Requirement Engineering and the Creative Process in the Video Game Industry

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Introduction

- Requirement engineering: the process of defining, documenting, and maintaining requirements in the engineering design process.
- Video games are developed by a multi-diciplinary team (art, music, graphics, psychology, computer science, and engineering)
  - How does one define requirements like *fun* and *absorbing* from the perspective of requirement engineering?
- A lot of communication issues between game designers and game developers
- It should be possible to decrease the cost of delays caused by communication errors.

Background

- Emotions
    - "software requirements for these and other affective factors are never truly captured in an official manner" - Bentley et al. 2002
    - No established techniques for eliciting emotional requirements.
- Translating informal observations to specifications
    - A common language
- Feedback
    - Production should provide feedback to preproduction in early stages of preproduction documentation.

Video game development

- Many projects fail to reach the market
- Pre-production phase: Game Design Document
- Includes: a concept statement, genre, story, characters, dialogue, how it is played, look, feel, puzzles, animation, special effects and other required elements.
- Separate from production document
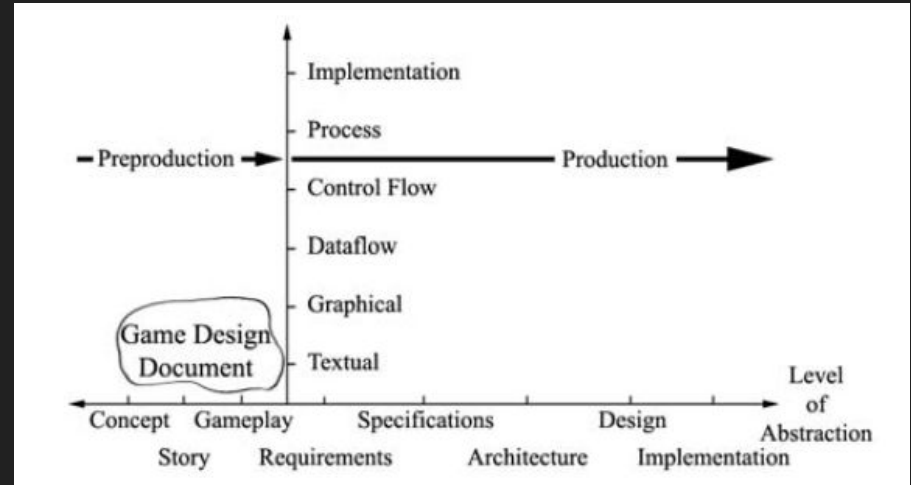
Transition from Preproduction to Production

- Requirement errors are costly. Estimated to cost 100 times more to fix.
- Too many projects violate preproduction and move straight to production
- Time-to-market pressure = documentation given low priority

Review of Postmortem Columns

- Articles from game developers, looking back on projects.
- Five categories of what went wrong:
    - Pre-production: inadequate game design or inadequate storyboarding
    - Internal: project management and personnel
    - External: outside control of development team
    - Technology: creation and adoption of new technology
    - Schedule: time estimates
- Internal factors dominate any other category by 300%

Examples from real games

- Documentation transformation
  - Documents are filled with implied information
  - Three levels of implication
  - How early should the production team provide feedback?
    - Too late: Expensive to fix
    - Too early: Game design process might suffer negative effect
- Importance of a priori knowledge
  - Provided by production domain to the transition from preproduction to production
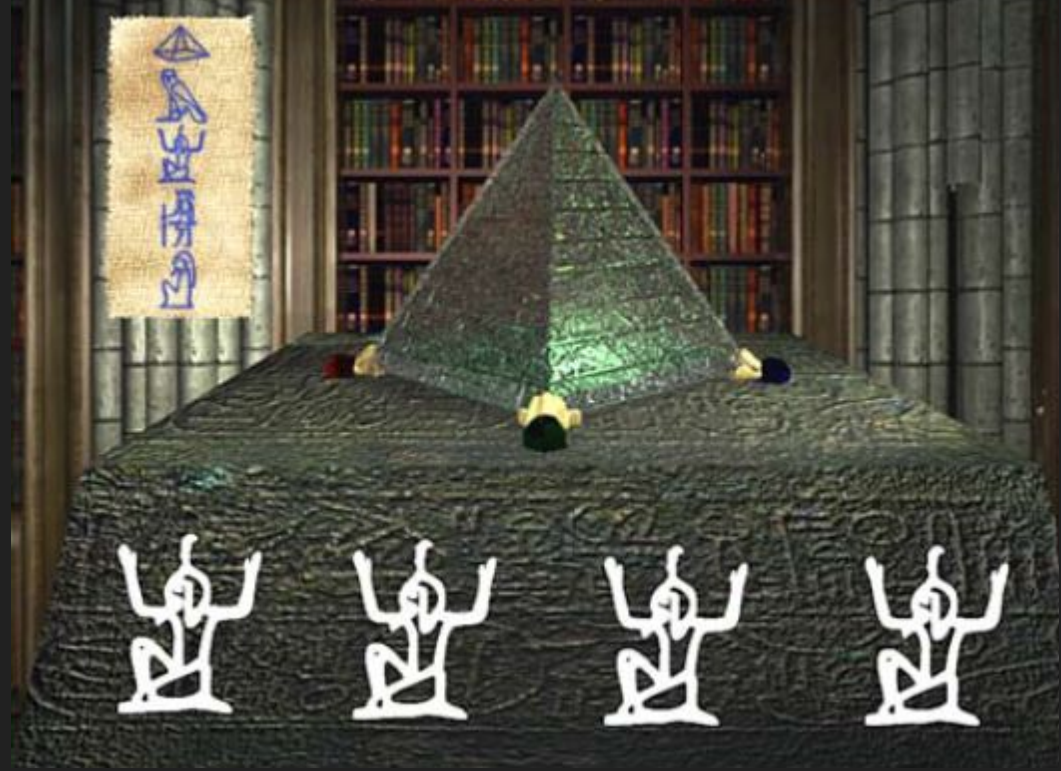
The pyramid puzzle

Summary

- The importance of documentation, and communication
- Project management issues are the greatest contributors to success and failure
- Production team can provide important feedback for preproduction
- A more formal transition from preproduction to production is needed.