

# *Instructional Design Plan:* ***The Dollar Game***

The University of Idaho Extension  
**Department of Agricultural Economics and  
Rural Sociology**



**Version 1.1**

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# 1. ANALYSIS PHASE

## 1.1 PROJECT DESCRIPTION & NEEDS ANALYSIS

### Client:

University of Idaho Extension Department of Agricultural Economics and Rural Sociology with the support of United States Department of Agriculture National Institute of Food and Agriculture (USDA NIFA) and the Rural Policy Research Institute (RUPRI).

### Mission and Vision:

“The Department of Agricultural Economics and Rural Sociology provides education, research and Extension programs, with particular focus in agribusiness, marketing, trade policy, production agriculture, natural resources and community development.” (University of Idaho, 2017b).

### History of the Futures Board Game:

Many rural communities experienced a steady economic erosion during the past five decades. They often see their best and brightest move away for college, unlikely to return to the limited employment opportunities at home (Carr & Kefalas, 2009). With fewer taxpayers, consumers, and workers, community leaders in these communities are struggling to create (or recreate) a more sustainable base. They are eager to learn about job creation and durable economic growth. The subject of economics has therefore become a more important component in Extension programming, particularly in community development. Examples of programs that have an explicit or implicit component of economic development are entrepreneurship development, farm-to-market, down town revitalization, tourist attraction, and leadership development.

Extension programs can be a considerable investment of time and energy, for both community and Extension. Often, they are a commitment at the exclusion of other programming - which, if the program is the wrong fit for a community, can represent a major opportunity cost and sometimes decades of continued economic erosion. To embrace the right program, community leaders need to understand their local economy, particularly with respect to the dependence on imports and exports, and the different type of job creation that goes with each.

## Instructional Context:

The Dollar Board Game has been effective in traditional workshop environments but does not directly translate in remote training or online learning situations as it is played in the classroom. The Dollar game was played as a group activity and utilized scenarios, and game tokens that are handed out to the groups. The game is facilitated by the instructor who leads the discussion and guides the learners through the learning process. The overall goal is to create an online educational game that mimics the learning outcomes of the classroom board game but in a single player format. This game will be offered as a part of an online course to participants from all walks of life. The client would like to implement the online game in early of 2018.

## Needs Analysis Narrative:

The proposed Dollar Game will need to be accessible online to students enrolled in the corresponding distance learning course. The proposed Dollar Game will be a scenario based game that allows the learner to select their role which will correspond to their choices in the scenarios and the outcome of the game. The game will be asynchronous and a single player game without the capability to save the progress of a game session. The game will present scenarios, and choices of action. Based on the choice of action the game will present economic outcomes in the form of reflection, and dialogue.

## Limitations:

The proposed Dollar Game is a simplification of the process of economics. It will be utilized to teach basic concepts and is intended to introduce learners to the topics that affect an economy. In order to facilitate learning in a short span of time, the game does not explore the complexities of economic factors and is intended as a precursor to a more expansive community development program.

## 1.2 LEARNER CHARACTERISTICS & PERFORMANCE GAP ANALYSIS

### General Characteristics

The target audience is comprised of adult learners ages 18-65+ years of age. The target audience is gender neutral, with a good grasp of the English language. Life experience is varied throughout the target training group as is education level. Learners come from

a variety of local businesses and government entities. Educational level ranges from high school to post-secondary educational degrees and higher.

## Specific Entry Characteristics

Basic computer skills including typing, word processing and mouse skills are required to successfully navigate the course. Effective communication skills, basic reading skills equivalent with a high school education is required. Knowledge of their individual organizational mission, goals and operations will facilitate the learning process. Ability to sit for prolonged periods at a computer screen is required.

## Learning Styles

Learning strategies should be optimized to support adult education due to the age of the audience. Due to the age gap, learning materials should be designed with visual and auditory aids in mind. Universal Design Principles should be applied whenever possible to create an accessible learning environment and product.

## Performance gap analysis:

The Dollar Game is currently used in onsite workshops and is available through the University of Idaho College of Agriculture Extension Program website. This classroom game although effective, reaches a limited audience due to limited travel, budget, and time available for the facilitators of the workshop. Potential learners also have limited resources (time, travel, budget) that impact the ability to attend regional workshops.

## 1.3 CONTEXTUAL ANALYSIS

### Audience

Today's learners are mobile and utilize a variety of electronic devices for learning. Any online game must be created using responsive design technologies that will not limit the learners to using just a standard computer or laptop. Additionally, adult learners vary in their technical skill set. It is therefore important that the game be intuitive and easy to navigate.

## Instructional Environment

Each learner will provide their own equipment and physical environment for learning activities. It is recommended that the learner consider the following factors when selecting their learning environment.

Environmental Factors	
<b>Lighting</b>	Adequate light to view screen
<b>Noise</b>	Location that promotes reduced noise to facilitate concentration
<b>Temperature</b>	Comfortable temperature for work
<b>Seating</b>	Ergonomic seating
<b>Equipment</b>	Viewable screen size, device speed, networking capabilities
<b>Network</b>	Fast internet speeds via wireless or wired access

### 1.4 TASK ANALYSIS

#### Task Analysis Outline:

- I. The Dollar Educational Game
  1. Define the general game rules, objectives, and desired learning outcomes.
  2. Introduce Learner to their game role of Co-Op Manager and their vendors (Trading Center, Labor & Materials Provider, Bank, Processing Center)
  3. Show starting wealth (Tokens & Dollars)
  4. Round 1: Steady State Concept
    - a. Rules
    - b. Gameplay scenario
    - c. Complete task list
    - d. Evaluation of Dollars & Tokens at end of Round 1
    - e. Reflection
  5. Round 2: Innovation Concept
    - a. Rules
    - b. Gameplay scenario
    - c. Complete task list
    - d. Evaluation of Dollars & Tokens at end of Round 2
    - e. Reflection
  6. Round 3: Wealth Sharing Concept
    - a. Rules
    - b. Gameplay scenario

- c. Complete task list
- d. Evaluation of Dollars & Tokens at end of Round 3
- e. Reflection
7. Round 4: Export Concept
  - a. Rules
  - b. Gameplay scenario
  - c. Complete task list
  - d. Evaluation of Dollars & Tokens at end of Round 4
  - e. Reflection
8. Round 5: Distant Ownership Concept
  - a. Rules
  - b. Gameplay scenario
  - c. Complete task list
  - d. Evaluation of Dollars & Tokens at end of Round 5
  - e. Reflection
9. Round 6: Imported Labor Concept
  - a. Rules
  - b. Gameplay scenario
  - c. Complete task list
  - d. Evaluation of Dollars & Tokens at end of Round 6
  - e. Reflection
10. Game Wrap-Up
  - a. Lessons Learned
  - b. Knowledge Check
  - c. Reflection

## 1.5 PROCEDURAL ANALYSIS

### Learner Objectives:

- The learner will gain economic insights that are very difficult to replicate in a traditional classroom setting:
  - Understand internal economic growth
  - Value added productivity and wealth distribution
  - Risks and rewards of export growth
  - Effect of distant ownership and value-added activity
  - Impact of commuting from one community to another for work
- The learner will internalize complex economic concepts like value added and wealth concentration.

- The learner will experience how import and export activities can fundamentally alter the economy's structure
- The learner will reflect on decisions and focus on outcomes.

## 2. DESIGN PHASE

**Purpose:** To provide a blueprint for the design of The Dollar educational game.

### 2.1 SEQUENCING DESCRIPTION

#### Justification of Sequence Scheme:

The Dollar educational game is a branching scenario based game. The learner makes decisions which then provides an impact on the economic health of the community. This branching scenario dictates the flow of the game.

- a) Selection of role
- b) Introduction of scenario, general rules and learning objectives.
- c) Round rules
- d) Game play scenarios
- e) Decision points
- f) Evaluation of Dollars & Tokens
- g) Reflection on economic impact
- h) Knowledge test
- i) Reflection
- j) Feedback mechanism

### 2.2 INSTRUCTIONAL MESSAGE

Although games and simulations are generally engaging to learners, not all games and simulations meet the educational needs of learners. "Simulations and games are teaching and learning methods in which participants are directly involved in making decisions and learning from the outcomes of these. Their active, student centered nature means that they are memorable and highly motivating. They enable the exploration of the complex nature of the real world and interdisciplinary, interacting



subjects as well as the more basic needs of understanding, doing and skills practice” (Society for the Advancement of Games and Simulations in Education and Training, 2002). Selecting games or simulations that facilitate the learning process involved asking the following questions:

- Is the student directly involved in making decisions and learning from the outcomes?
- Does the activity enable exploration of the complex nature of the real world?
- Does the game include tasks that provide elements of engagement, decision making, and knowledge acquisition from a new perspective?
- Does the simulation activity require students to role-play or to assume a new perspective?
- Does the game or simulation provide a safe environment for exploration?

(Conrad and Donaldson, 2012)

The Dollar game will allow the learner to explore how economics can impact a community’s growth and future viability.

### Game Learning Objectives:

1. The learner will be able to explain how demand drives demand in the circulation of money.
2. The learner will be able to describe how to apply the compounding effect in economies
3. The learner will be able to describe how innovation and export increase prosperity.

### 2.3 STRATEGIES TABLE

The overall goal of this project is to bring the classroom game to the distance learning environment and make it accessible to a greater audience.

Rule	Strategy	Implementation
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Scenario based decisions	Different roles pertaining to economic areas.	<ul style="list-style-type: none"> <li>• Provide opportunities to access all types of data.</li> <li>• Show different viewpoints.</li> <li>• Provide opportunities to change course by multiple opportunities for decisions.</li> <li>• Provide future outcomes.</li> </ul>
Multimedia	Providing information in different formats.	<ul style="list-style-type: none"> <li>• Use varied multimedia strategies for maximum impact.</li> </ul>
Feedback	Survey feedback and results.	<ul style="list-style-type: none"> <li>• Allow learners to see what impacted other learner's decisions.</li> </ul>
Assessments	<p>Gauge the learner's knowledge application.</p> <p>Promote deeper learning by encouraging reflection.</p>	<ul style="list-style-type: none"> <li>• Provide quizzes for self-knowledge check.</li> <li>• Provide opportunity for reflection.</li> </ul>

## 2.4 TEXT DESIGN

### 1. **Typography:** Fonts used are Verdana, Arial, and Georgia.

- **Verdana** is the easiest font to read for online content as it is a San Serif font that is spaced specifically so the characters do not touch.
- **Georgia** is a Serif font that is easy to read onscreen and spaced so the characters do not touch. It will be utilized in titles and headers and any area that needs emphasis, but not for blocks of text.
- **Arial** is a San Serif font that is easily read and useful for tables or close quarter areas

### 2. **Text Structure:**

Text Structure	Example	Signaling Words
Lists	A list of items	Next month, next week, participate, volunteer, coming up
Comparison or contrast	In contrast, similarly, however, like	Compare, and contrast statistics

Temporal Sequence	First, Second, Third, etc.	Outline which events happened first, in order, and steps to complete an activity
Cause and effect	As a result of, causality, therefore, reflect	Show how decisions have consequences or made a difference.
Definition and example	Known as, e.g., i.e., for example, defined as	Define terms specific to your field in direct, simple terms.

### 3. Images and Logos

Images will be used to brand the game such as the University of Idaho logo. Additional logos for the College of Agriculture Extension, as well as other stakeholder logos will be provided by the client if applicable.



### 4. Photos

Photos will be utilized for the background of slides and in the Project Board slides for supporting documentation for decisions. Photos will be accessed through Creative Commons, College of Arts & Architecture photos and other sources that provide stock photos labeled for reuse. Photos will be labeled with proper citations when appropriate.

### 5. Scenario Creation

The Dollar Game was co-designed by staff from the University of Idaho College of Agriculture Extension Program. The scenario and branching content for the proposed

online game will have to be redesigned to fit the online learning environment. The redesign is also necessary to facilitate moving the game from a group classroom activity to an individual player game that is fully encapsulated. The designer will work with Extension staff to develop alternate storylines, maps, decisions and supporting documentation if needed.

## 6. Story Board Design Notes

- All images in the story board are representative of what it may look like.
- Single user game created in Adobe Captivate with Cartoon content from CrazyTalk Animator 3.
- The game is driven by a branching decision matrix that is based on the decisions that the learner selects, and outcomes based on those decisions.
- Money and Tokens will be tracked through the module grading system.
- The learner is given startup money and tokens based on the selected role:

Learner Role	Start-up Capital (\$)	Startup Materials (Tokens)
<b>Labor Provider = labor</b>	\$3 (blue bills)	
<b>Materials Provider = supplies</b>	\$3 (blue bills)	
<b>Processing Center = the local value-added activity, like a farm, mill, or factory</b>	\$3 (blue bills)	16 Value-added tokens
<b>Trading Center = general store or market</b>		10 Material tokens 10 Labor tokens
<b>Bank</b>	\$23 (green bills) \$64 (yellow bills)	

- Game will have an overview of the game purpose and goals presented to the learner at the start of the game.
- Game has multiple branching scenarios based on each learner decision made.

- Frequent knowledge checks will allow the learner to contemplate the process.
- The reflection activity will link to a discussion board assignment.
- Learner can replay the game as many times as they wish using different roles and choose different decision points.

## **7. Story Board Wire-Frame Example**

### **2.5 MULTIMEDIA DESIGN EMERGENT TECHNOLOGIES**

Educational games provide a story and visuals to support the context of learning. It provides motivation and can make learning more interesting. This game will be played as a part of an online course in Bioregional Planning and Community Design. The game will include the following multimedia features:

#### **Roles**

Learner will select their role to represent their function in the gaming environment. Selections will include materials and labor provider, processing center, bank, or trading center.

#### **2D Animation**

Animation will be used to present the scenarios and represent different points of view and interactions with others.

#### **Interactive Maps**

Interactive maps as a visual aid to define the initial island scenario and subsequent changes to the economic health of the community.

#### **Drag & Drop Activities**

Mini games will be used for knowledge checks and to reinforce learning.

#### **Discussion Board**

Reflections can be linked to a discussion board so learners may learn from others experiences during game play.

### **Learning Management System**

Game access will be controlled by the LMS authentication.

## **3. DEVELOPMENT PHASE**

**Purpose:** This phase will focus on defining the tools, software, and process that will be utilized for development of the Dollar Game.

### **3.1 INSTRUCTIONAL MATERIALS**

#### **Instructional Software & Tools**

- **CrazyTalk Animator 3** (<https://crazytalk.reallusion.com/animator.html>)

Justification: CrazyTalk Animator 3 is a software package that allows the user to create 2D animations. This software will allow the creation of animated scenes that will assist the learner to play the educational game. Scenes created in CrazyTalk Animator 3 can be exported in HTML 5 and imported into the Adobe Captivate project.

- **Adobe Captivate** (<http://www.adobe.com/products/captivate/education.html>)

Justification: Captivate will allow the creation of interactive activities to enhance the learning process.

- **Audacity** (<http://www.audacityteam.org/>)

Justification: Audacity creates audio that allows the animated characters to speak in the 1<sup>st</sup> person to the game player and communicate information that drives the game.

- **Various image editors**

Justification: Images will need to be edited and formatted. This can be accomplished by using Paint.Net, Adobe Photoshop or other image editing software.

### **Visual Design Justification:**

The Dollar Game will be designed using Universal Design Principles whenever possible. It will include text transcripts and Close Captioning for videos and screencasts. It will present the information in multiple ways to ensure it is accessible to the widest audience possible. The game will be designed with responsive design principles so it may be played on various electronic devices.

## **3.2 DELIVERY METHOD**

This game will be delivered in a SCORM compliant format that can be uploaded to any LMS such as CourseSites or BlackBoard. Due to time constraints, the initial version of this game will not support multiple player interaction or the ability to save progress and return to the game. Those features would require a database and additional programming as well as technical support for data management. User access to the game will be controlled via the LMS which will log completion statistics.

## **4. IMPLEMENTATION PHASE**

**Purpose:** The Dollar Game is an asynchronous, single-player online educational game. By converting this game to an online format, it can reach a greater audience. When combined with other proposed distance learning course for the University of Idaho College of Agriculture Extension Program curriculum it will enhance the learning outcomes of the extension course participants. This section will provide an overview of the implementation plan for the Dollar Game.

The game will be implemented as an activity of College of Agriculture Extension Program curriculum. Once the game has been created it will be tested by volunteer learners, instructors, teaching assistants, staff, and past workshop attendees. Extension staff will submit a list of testers along with contact information. Access will be granted via email to the selected learners. Issues and change requests will be submitted using a feedback mechanism within the CourseSites area. Once feedback and change requests are gathered they will be reviewed and approved by the Extension Staff.

## 5. EVALUATION PHASE

**Purpose:** Through evaluation the goal is to adjust the educational game accordingly so that the learning outcomes will be achieved. This section will present the plan for formative, summative and confirmative evaluation for the Dollar educational game.

### 5.1 OVERVIEW

#### Evaluation Synthesis

McNamara (2008) notes that, “Many people believe that evaluation is about proving the success or failure of a program. This myth assumes that success is implementing the perfect program and never having to hear from employees, customers or clients again -- the program will now run itself perfectly. This doesn't happen in real life. Success is remaining open to continuing feedback and adjusting the program accordingly. Evaluation gives you this continuing feedback”. Through evaluation the goal is to adjust the educational game accordingly so that the learning outcomes will be achieved. In order to implement this type of evaluation the process will be outlined in steps that will be taken before, during and after the implementation in order to gather necessary data that can provide feedback. The evaluation process will include formative, summative and confirmation evaluation.

### 5.2 FORMATIVE EVALUATION

Morrison, Ross, Kalman and Kemp (2013) note that formative evaluations “function is to inform the instruction or planning team how well the instructional program is serving the objectives as it progresses”. Therefore, formative evaluations will be conducted before, during and after the training has been implemented. In order to effectively achieve the desired learning outcomes there will be three “check points” that will aid in the formative evaluation. These “check points” will come in the form of pre-testing, client reviews. and surveys.

**-1<sup>st</sup> Check point:** The first “check point” will begin by carrying out pre-testing with learners who are enrolled in the Extension course and will be playing the game. Pre-



testing can serve as an effective medium to assess a learner's prior knowledge. A pre-test survey will determine if the skills needed to play the game exist, and the learner's current role in their career. This information will provide baseline data for determining learner growth by comparing the initial knowledge to the knowledge gained at the end of the game. A short introduction video could be used to encourage interest in the game.

**-2<sup>nd</sup> Check Point:** Before the game is implemented, Extension staff will review the analysis phase to ensure that the learning objectives are in line with the instructional design. It is also important for the Extension Staff to review the course goals so that if any change needs to be applied it will be cost and time efficient. Morrison, Ross, Kalman and Kemp (2013) note that "formative evaluations are most valuable before instruction is fully developed, when it is inexpensive to make changes and used in a continuous manner".

**-3<sup>rd</sup> Check Point:** The final "check point" will occur during the game, where there will be a formative evaluation in the form of an interactive quiz. This type of immediate feedback is crucial for successful implementation. Morrison, Ross, Kalman, and Kemp (2013) note that, "successful learning is enhanced when individuals receive feedback on how well they are learning as instructions takes place".

### 5.3 SUMMATIVE EVALUATION

After the learner has completed the game, there are two crucial types of evaluation techniques that will be implemented. These two types of evaluation are summative and confirmative evaluation. Summative evaluations emphasize evaluating outcomes at the end of instruction (Morrison, Ross, Kalman & Kemp, 2013).

At the end of the game there will be a performance based evaluation that will be the culmination of the game for the learner.

### 5.4 CONFIRMATIVE EVALUATION

Morrison, Ross, Kalman and Kemp (2013) note that confirmative evaluation is based "on the rationale that evaluation of instruction needs to be continuous and, therefore, extend beyond summative evaluation". In order to implement this type of evaluation interviews will be conducted with learners using a survey, data-gathering based on

participation, and questionnaires sent out to past learners six months after the game becomes part of the curriculum. These types of assessments will ensure that the learning objectives are measured, even after the game is implemented.

Formative evaluation provides an opportunity to gauge how well the educational activity meets the objectives and facilitates the learning process. Formative tools such as pre-tests, post-tests, learner evaluations, ongoing observations, self-assessments will be implemented. These tools will be used in conjunction with a subject matter expert's review of the module for maximum effectiveness.

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