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Eudaimonic flourishment through healthcare system participation in annotating electronic health records

Pennefather, Peter and Suhanic, West and Seaborn, Katie and Fels, Deborah I.

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Eudaimonic Flourishment through Healthcare System Participation in Annotating Electronic Health Records

Peter Pennefather, West Suhanic, Katie Seaborn, Deb Fels
Laboratory of Collaborative Diagnostic, Lesley Dan Faculty of Pharmacy, UofT
Inclusive Media Design Centre, Rogers School of Management, Ryerson U
The Big Idea -

If the Food System Creates Conditions for People to be Nourished
   Nourishment is the Output of that System

If The Public Health System Creates Conditions for People to Flourish
   Flourishment is the Output of that System

Also

if The Food System is to be Regulated
   Nourishment Needs to be Recorded, Accounted and Analyzed

if The Public Health System is to be Regulated
   Flourishment Needs to be Recorded, Accounted and Accounted
Who am I:
Pharmacy Professor trained in Neuroscience, Biophysics, Medical & Pharmaceutical Sciences, and Data

What do I Do
Critically and abductively analyze observations by framing them in explicit but approximate simulations whose value and meaning are bounded by the record of observations (data)

Why am I Here
I think that System Design is another form of explicit approximate simulation of possible futures and that dialogue (conversations) is how we bound their meaning and value

What do I Offer
I have tools for creating know-nothing data about observations and conversation (quantitative and qualitative records)
# Metacognitive Framework

*Data from Past Translated into Knowledge for Guiding Future Actions*

**Input:** Data/Information Biased by Present Concerns and Future Needs (Know Nothing)

<table>
<thead>
<tr>
<th>Design</th>
<th>Learning</th>
<th>Problem Solving</th>
<th>Diagnostics</th>
<th>Systems Engineering</th>
<th>Knows</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PAST</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Orient/Explore/Discover (thoughtful comparison)</td>
<td>Comprehension Knowledge</td>
<td>Discovery Definition</td>
<td>Initiation Probing</td>
<td>Identify Objectives Specify Criteria</td>
<td>What Seems to Be</td>
</tr>
<tr>
<td><strong>PRESENT</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Scan/Form/Re-Form (reasoned reflection)</td>
<td>Analysis Synthesis</td>
<td>Divergent Design Convergent Design</td>
<td>Analysis Diagnosis</td>
<td>Map Relationships Identify Alternatives</td>
<td>What Could Be</td>
</tr>
<tr>
<td><strong>FUTURE</strong></td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Project/Develop/Specify (practical abstraction)</td>
<td>Validation Transformation</td>
<td>Action Planning Mobilization</td>
<td>Reporting Prescribing</td>
<td>Evaluate Alternatives Chose One or Two</td>
<td>What Ought to Be</td>
</tr>
</tbody>
</table>

**Output:** Actionable Knowledge Useful in Integrating Past/Present/Future (Know Why)
<table>
<thead>
<tr>
<th>Brain Network</th>
<th>Warrant (Perspective) Meaning</th>
<th>Aristotelian Activities essence ↔ effects</th>
</tr>
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<tbody>
<tr>
<td>Salience</td>
<td>Empowerment (Systemic-Scholarly) Coherence</td>
<td>Theoria theorizing ↔ Episteme science</td>
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<tr>
<td>Executive Control</td>
<td>Agency (Business-Professional) Purpose</td>
<td>Praxis acting ↔ Phronesis judgment</td>
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<tr>
<td>Default</td>
<td>Engagement (Socio-Cultural) Significance</td>
<td>Pioesis making ↔ Techne proficiency</td>
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How Do We Know What, How, and Why?

= From a Humanities perspective
we reason

= From a Neuroscience perspective
our brain network intercat
Health

= Bio-Psycho-Social Wellbeing (Essence)

= Flourishing People (Effect)
The Aristotelian concept of Eudaimonia refers to living a flourishing life through the pursuit of one's best self (i.e., one's deamon or true spirit).

Systems designed to help people pursue the “good life” should consider states of eudaimonic flourishing as well as hedonic pleasure along with traditional ergonomic design goals.

This is illustrated with a design challenge of a personal health record (PHR) bridge for a person living with chronic pain.

A PHR domain for registering a personal record of eudaimonic flourishing and engaged resilience (a PREFER domain) is specified for driving a virtuous cycle of flourishing.
Consider Ms X

Ms X is a grandmother with a complex painful condition that developed suddenly as the result of viral infection. She is under the care of a pain centre located in a large tertiary care hospital.

Mostly the pain is uncomfortable but episodically it is debilitating.

How can a PHR assist Ms X in processing options in order to accomplish everyday goals
What is pain?

- There is an International definition of pain formulated by the IASP (International Association for the study of pain)
- Pain is an unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage

*IASP—International Association for the Study of Pain 2011*

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Pain: Definition

- A complex experience embracing physical, mental, social, and behavioral processes, compromising the quality of life of many individuals.

SSI Commission For Evaluation of Pain
At a fundamental level, brain networks influence the cognitive work that the mind needs to invoke in order to process emotional, social and cognitive signals.

Medical therapy aimed at reducing the debilitating effects of experiences need to threat the whole brain and speak to each network

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Figure 1. A Schematic Representation of Relationships Between Record Systems that Can Interact with the PREFER Domain of Ms X’s PHR.
Ms X has been encouraged to participate in a mindfulness training program organized by the rehabilitation institute that the therapist is associated with.

The Institute maintains an electronic medical record (EMR) system with a patient-portal feature. That patient portal has been adapted to allow users to copy institutional EMR data about them to their own PHRs. This is accompanied by a locator for the data in the EMR system.

The PHR has a domain designed using eudaimonic flourishing principles that also create hyper data links to the official copies of the institutional EMR data entries.

A PREFER domain extension has been designed to assist institute clients like Ms X to reflect on the quality, purpose and impact of the services that they obtain though the institute.
Scenario 1
At the structure level the Institute sponsors a number of mindfulness and acceptance training options each with a number of trainers. Ms X has to choose one.

Scenario 2
At the process level, the mindfulness training program will be supported by media that legitimize the professional and business transactions necessary to engage with that program.

Scenario 3
At the output level, the Ms X needs to figure out how carry out her mindfulness exercises outside of the institutional training setting in settings where she lives.
<table>
<thead>
<tr>
<th>Scenario (Level)</th>
<th>Media Priority</th>
<th>Media Perspective</th>
<th>Brain Network</th>
<th>Worldview Warrant</th>
<th>Meaning-in-Care</th>
<th>Flourishment Output</th>
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</thead>
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<tr>
<td>Scenario 1</td>
<td>Integration-Driven</td>
<td>Systemic-Scholarly</td>
<td>Salience</td>
<td>Empowerment</td>
<td>Coherence</td>
<td>Salutogenic Appraisal</td>
</tr>
<tr>
<td>(Structure)</td>
<td>Assessment</td>
<td></td>
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</tr>
<tr>
<td>Scenario 2</td>
<td>Legitimacy-Driven</td>
<td>Business-Professional</td>
<td>Executive Control</td>
<td>Agency</td>
<td>Purpose</td>
<td>Resilient Action</td>
</tr>
<tr>
<td>(Process)</td>
<td>Implementation</td>
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</tr>
<tr>
<td>Scenario 3</td>
<td>Insight-Driven</td>
<td>Societal-Cultural</td>
<td>Default</td>
<td>Engagement</td>
<td>Significance</td>
<td>User-Driven</td>
</tr>
<tr>
<td>(Output)</td>
<td>Adaptation</td>
<td></td>
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