/3)

3. **Non-Randomness:**
   The system's evaluations and standard changes are not purely random.

   o The two first criteria could be easily met by random decisions

   o Not all randomness is excluded, however

Autonomy Requires Sociality

- What influences can a creative system experience to modify its standards?

- Introspection?
  - Cf. "uninspiration" and "aberration" in the search model of Wiggins

- Social interaction!
  - New influences, ideas, feedback
  - An apparent paradox: a system can only be autonomous if it is social
  - Think of the opposite: a system that is not influenced by external information can be argued to only express the programmer's creativity

Four "Models" (or Sources) of Creativity

- *Cognition-centered:* creativity results from mental processes, is domain-independent

- *Domain-centered:* creativity results from expertize

    - Expert system: well-establish methods & conventions

    - Case-based: re-use and adaptation of the past

    - Learning/statistical: analysis of selected data

- *Evolutionary:* creativity emerges from evolution

- *Systems view:* creativity results from the interaction of a society of agents

Human-Computer Co-Creativity

Human-computer co-creation

- Shared creative responsibility between a human and a computer

- Joint "ownership" of the result

- A major opportunity for computational creativity:

  - Enhancement of human creativity

  - Giving joy of creativity to everyone

  - Educational applications

Co-creation: Case Poetry Engine

Co-creation: Case Musicreatures

– App Store:
  Musicreatures