

Pedagogical Framework



PLAY4GUIDANCE

A European Business Game to train and guide students and young unemployed on entrepreneurial, transversal and mathematical skills

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Description and analysis of the P4G theoretical context and pedagogical approach– Internal Report

P4G Pedagogical Framework

I. Pedagogical Principles Guiding the P4G Business Game

The pedagogical approach of the P4G project is achieved by taking a multi-disciplinary approach to examine a set of principles which are considered from *social-cultural approaches, psychological principles, gaming experiences and the technological point of view*. The P4G online interactive space in the form of a business game is addressing both theory development issues and learning purposes.

Following socio-cultural approaches, online interactive environments do not exist in isolation to the real-world but rather belong within a context where actors use common-sense practices to produce, analyze and make sense of one another's actions. "Situated actions" are unrolled in doing in situ where participants act and interact within an environment (Suchman, 1987). In this context attention is drawn to the character of instant interaction of people with technology rather than focusing only on the cognitive processes whereas at the same time players are exposed to varying levels of social interaction (Noy, et al., 2006; Rafaeli, Raban, & Kalman, 2005). Understanding the social and cultural influences requires getting to know the customers and think about the products or services from their points of view. The culture, attitudes, values and beliefs of consumers are the social factors that affect marketing. The usefulness of national culture as an analytical basis in international marketing research is discussed and the construct of national culture is placed in the context of layers of culture, ranging from global cultures to micro cultures (Steenkamp, 2001). Ethnicity is another socio-cultural variable that affects the marketing decisions (Vida et al., 2008). For example, in some cultures the wife still does all the cooking and cleaning, whereas in mainstream American culture, such an assumption is seen as offensive. Thus, sociocultural factors/variables (such as culture/ethnic identity, attitudes, cross culture difference, etc.) are the larger scale forces within cultures and societies that affect the thoughts, feelings and behaviors.

In the context of micro social approaches variables such as organizational structure and group structure are also examined. In terms of organizational structure, there is an effort to identify and elaborate on the mechanisms that facilitate or hinder the knowledge possessed by each group member to equal the knowledge possessed by the organization. Therefore, the variable of organizational structure addresses the issue of organisationally shared knowledge as directly dependent on the 'amount and nature of interaction' (such as willingness to share information and expertise, etc.), 'the organizational culture' (equality among group members, etc.), and 'the technology available to support group sharing' (Noy, et al., 2006). The second micro social variable

examines issues of group structure that influence and define the quality of collaboration and information/knowledge exchange among the group members. The issues examined in this variable are: (1) subjectivity in processing information, (2) trading behaviour, (3) intimacy-immediacy in mediated communication, (Lombard & Ditton, 1997) (4) professional context and individual competences and (5) normative (in enhancing one's position in the group and/or one's self image) and informational influence (as a task-centered issue) (Noy, et al., 2006; Jarvenpaa & Staples, 2000; Kaplan, 1987).

Following a psychological perspective, activity is a cycle that begins from the brain and, through the body and the world (such as business world), returns back constituting knowledge. The power of cultural structure can lead to the transformation of the problem solving activity (Wheeler & Clark, 2008). The way that a learner or group of learners interacts/interact with each other and with the technology/ business game -in a real world- could lead to new forms of gaming and learning activities and experiences which the designers have not anticipated. Psychological researches have studied self-perception, entrepreneurial self-image and/or entrepreneurial typology. A research found that experience as a small business person most clearly predicts entrepreneurial self-image and supported predictions of both direct and indirect effects of gender as well as direct effects of education and business degree (Verheul et al., 2005). In the P4G context, the psychological processes that are responsible for initiating and continuing goal directed behaviours (Schunk, Pintrich and Meece, 2010) are identified and analyzed through six principle perspectives (Sailer, et al., 2013): (1) the trait perspective (in terms of achievement motive, power motive and affiliation motive) (McClelland, 2009), (2) the behaviourist learning perspective (in terms of positive and negative reinforcement), (3) the cognitive perspective (in terms of performance orientation and mastery orientation-goals, expectancies, values of consequences) (Heckhausen & Heckhausen, 2008; Schunk, Pintrich and Meece, 2010), (4) the perspective of self-determination (in terms of competence, autonomy, and social relatedness) (Ryan & Deci, 2000), (5) the perspective of interest (with interest perceived both as an affective and cognitive variable) (Hidi, Renninger and Krapp, 2004) and (6) the perspective of emotion (in cognitive and motivational processes) (Astleitner, 2000). These perspectives are not contradicting but dependant on the focus of perspective and are used to inquire the underpinning psychological mechanisms of an online game and group interaction and engagement.

A gaming experience is a playful experience that can be described through the relationships between the players' actions and the systems' reactions. Players' actions are expressed by cognitive psychological, physical and emotional dimensions. Systems reactions are specified through the rules of the games. The relationships between players' actions and the system reactions are within a cultural framework and/or business context which specifies the players attitudes and prepositions to the playful experience. According to Brandenburger and Nalebuff (1995) 'Successful business strategy is about actively shaping the game you play, not just playing the game you find' which denotes the potential offered by an interactive learning environment for subjective experiences and objective outcomes to become intertwined. Culture includes the larger contexts engaged with and inhabited by the system (Salen & Zimmerman, 2003).

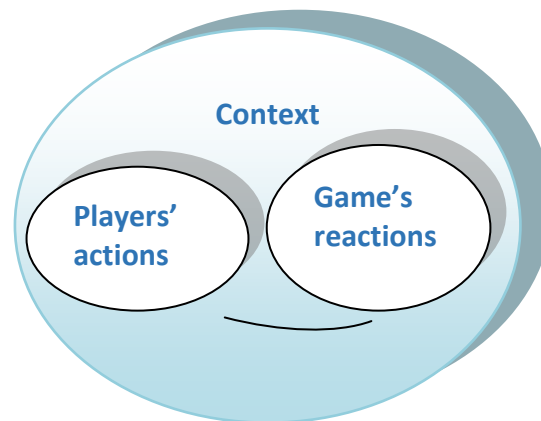


Fig. 1: Representation of the 'gaming experience' context

Before getting into the analysis of the players' actions, we'll focus on the system organisational structure as specified by the rules. Following a game design perspective, rules of game are categorised as operational, constitutive and implicit (Salen & Zimmerman, 2003). The operational rules are the guidelines players require in order to play. These become known to players through their own play or through the intervention of animators/mentors that introduce the game. The constitutive rules of a game are the underlying formal structures that exist "below the surface". These are not presented to players but advanced users may realise some of them, especially when they refer to unexpected system behaviour. These formal structures are logical and mathematical. Implicit rules are the "unwritten rules" of a game and refer to the game etiquette. These rules refer for example to how players will behave, etc.

Regarding the player's actions, a player's strategy will determine the action the player will take at any stage of the game. In game theory, the player's strategy is the key-element and involves any option he or she can choose in a setting where the outcome depends not only on his own actions but on the action of others. Analysing the players' interactions as they play a game, entails focusing on their strategies, both technically executed and verbally expressed, in order to make sense of the scientific concepts embedded in the game (Smyrniou & Kynigos, 2012; Kynigos et al., 2010). The verbally expressed strategies are revisited again and again during the play and for some of the players the rationale seems to change from action-centered to concept-centered, the longer they are engaged in the play. However, it seems that there are many implicit strategies that enhance meaning generation processes, based on different semiotic systems related to embodied or collaborative experience. These strategies seem to feed the players' meaning processes, as they interact with the environment and observe the outcome of their strategies and reshape their understandings accordingly.

Following a technological point of view, the P4G Business Game "Manage your own company" is a simulation game between teams, where each team has the task of managing from a strategic point of view their own business competing with the other in a market. The business game simulates a market of manufacturing companies, which operate by transforming raw materials into finished products, and are in indirect

competition for acquisition of scarce resources upstream, in the process of acquisition of raw materials from suppliers, and downstream, trying to sell finished products to customers. The rationale of the game lies on the users' training and guidance in the use of skills both quantitative and qualitative. The P4G business game is an online learning environment which acts as a replication and extension of the physical market world. However, the sophisticated interactive technology underpinning the game accommodates social and technical dimensions (player exposure to varying levels of social interaction and cognition, removal of time and space constraints, etc.) not always available in the physical world. It allows for user intervention and decision taking processes while it offers a specific and structured space where critical analysis of intertwined and complex information is necessary. Following the business game objectives for entrepreneurial training, skill relevant acquisition and efficient communication and collaboration among the participant members, the following five variables are examined: (1) computer mediated communication (CMC), (2) feedback, (3) decision support, (4) collaboration and (5) debriefing. Computer-mediated communication has been proven to generate more alternatives with more equal participation among group members and the greater the interaction and exchange of information and ideas among team members, the greater the learning from the simulated environment (Adobor & Daneshfar, 2006). In addition, feedback is a very important element in a technological environment designed for learning purposes and in the business game context is perceived both as a decision support and motivational contributor. The decision support variable addresses both the embedded script that aims to guide the users and the mechanisms and tool functions that facilitate the interconnection among the provided or registered information and data. Collaboration addresses the group work facilities provided by the technological environment and their efficacy in enhancing interaction among the group members perceived either as competitors or team members (Thomas, 2006). Finally, following a meta-cognitive approach it is essential for tools to provide users with debriefing techniques and comparative (in terms of group performance) outcomes in order for users to develop self-improvement skills (Summers, 2004).

The state-of-the-art

Gaming experiences in virtual multi-user gaming environments (such as Second Life and Active Worlds), as well as online mass games (such as World of Warcraft) provide opportunities to study users' experience with technologies from innovative points of view (Smyrniou & Kynigos, 2012). Providing close links between the game-play and the learning objectives and outcomes is a key challenge for using games effectively (Facer et al., 2004; Egenfeldt-Nielsen, 2007). Some educational games focus on designing experiences through construction of cities or civilisations (e.g. Civilisation II, Squire, 2006), through exploring patterns and associations of concepts (e.g. Zombie Division, Habgood & Ainsworth, 2011) and finally through "half-baked" microworlds which are explicitly designed to engage its users with changing it as the main aspect of their activity (Smyrniou et al., 2012; Kynigos, 2007). It is important to avoid the "chocolate-covered broccoli" design approach (Bruckman, 1999) where the game is used as a reward, separate to the learning task, since it separates joy from learning. Recent research on intrinsic integration between the game and its learning content (e.g. Habgood & Ainsworth, 2011; Kafai, 1996) proposes ways to motivate learners understand the learning task through play. Additionally other games allow learners to apply knowledge in "hypothetical worlds that are increasingly a part of how we work and play" (Squire 2006,

p.19). Survey studies also suggest that game experiences are changing a generation's attitudes toward work and learning, even though they are largely overlooked by educators (Squire, 2006; Beck & Wade, 2004). Therefore this business game will exploit game-based learning as means to engage young people with learning about business, maths, science, etc. Each team, as already mentioned, has the task of managing a strategic point of view their own business competing with the other in a market.

II. Identification of the P4G Business game learning objectives and their assessment

a) P4G Business game learning objectives

Having identified the set of principles that inform and support the structure of the P4G Business Game it is important to consider and clarify the specific learning objectives that the business game addresses and elaborate on their assessment process in order to provide a route map for designers to develop the game model. This attempt addresses both theoretical and practical issues that need to be considered in order to accomplish a complete and efficient guideline template with specific learning objectives and assessment points for the P4G Business game users.

The learning objectives are the result of different data entries and research examinations. Specifically, they have been formed based on the results of the Assessment Output (Skill Matrix), the P4G business game characteristics as well as the pedagogical theory related to online gaming which was mentioned in the first section. The identified learning objectives address two fundamental aspects of game engagement: (1) **users' skill development** which concerns the behaviour/development of the players as problem solvers and (2) **users' cognitive development** which is about the knowledge/learning about business and management sciences.

The first aspect of game engagement occurs as a natural element based on the expectations set and the 'modus operandi' of the game and therefore it is embedded in the pedagogical structure of the game. Throughout the game players are prompted and challenged to use available information and data in order to meet the game's expectations. By doing so they are engaged in cognitive processes that necessitate development and application of various and multifaceted skills. Players are instructed and guided to fulfill a set of tasks that consist of strategies that need to be designed and developed: a) make decisions on the evidence available to them, b) seek out further evidence, c) organize and examine evidence, d) conduct safe-to-fail tests (where they have insufficient evidence available to them) and e) decide and follow a strategy. Users by being engaged in such tasks have to practice and apply a set of skills in order to take informed and data based decisions. For example, users while examining evidence they need to sort out relevant and irrelevant factors, issues and facts; prioritize evidence for their given goal and develop a strategy for monitoring evidence in the light of dynamic changes in the game environment. In addition, in group situations they should discuss all the evidence and factors, listen to each other, and develop a clear strategy that they all agree to follow. This way the P4G business game users are engaged in hands-on activities provided in a realistic setting simulating real business conditions and market



needs that challenge a set of essential entrepreneurship skills such as problem solving Skills (Defining the problem. Generating alternatives. Evaluating and selecting alternatives. Implementing solutions), Analytical Thinking (The abstract separation of a whole into its constituent parts in order to study the parts and their relations), Creative Thinking, etc.

The second aspect of game engagement addresses the users' cognitive development and concerns their comprehension of the business practices of the game environment. This involves a set of learning objectives that specifically focuses on the users practice and acquisition of essential knowledge in terms of business terminology as well as business practices and sustainability issues. Addressing the users' cognitive development the following learning objectives have been identified:

- **Essential Business Understanding:** players should have a clear understanding of what their game/business goals are.
- **Supply Management, Production, Marketing Basic Skills:** players should understand the areas where resources need to be devoted (R&D, marketing, human resource, capital equipment, raw materials, logistics etc)
- **Critical Thinking:** players should understand what areas need to be prioritized at different stages in a business cycle.
- **Organization and Planning:** players should act with full knowledge of financial constraint and probity: ie understand cash flow, P & L, trading while insolvent, debt finance etc.
- **Communication and Cooperation, Leadership, Managerial Skills, Teamwork skills (in case of 'team' player scenario):** players should take turns, listen to each other, and record decisions.

b) P4G Business game assessment system

In our effort to design and implement an educational assessment approach that would be based on evidentiary arguments we adopted the Evidence-centered assessment design (ECD) (Mislevy, et al., 2003) as the most relevant and targeted approach to the P4G Business game learning objectives. Evidentiary reasoning (Schum, 1994) and statistical modelling allow us to identify and specify the kinds of observations that are required in order to assess specific knowledge and skills we aim to develop in students (Glaser, Lesgold, & Lajoie, 1987 in Mislevy, et al., 2003)) and are mostly efficient in cases of complex performances or when complex data processing is involved. Efficient assessment models should be tightly linked and informed by a set of interconnected factors such as the set inferences, the relevant observations that would ground them and the context for them to evoke.

The ECD provides a conceptual design framework based on the principles of evidentiary reasoning and is conceived as a most suitable assessment model for the P4G Business game not only due to its coherence among the reasonably interconnected factors but also for its support of the P4G simulation based assessment nature as well.

The ECD evolves on two basic models: a) **the Conceptual Assessment Framework (CAF)**, acting as the blueprint for assessment and addressing the operational elements of an assessment by providing the required technical details for implementation such as specifications, operational requirements, statistical models, details of rubrics, etc. and b) **the Four-process Delivery Architecture**, addressing the assessment delivery which involves the functions of selecting and administering tasks, the presentation of materials and capturing work products, the evaluation of responses and updating of the scoring record and accumulating evidence across them.

The Conceptual Assessment Framework

The CAF is divided into three models that address specific aspects of the assessment system and thus data processing is facilitated:

- **the Student model**
- **the Evidence models**
- **the Task models**

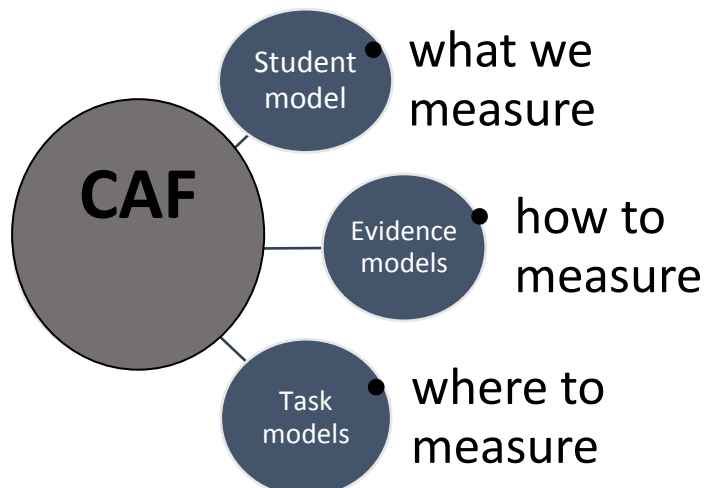


Figure 2: Representation of the CAF and its principal design models

The Student model addresses the measuring objectives. In other words, it defines the variables related to the knowledge, skills, and abilities we wish to measure. In the P4G business game the Student model characterises the user in terms of degree and nature of knowledge, required in different combinations in different tasks (eg. Problem solving

skills). Of course, at the beginning of the task-assessment process the probability distribution representing the user’s status will be uninformative but it will be updated according to his/her performance at the simulated tasks of the P4G Business game and finally evaluated in alignment to certain variables addressing some aspects of knowledge, skill, or ability. Figure 3 shows a student model for the P4G Business game simulation-based assessment that has variables for six areas of knowledge in the domain of entrepreneurship. The variables are defined with associations among aspects of knowledge and skill and they are used to synthesize evidence from task performance, in terms of a probability distribution over them.

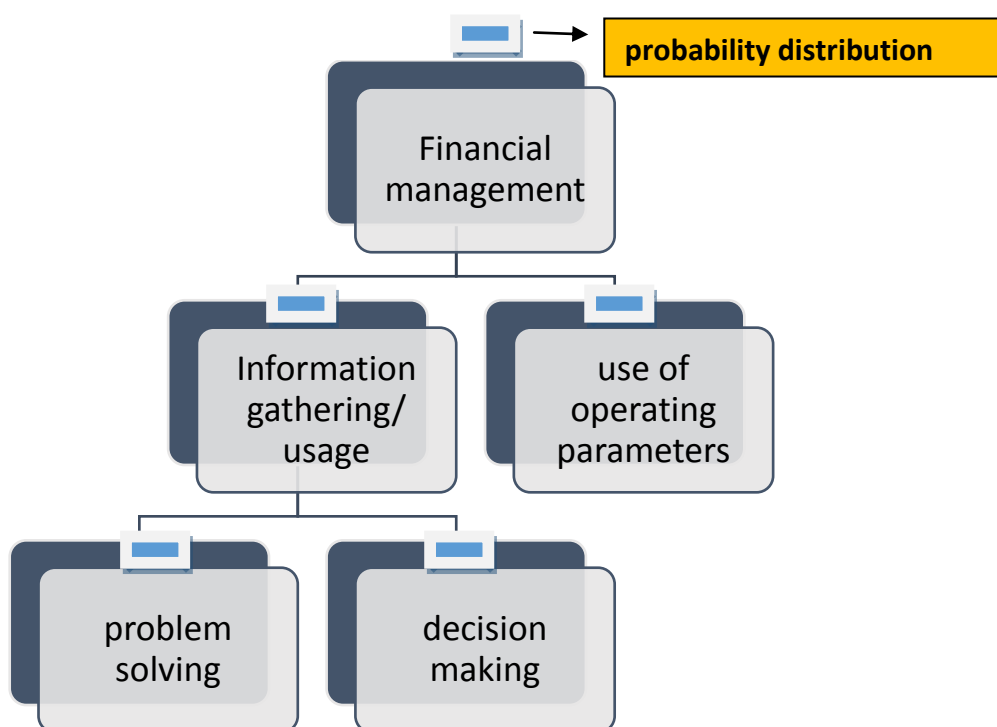


Figure 3: The Student Model for the P4G simulation-based assessment in entrepreneurship

The Evidence Models are informative in providing detailed instructions on how we should update our information about the student model variables by considering the users’ work products from tasks. The evidence model contains two parts: a) the evidence rules which characterize the user’s performance in terms of observable variables and concern the identification and summary of evidence within tasks and b) the Measurement Model which provides information about the connection between student model variables and observable variables and concerns the accumulation and synthesis of evidence across tasks, in terms of student model variables. In the P4G Business game several observable variables are evaluated from each task performance. In figure 4 there is the

measurement model for the scenario of addressing the company's supply needs. The five variables on the right represent observable variables, the two toward the upper left are two of the variables from the student model and the variable at the bottom center accounts for the dependencies among the observables that arise from evaluating multiple aspects of the same complex performance.

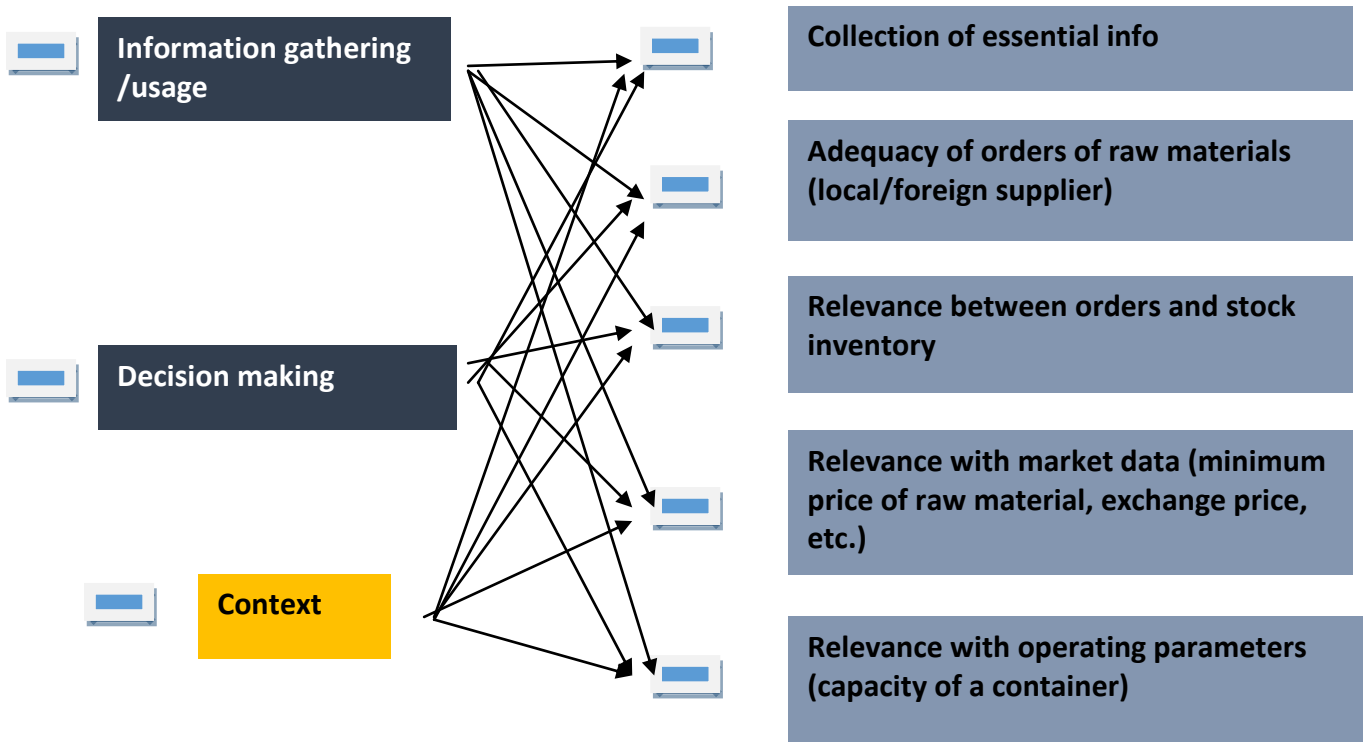


Figure 4: Example of the Measurement model of the P4G Business game

The Task Models guide us in the structuring of situations that are necessary in order to obtain evidence needed for the evidence models. They represent a family of potential tasks as structures for understanding and controlling evidential variation and contain task model variables that inform the presentation material and work products. A task model for the P4G Business game would evolve around the scenario of business operation and it would necessitate determining the values of variables that characterize key aspects of basic operational business processes, providing responses that seem to take into consideration and are relevant to certain data and operating parameters.

The Four-process Delivery Architecture

The Four-process Delivery Architecture consists a generic delivery framework of the Evidence Centered Design and contains four essential processes that inform the

assessment delivery whether it is carried out by humans, computers or human-computer interactions.

- **The Presentation Process**
- **The Response Process**
- **The Scoring Process**
- **The Activity Selection Process**

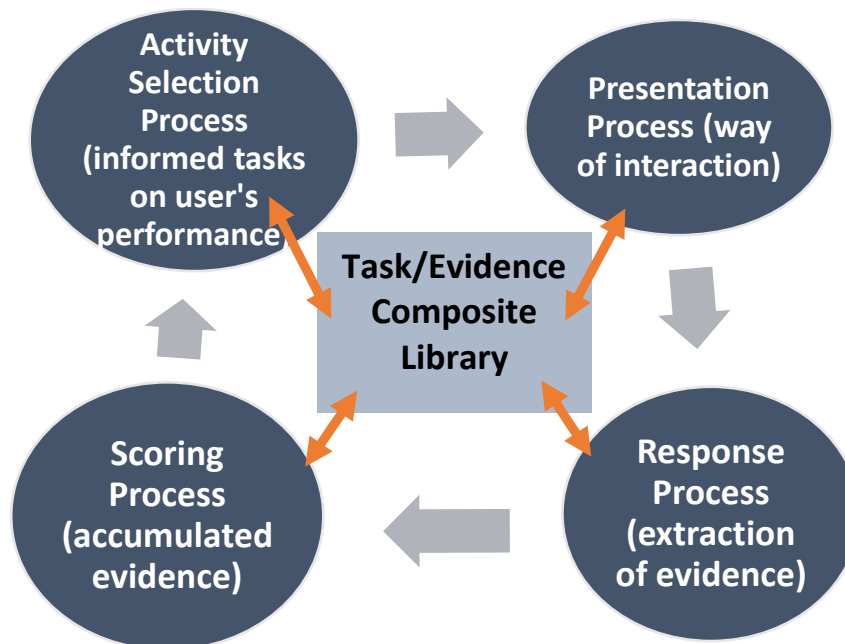


Figure 5: The Four-process Delivery Architecture (Mislevy, et al., 2003)

The Presentation Process is responsible for presenting the task to the users and all supporting presentation material as well as gathering up the work products. In the P4G Business game the presentation process concerns administering simulation tasks to users. These tasks involve presenting a customized sequence of items to users and after each item capturing the response so it can be evaluated on the spot to direct the selection of the next item.

The Response Process is responsible for identifying the key features of the work product or the observable outcomes for one particular task which revert back to the user for task-level feedback and/or on to the summary scoring process. In the P4G Business game assessment system the response process is guided by sophisticated algorithms and consists of running automated rules on the sequence of actions carried out by their users in their effort to identify salient features and their resulting interconnection when the variable values change.

The Scoring Process is responsible for accumulating the observable outcomes across multiple tasks to produce section- and assessment-level scores. The P4G Business game "Manage your own company" is a simulation game between individual users or teams, where each one has the task of managing a strategic point of view their own business competing with the other in a market. The aim of the game is to maximize the value of the company, assessed in terms of operating margin, recruitment policies, and the growth rate of investment and the financial results of the company itself. It is divided into rounds, each round simulating a month of activities of the company and the market. During each round, each team or user analyzes the current situation of the company and the market, quantitatively specified by a set of "status" variables that describe precisely the situation of the company and makes decisions on the operational and strategic management of the company, assigning quantitative values to a set of "input" variables; These decisions, along with those taken by other teams and a set of control parameters assigned by the manager of the game, determine the new situation of the company and of the market. The users are assessed in their performance during their engagement in the companies' activities which are organized in three general areas: the management of supply, the production management and the management of marketing and sales which are based on the rationale of decision-result data.

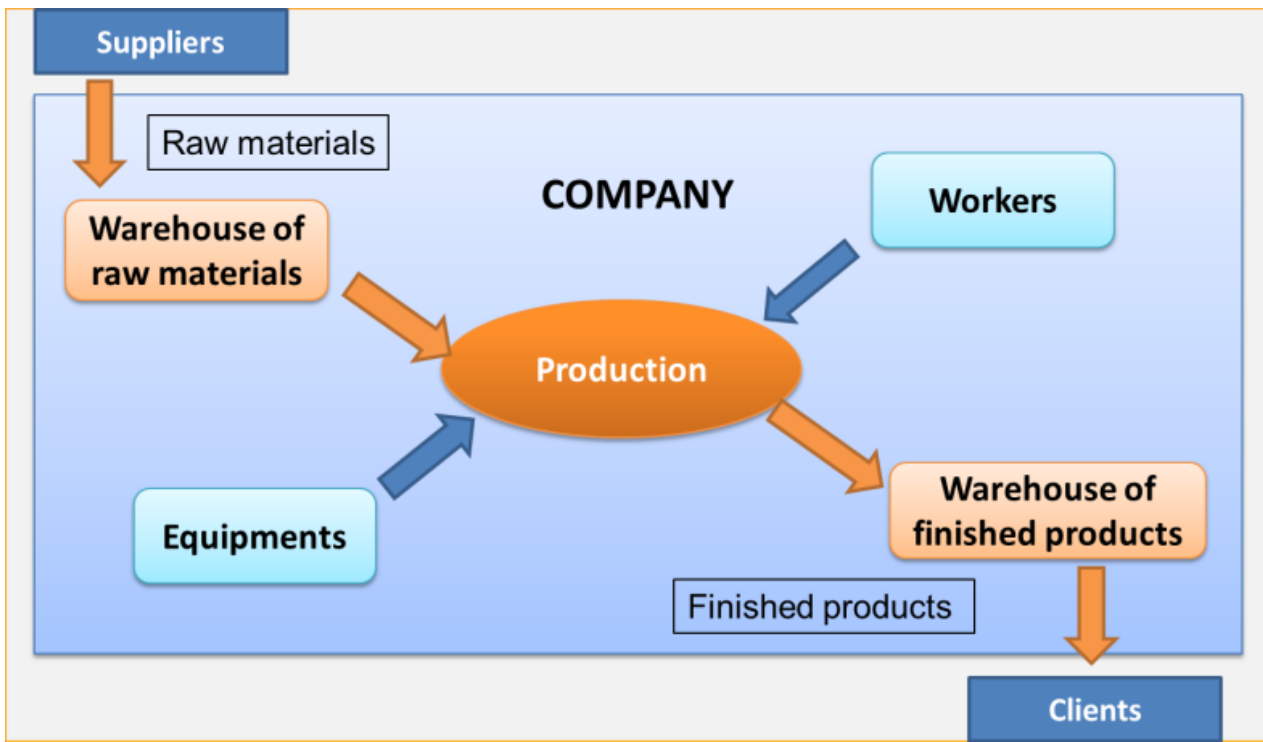


Figure 5: The Company's activities

In the P4G Business game the different companies/teams have tools to interact directly with one / against the other since the scenario guiding the game involves business competition. Therefore, the summary scoring process involves not only the company's performance in its operating areas but also a comparative configuration against the other companies' performance.

The Activity Selection Process basically determines the next task or level that the user should undertake. This is accomplished with the use of data concerning the current state of the user's performance occurring by the Summary Scoring process. In the P4G Business game together with the scoring data there are also provided instruction modes and information data the user can consult but this depends on his decision. Moreover, in the game the activity selection process include both linear sequencing addressing a specific area (although the user may choose the order in which to answer items within each section as it is administered), and user choice as to which area or set of items to deal with first.

However, the operation of the Four-process Delivery Architecture could not be possible without a repository bank that would provide all four processes with relevant data. To this aim the **Task/Evidence Composite Library** (shown in fig. 5) is a central element of the Delivery Architecture and consists a unified database storing essential information for all four processes.

III. Table of learning goals and their evaluation

Domain Analysis and Modeling

Prior to assessment implementation and design of activities it is necessary to apply a Domain Analysis approach in order to define the main relevant areas to the domain and the specific knowledge and skills we aim to develop in students. From the Domain Analysis important elements occurred that enabled us to design and develop in the simulation environment of the P4G Business game activities and situations that are central to the domain of entrepreneurship.

Following the Domain Analysis approach for the P4G Business game three general areas were defined for entrepreneurship based on which activities should be structured:

- **the management of supply**
- **the production management**
- **the management of marketing and sales**

Therefore, activities should involve tasks on the strategy of the company and students making choices in relation to these three business areas. However, variable characteristics were also defined for each of these areas as important elements that would cognitively engage students in the construction of domain knowledge and development of relevant skills. Relevant business skills and competences were also identified through a literature survey carried out by DCU (Deliverable D2 .1). The variable characteristics of each of the three areas related to:

- ✓ decision-making
- ✓ the results obtained
- ✓ market data
- ✓ the operating parameters

Having identified and defined specific domain knowledge and skills that should be embedded in our business game the next step was to structure a relevant business scenario that would include all these parameters in the form of learning objectives. As a result the P4G business game scenario was structured on the focal point of maximizing the value of the company, assessed in terms of operating margin, recruitment policies, and the growth rate of investment and the financial results of the company itself; tasks that would necessitate for their elaboration the application of cognitive skills, knowledge and competences that apply to all three areas and would necessitate the use of their variable characteristics.

The Domain Analysis provided data for Domain Modeling and enabled us to make informed decisions on the representation of the key aspects of the business domain. As a result the three main areas were visually categorized to facilitate linear sequencing and clustering of relevant data and information. Each area included relevant conditions that should be considered and dealt with in order for the users to make appropriate decisions. In addition, the company's data as well as comparative data from other companies were presented both in terms of numerical information as well as graphs portraying and evoking the development of basic mathematical skills. The P4G Business game was also structured with certain functionalities that aimed to guide users on following strategies and steps and provide them with updated feedback. For example, the function "Last turn results" displays the page with the data (decisions, results overview, market data) relative to the previous round in the current year and the function "Result overview" displays the page with the data (decisions, results, and market data) from all the rounds already played. The business game interface was projected in the form of pages involving a list of variables with their values by side. Users are also guided by the game with constantly updated information on the variable values (icon displaying a histogram) or text explanations of the meaning of the variable (icon of a question mark). Moreover, the

system is designed to enable the user to enter data relating to his decisions and communicate his decisions to other teams, via the Internet.



Figure 6: Example of the P4G Business game page display

The Domain Analysis and Modeling approach together with the ECD enabled us to proceed with the assessment implementation process. The Domain Analysis and Modeling enabled us to define the activities and situations central to the domain and the knowledge and skills that we aim for our users to develop and the ECD allowed us to structure and develop the assessment delivery process by taking decisions on the ways users should interact with the activities, performance measurement and statistical models and feedback mechanisms.

Table of learning goals and their evaluation

Both users' skill development and users' cognitive development should be assessed either by the system or through external evaluation tools at different periods (before, during and after a game session) during the users' engagement with the game. However, the evaluation conditions and criteria will heavily depend on the structure of the scenarios

in terms of users involved: 1. single player (online, with one player) and 2. “team” player (in presence, 3 or 4 players or online against other team/s).

№	Category of competence	Description of the competence	Description of level of mastery			Relation to Game
			Weak	Average	Good	
01	Analytical Thinking	The ability to analyze problems systematically. Objectively assess the situation, including facts and events related to the business. Analyze alternatives and make choices for the development of qualifications and focusing on perspective areas.	At peace with the situation. Waiting passively to improve the situation in the business. Not analyze their own potential and opportunities.	Seek external assistance (counseling) in decision-making.	Analyze the situation, assess their capabilities, qualities and potential. Taking decisions to improve in line with the needs and perspectives of the market. Evaluate different alternatives, trends and patterns.	Well covered (analysis of relations of variables, decisions, ...=)
02	Business Acumen	The ability to discover opportunities and transform resources into performance Take matters into their own hands. Search, find and exploit new profitable opportunities for business development.	Not interested and misses opportunities. Shows indecision and lack of ambition. Afraid of change and of taking responsibility. Limited autonomy, relying on the help and the activity of others.	Use resources to achieve moderate results. Relying on traditional methods and approach with routine. Skeptical of novelty and innovation. Not willing to risk in situations of uncertainty.	Not satisfied with the achievements. Drafts projects, assesses risks, plans and effective using of resources, predicts results. Shows resourcefulness, courage, innovation, proactivity and entrepreneurship.	Partly covered: decisions to increase market share (e.g. utilizing the foreign supplier)
03	Client / Service Orientation	The ability to meet the needs of both internal and external customers. Ability to present the qualities and skills in the context of the benefits of products / services to potential customers. Ability to defend and justify the added value of their work in terms of the expectations of internal and external customers.	Not interested in the specific interests and needs of internal and external customers. Shows no awareness and sense for the requirements and customer needs.	Shows awareness of the market, products and customer requirements. Not able to justify their role in the formation of added value for the customer.	Invest time and effort to understand the customer requirements and create processes, finding solutions that satisfy the customer. Examine customer needs and strives to meet and exceed customer expectations; takes the customer satisfaction as their own top priority.	not covered possible activity: reflection after the game
04	Commitment to Learning	The ability to actively pursue learning and develop competitiveness Proactive search and utilizing opportunities for further training, retraining and development of new skills that are needed to improve the organization and its workforce.	Relies on the current qualification.	Participates in different forms of training with the aim to refresh their own knowledge.	Identify and exploit opportunities to learn, to receive feedback and to develop by knowing well their own strengths and areas for improvement.	covered (e.g. training workers, investing in HR, spending for market research)
05	Communication	The ability to effectively receive and	Not able to listen, does not select the correct	Perceives the information	Deals with various means of expressions and	not covered

		express information or feelings. Ability to understand ourselves and others. To present ourselves, our skills and ideas within different business contexts and situations. To understand the messages of others and to give effective feedback.	means of expression. Does not justify well and not able to influence others. Does not control his emotions.	adequately, knows techniques of persuasion and influence, but has a low emotional intelligence. Does not control the body language.	presents the ideas in a clear and structured manner; adapts his own style of communication to the audience and communicate effectively with various people. Shows charisma, tact and high emotional intelligence.	as a parallel activity (moderated)
06	Conceptual Thinking	The ability to recognize patterns or trends in a problem Ability to apply theoretical knowledge and conceptual models in practical situations.	Poor application of conceptual knowledge. Inability to use information and knowledge in solving practical problems.	Well prepared theoretically, but lacks practical skills.	Able to identify patterns, relationships and trends in practical situations. Mobilize and adapt the own knowledge in solving specific problems. Use and apply best practices.	covered, probably not possible to assess parallel activity on SCM
07	Order and Quality	The ability to reduce uncertainty and to control quality. Demonstrating good organization and knowledge of business etiquette. Demonstration of readiness to reduce uncertainty, knowing and observing specific standards, rules and requirements to ensure quality.	Making errors, omissions and inaccuracies in the preparation of application documents. Low culture in the implementation of business etiquette. Inability to demonstrate organization and knowledge about specific rules, standards and requirements.	Good organization and precision in the drafting of documents when applying for a new job. Knowledge of standards and requirements for the job. Inability to justify the role of the position in the quality management system.	Proactively contributing to quality in everyday situations. Demonstrating good organization, precision and personal effectiveness. Readiness to provide quality, for conscious and responsible fulfillment of the commitments taken by respecting the contractual agreements, standards, rules, terms and conditions.	partly covered (quality of product) parallel activity on quality, standards, regulations, ...
08	Developing Others	The ability to help others make progress Ability to work in a team and cooperation with others with a focus on others' personal and professional development. Demonstrate a willingness to share knowledge and experience.	Focus on own development and advantages. Inability to work in team, lack of commitment to the collective goals and results.	Good coordination and interaction with others. Sharing knowledge and experience when required administratively.	Demonstrates a willingness to exchange knowledge and experience, advise and assist the people who s/he works with, promotes and assists the professional development of others.	not covered parallel activity (when working in teams, reflection)
09	Empathy	The ability to understand and respond to the concerns of others Ability to adapt and socialize quickly to the organization and individuals. Demonstration of readiness for understanding and commitment to the care of others.	Egocentrism, inability to find a common language with others and to manage interpersonal relations.	Difficult and slowly adjustment and adaptation to a new environment	Rapid adaptation and deployment of the professional potential. Responsibility to interpersonal relations. Demonstration of readiness for understanding and commitment to the care of others.	not covered Activities on organizational culture, CRM, ...
10	Expertise	The ability to perform professional jobs.	Low competence, inability to learn from	Rely on routine knowledge and skills	High professional competency, strive	partly covered: measuring

		Expertise describes Professional competency in terms of domain knowledge and skills.	the experience of others, low motivation to improve own knowledge and skills. Basic knowledge in the domain.	acquired in the past. Does not demonstrate readiness for professional development.	demonstrated for permanent improvement. High knowledge to solve complex situations in the domain.	differences between games, effectiveness of decisions
11	Flexibility	The ability to effectively adapt to a variety of situations. Ability to effectively adapt to new situations, environments and requirements. Striving to learn new skills and requalification. Tolerance to change and vagueness.	Rigidity and resistance to change. Inability to adapt to new conditions.	Changing attitudes and behaviors under external pressure.	Seeking change productively and adapting to novelties. Challenges are motivating	covered: new situations
12	Influence	The ability to influence thoughts and actions of others. Ability to persuade, to cope with opposition and to influence the thoughts and behavior of others, assertiveness.	Inability to justify and defend positions.	Using routine and habitual techniques of persuasion and influence without complying them with the characteristics of the people who are contacted.	Possess and apply successful methods to influence the thoughts and behaviors of others, consistent with the context of the situation, goals and attitudes of the people with whom the contact is.	not covered possible activities: alliances, strategic cooperations possible tools: chat besides the game
13	Information Seeking	The ability to find and capture information to increase knowledge or find solutions. Ability to use information and communication technologies. Finding and selecting the information necessary to solve problems. Ability to select appropriate sources to collate and assess the information, and to apply it in practical terms.	No orientation in the search and selection of information. Does not know and does not use appropriate and reliable sources. Does not examine and does not use new information in solving practical problems.	Actively seek and select information. Not able to select and retrieve basic information.	Ability to use ICT in the daily work. Correct selection of sources of information. Ability to get oriented, to select information and retrieve data that are important for solving practical problems.	covered: function on market research possible extension: hints / comments / annotations / external sources parallel activities: external resources connected
14	Initiative	The ability to be a self-starter and to meet the challenge of higher level objectives. Activity on the market to proactively develop an enterprise. Orientation to action. Exploring new opportunities and undertaking action related to successful business activities.	Passive and time-serving position. Permanently discouraged in the job search. Shows no desire for self-improvement.	Showing activity and initiative with the job searching. Not making efforts to improve own competences.	Proactively investigate opportunities and apply for a new job. Optimal using the lack of employment for professional development in view of new employment and stability in the labor market.	partly covered
15	Innovation	The ability to make something new and to improve performance. Ability to create something new on the	Lack of creative ideas and entrepreneurial spirit. Inability to shake off routine and to think unconventional and	Generate innovative ideas but lacks determination and autonomy and is afraid of risk with their	Actively generate new ideas and commitment to their implementation. Showing flair for new, original, unconventional	partly covered: decisions on technology investment (process)

		basis of which to launch a proper business project towards market maturity. Ability to show ingenuity, creativity, to generate and implement new ideas.	innovative	integration.	realisation.	innovation) possible extensions: introducing new products (after investing in R&D) activities: creation of new products
16	Organizational Awareness	The ability to recognize the power relationships in organizations. Create a realistic picture of the characteristics, nature and corporate objectives of the organization. Demonstrating commitment and clear understanding of the organization and its culture.	Insufficient awareness about the organization, the role and functions of the position which to apply for.	Good knowledge of the requirements for the position, but little awareness of the organization.	Awareness of the management structure, processes, products, customers and working conditions in the organization. Demonstrate knowledge and understanding of the own role.	not covered
17	Personal Motivation	The will to succeed. Will and ambition for success in the realisation on the market.	Discouragement. Lack of a clear goal. Reliance on random factors, and not on the own targeted actions. Unclear professional interests.	Striving to find "whatever" job. Extrinsic motivation connected with ensuring any incomes.	Will and ambition for realization in the area of professional interest. Intrinsic motivation connected with the feeling of professional success and labour satisfaction.	partly covered when finishing the game
18	Relationship Building	The ability to build and maintain personal networks. Establishing and maintaining useful contacts that help finding information about business opportunities.	Isolation, alienation, passivity in building and maintaining contacts and relationships.	Relationship building and maintaining contacts with the aim of the business with existing partners.	High activity in the market and professional networks. Initiativeness and efforts in searching of work, using a broad network of links and relationships with customers / partners, institutions / individuals.	not covered parallel activities
19	Results Orientation	The ability to set performance objectives, resulting targets and measures. Setting realistic goals and taking adequate measures in the process of business and personal development.	Inability to set clear and realistic goals for personal and business development.	Setting clear and realistic goals for personal and market objectives. Being inactive to retrain in accordance with the new opportunities and demands of the market.	Setting clear and realistic goals against the personal professional qualities and the situation on the market. Actively seek and exploit opportunities with realistic goals. to develop skills that are demanded by the labor market.	partly covered (scores) possible extensions: setting targets (also as a side activity)
20	Self-Confidence	The ability to express oneself in a different / hostile situations. Ability to successfully present and express skills, potential and qualities in an environment that is skeptical about people with his/her social status. Objective assessment and confidence in their own abilities.	Limitation, reconciliation, anxiety, conformism	Having an objective judgment and confidence in their own abilities. Successfully managing and expressing in a traditional environment in unconventional situations, losing confidence and ability for accurate self-assessment.	Having an objective judgment and confidence in their own abilities. Coping to express themselves and prove their personal qualities and professional potential in all kind of situations.	not covered

21	Self-Control	<p>The ability to manage one's emotions under pressure or temptation. Ability to control your own thoughts, feelings and behavior. Keeping cool in contingency, tense and critical situations. Tackling and mastering states of stress and anxiety.</p>	Depression, emotional instability, tension, anxiety, low performance.	Able to control thoughts, feelings and behavior in habitual environment. Losing self-control in a provocative environment and tense situations.	Able to control thoughts, feelings and behaviors in any kind of situation. Keeping cool and controlling reactions in conditions causing tension and stress..	not covered
22	Team Leadership	<p>The ability to create a favorable environment and mobilize people to succeed. Ability to express leadership qualities to demonstrate readiness, skills and experience to work with people, taking responsibility, communicating goals, planning, organization and control.</p>	Willingness and inability to assume responsibility for the work of others.	Demonstrating leadership and management skills, but lack inexperience in team management.	Demonstrating leadership and management skills, motivation and experience in team management.	not covered parallel activity (when teams play the game)
23	Basic competences	<p>Ability to apply basic knowledge needed for running a business. Ability to apply basic related concepts such as mathematics, law, economics and finances</p>	Basic problem solving for routine problems	Solves problems independently also in new / uncertain situations	Creates new problem solutions also in highly complex situations	partly covered (e.g. production forecasting)
24	Decision making	<p>Ability to make decisions. Ability to apply decision making models in different situations. Ability to find decision alternatives and information to support the decision process.</p>	Basic application in small teams for simple problems	Solves problems independently also in new / uncertain situations in medium sized teams	Creates new problem solutions also in highly complex situations and in large teams / organizations	covered (decision making)
25	Personal determination	<p>Ability and attitude to reach given objectives. Ability to positively react to different situations in an optimistic, determined, endurable manner</p>	Reacting positively in routine situations	Reacting positively in situations of conflicts / problems	Reacting always positively, independently of the complexity of a problem / challenge	not covered

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