Futures Research Methodology Version 3.0

Jerome C. Glenn and Theodore J. Gordon
Millennium Project (2009)

The Millennium Project, founded in 1996, is an ongoing independent non-profit global participatory futures research think tank. An annual **State of the Future** report ($39.95 paperback, $29.95 download), a "Futures Research Methodology" series, and special studies are among the products produced. The Millennium Project materials are a great source of research material on 15 global challenges.

Futures Research Methodology Version 3.0 ($49.50) is an encyclopedic, internationally peer-reviewed handbook of futures studies and futures research, presenting methods and tools to explore future possibilities. The first chapter provides a cornerstone introduction that gives the lay of the land, detailing futures research: scenarios and drivers aimed at decision making; and future studies: explorations of emerging technologies and social and cultural trends. Normative (desired future) forecasts are distinguished from exploratory (possible) futures.

The final chapter, among other things, maps out where each method is used. Some caveats on forecasting and forecasts are provided before a discussion about using the methods in combination, as well as singly.

Each of the remaining chapters describes a different futures method. The chapters follow a similar outline: 1) a short historical summary of the method; 2) a description of the method; 3) how the method is used, in primary and alternative ways; 4) strengths and weaknesses of the method; 5) adoption in combination with other methods and 6) speculation about the future of the method and 7) a bibliography.

The methods are: Environmental Scanning; Text Mining for Technology Foresight; Delphi; Real-Time Delphi; The Futures Wheel; The Futures Polygon; Trend Impact Analysis; Cross-Impact Analysis; Wild Cards; Structural Analysis; The Systems Perspectives; Decision Modeling; Substitution Analysis; Statistical Modeling; Technology Sequence Analysis; Morphological Analysis; Relevance Trees; Scenarios; A Toolbox for Scenario Planning; Interactive Scenarios; Robust Decisionmaking; Participatory Methods; Simulation and Games; Genius Forecasting, Intuition, and Vision; Prediction Markets; Using Vision in Futures; Normative Forecasting; S&T Road Mapping; Field Anomaly Relaxation (FAR); Agent Modeling (demo software); Chaos and Non-Linear Dynamics; Multiple Perspective Concept; Heuristics Modeling; Causal Layered Analysis; Personal Futures; State of the Future Index; and SOFI Software System. Noteworthy, for over half of the chapters, the method's originator or a major contributor to that method, authored that chapter.

Of these methods, the following might be especially useful for teachers.

Environmental-Scanning

A cornerstone of futures research, Environmental scanning identifies early indicators and "weak signals" that suggest emerging alternative futures. Scanning techniques often include expert panels, database literature review, internet searches, hard copy literature review, essays on issues by experts and key person tracking and conferencing monitoring. Results are stored in a database.

Delphi

The Delphi is a method to poll a group on its ideas about the future, particularly when a specific event is likely to take place or what a specific quantity will be at a certain dates. The poll is anonymous so no one individual can dominate or unduly sway the group toward his or her estimates. The distribution of estimates is displayed, again anonymously, and discussed with special attention to the reasons that individuals might make estimates on either end of the distribution. As the polling and discussion continue, reasons for estimates and the overall group judgment emerges that represent that particular group.

Futures Wheel

The Futures Wheel is a form of brainstorming that identifies the consequences that could emerge from a significant change in the future, using the well-known mind-mapping technique. "The name of a trend or event is written in the middle of a piece of paper, then small spokes are drawn wheel-like from the center. Primary impacts or consequences are written at the end of each spoke. Next, the secondary impacts of each primary impact form a second ring of the wheel. This ripple effect continues until a useful picture of the implications of the event or trend is clear." As with all brainstorming, no criticism is allowed; people are encouraged to play off others' ideas, and only the most significant and surprising consequences are reported.

Cross-Impact

Cross-impact explores how a set of events or variables relate to each other in a square matrix of events and trends. The original quantitative version estimates the probability of an event or the size of trend based on the occurrence (or not) of the other events and the size of the other trends. The qualitative version simply fills the cells with the effects of one event or trend on all other events or trends.

Scenarios

Scenarios are a popular forecasting method which tap into the power of storytelling and paint a picture of future conditions. A scenario is not a specific forecast or a prediction. Rather, it uses the familiar narrative format, thus providing a versatile way to succinctly organize myriad future data while simultaneously demonstrating causal links from choices and consequences. Scenarios appear in two forms. A future history is a story of how the future develops from the present to some date in the f uture. A "day in the life" is a description of the world at that date that may or not look back on how the world got to be that way. A scenario focuses on the issues, threats and opportunities of what might

take place by a future date.

Causal Layered Analysis

Causal Layered Analysis is a method for investigating what lies beneath the trends and events we observe happening around us. The method consists of four layers –

1. The empirical layer (a.k.a. the litany) – the data we observe in the world today or in the world of the future

2. The systems layer – the mechanisms that operate beneath the surface to produce the data in the empirical layer.

3. The worldview/paradigm layer – the basic beliefs, values and assumptions that validate the systems layer and that make the world seem normal and consistent.

4. The myth/metaphor – the stories and images that teach people what is right and how to behave in group or a society.

The final chapter includes an easy to understand tabular taxonomy of the methods of futures research (qualitative, quantitative, normative and / or exploratory) and maps out where each method is used. Some caveats on forecasting and forecasts are provided before a discussion about using the methods in combination, as well as singly. Lastly, a consideration of how increases in computer power and Internet capabilities may enable global futures research to help decision making in a setting of future uncertainty.