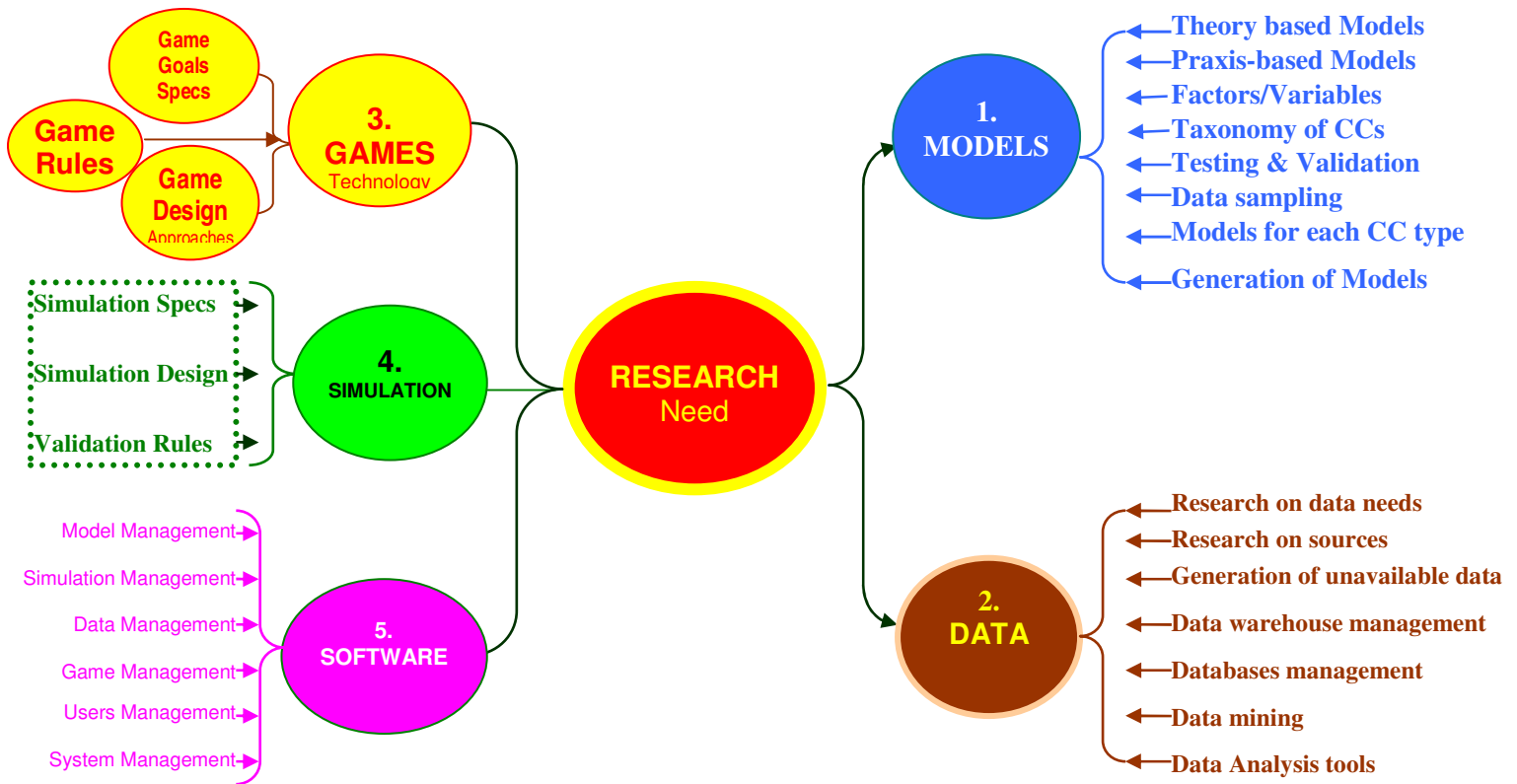


Virtu@1 CC Research

Conceptual Scheme for Research



Research Agenda

We will address the following issues and questions regarding models, Data, Simulation, Game, and Software System:

1. MODELS

- a. Summary finding from literature
- b. Theory-based versus Praxis-based
- c. Determination of variables involved
- d. Classification of Community Colleges
- e. Model testing and validation
- f. Data sampling for models
- g. Models for each type of Community College
- h. **Expected final outcomes:**
 - Modeling approach and its justification
 - A model for each process and for each type of community college
 - A procedure that allows easily automated update of models

2. DATA

- a. Data needs: identification, definition and classification
- b. Sources: IPEDS, National Surveys, Data warehouse; AACC, AIR
- c. What data is not available and how can we generate it (ad hoc research)
- d. **Expected outcomes:**
 - Data gathering approach and its justification
 - Justification of Data elements to be used
 - Development and maintenance of the data warehouse
 - Ad-hoc Data management automated procedures for downloading, retrieval, and update
 - Data elements, data dictionary and metadata for each process
 - Database design and data warehouse design
 - Data mining and analysis tools selection

3. GAME

- a. Definition and types
- b. Rules
- c. **Expected outcomes:**
 - Game design strategies and justification
 - Game specifications

4. SIMULATION

- a. Simulation classification systems
- b. Simulation methodologies for the models involved in the Virtual CC
- c. **Expected Outcomes:**
 - Simulation strategies and their justification
 - Simulation generating options and tools

5. SOFTWARE:

- a. Software to manage the modeling process and the simulation
- b. Software to manage databases and data warehousing process
- c. Software to manage the game: Game generators
- d. Software to manage the system
- e. **Expected Outcomes:**
 - Specification of interfaces and modules to manage the Virtual CC
 - Specification of possible Platforms:
 - Languages
 - databases and DB managers
 - System development environment and framework
 - System Security Specifications
 - Specification for software customization process.
 - General System specifications development strategy
 - System design methodology
 - Programming methodology
 - Documentation strategy and methodology

Next steps

The next charge for the technology team is to utilize the available manpower resources to perform the following parallel tasks:

1. **Task #1: Improve and enhance the mock up game (make it more realistic and build a narrated tutorial)**
2. **Task #2: Build a fully functional prototype: To build a fully working simulation game for enrollment management (approximately five months)**
 - a. **Research**
 - b. **Data Management**
 - c. **Modeling**
 - d. **Simulation and Game design**
 - e. **Software engineering**
 - f. **Alpha-testing and validation (internally)**
 - g. **Beta-testing and validation (externally)**

The technology team hopes that additionally funding in the form of a grant will be awarded soon to continue the development of the Virtual CC as planned.