

# GAME SKILLS AND SIMULATION SKILLS

FICTION, PHYSICS, GAMEPLAY AND LEARNING

**LUDWIG MAXIMILIAN UNIVERSITY**

26<sup>TH</sup> APRIL, 2016

PROF. RICHARD A. **BARTLE**

UNIVERSITY OF ESSEX, UK

## PROLOGUE

- SUPPOSE YOU'RE AN **IMAGINATIVE** YOUNG APPRENTICE IN THE YEAR **1472**
- GUTENBERG HAS BEEN PRINTING **BOOKS** FOR OVER **20** YEARS
- YOU HAVE A **GREAT** IDEA TO USE THIS **EXCITING** NEW TECHNOLOGY FOR **STORIES**
- SO, YOU **WRITE** A STORY AND APPROACH THE **MERCHANTS' GUILD** FOR **FUNDS** TO PUBLISH IT AS A **BOOK**
- WHAT HAPPENS **NEXT?**

## REACTION

- THERE ARE **SEVERAL** POSSIBILITIES, SOME NEGATIVE, SOME POSITIVE
- **NEGATIVE:**
  - I DON'T **LIKE** STORIES, I **MUCH** PREFER MUSIC
  - THIS IS AN **EXPENSIVE** TECHNOLOGY WHICH SHOULD BE USED FOR MORE **SERIOUS** BOOKS
  - **EXPOSURE** TO STORIES WILL UNDERMINE PUBLIC **MORALS**
  - WHAT IF **SERVANTS** AND **CHILDREN** WERE TO READ THESE?!
  - PEOPLE WILL **READ** INSTEAD OF **WORK!**

## POSITIVE ... ISH

- AS FOR THE **POSITIVE** REACTIONS, THEY ALL **BEGIN** WITH THE SAME **QUALIFIER**
- "LET'S **DO** IT, BUT":
  - NOT **YET**
  - CAN YOU **CHANGE** IT, SO THAT READERS WILL LEARN THE **HISTORY** OF **BAVARIA**?
  - TAKE **OUT** THE **DRAGONS**; THERE'S NO SUCH **THING** AS DRAGONS
  - MAKE IT MORE **MELODIOUS** WHEN IT'S READ **ALOUD**, SO THAT PEOPLE WILL APPRECIATE THE **LANGUAGE**
  - IT'S GOING TO NEED **MORE PICTURES**

## TODAY

- **SCOOT** FORWARD **500** OR SO YEARS
- SUPPOSE YOU'RE AN **IMAGINATIVE** YOUNG ACADEMIC
- COMPUTERS HAVE BEEN AVAILABLE FOR **20** YEARS
- YOU HAVE A **GREAT** IDEA TO USE THIS **EXCITING** NEW TECHNOLOGY FOR **GAMES**
- SO, YOU **DESIGN** A GAME AND APPLY FOR A **GRANT** TO WRITE IT AS A **PROGRAM**
- WHAT HAPPENS **NEXT**?

## REACTION

- WELL, IT'S PRETTY MUCH AS IT WAS **BEFORE**
- **NEGATIVE:**
  - I DON'T **LIKE** GAMES, I **MUCH** PREFER BOOKS
  - THIS IS AN **EXPENSIVE** TECHNOLOGY WHICH SHOULD BE USED FOR MORE **SERIOUS** PROGRAMS
  - **EXPOSURE** TO GAMES WILL UNDERMINE PUBLIC **MORALS**
    - AND MAKE PLAYERS **AGGRESSIVE**
  - WHAT IF **CHILDREN** WERE TO PLAY THESE?!
  - PEOPLE WILL **PLAY** INSTEAD OF **WORK!**
    - AND BECOME **ADDICTED**

## POSITIVE ... ISH

- THE **POSITIVE** REACTIONS ALSO **BEGIN** WITH THE SAME **QUALIFIER**
- "LET'S **DO** IT, **BUT**":
  - NOT **YET**
  - CAN YOU **CHANGE** IT, SO THAT PLAYERS WILL LEARN HOW TO **MULTIPLY MATRICES?**
  - TAKE **OUT** THE **DRAGONS**; THERE'S NO SUCH **THING** AS DRAGONS
  - MAKE IT MORE **DRAMATIC** WHEN IT'S **PLAYED**, SO THAT PEOPLE WILL APPRECIATE THE **STORY**
  - IT'S GOING TO NEED **FEWER PICTURES**

## INTRODUCTION

- SO, IN THIS TALK I'M GOING TO BE ARGUING THAT **GAMES ARE GAMES**
- THEY'RE MANY **OTHER** THINGS, TOO, BUT THEY'RE **GAMES** ABOVE ANYTHING ELSE
- I'M MAKING THIS POINT BECAUSE THEY'RE OFTEN **TREATED** AS IF THEIR **BEING** GAMES WAS OF ONLY **MINOR** SIGNIFICANCE
- IT HAPPENS IN **TWO** MAIN AREAS, WHICH ARE (SURPRISINGLY?) **INTER-RELATED**
  - GAMES AS **EDUCATION**
  - GAMES AS **ART**

*MORE EGGS FROM YOUR HENS*



## GAMES AS ART

- I'LL **BEGIN** BY LOOKING AT GAMES AS **ART**
- I STILL HEAR, WITH **DEPRESSING** FREQUENCY, MEDIA COMMENTATORS ASKING "CAN GAMES **EVER** BE ART?"
- GAMES ARE **ALREADY** ART!
- HOW COULD THEY **NOT** BE ART?
- ART **ISN'T** SOMETHING GAMES COULD IN TIME, IF THEY WORK REALLY HARD, **ASPIRE** TO BE
- THEY ALREADY **ARE** ART
- MORE SPECIFICALLY, GAME **DESIGN** IS ART

## ARTICULATION

- THIS IS BECAUSE **THROUGH** THEIR GAME DESIGNS, DESIGNERS **ARTICULATE** WHAT THEY **CAN'T** SAY ANY **OTHER** WAY
- IF THEY **COULD** SAY IT ANOTHER WAY, WHY ARE THEY DESIGNING **GAMES** AND NOT:
  - WRITING **STORIES**
  - COMPOSING **SYMPHONIES**
  - CHOREOGRAPHING **BALLETS**
  - PAINTING **LANDSCAPES**
  - SCREENWRITING **MOVIES**
  - DOING WHATEVER IT IS **POETS** DO?

## WHERE'S THE ART

- WHEN PEOPLE LOOK AT THE ART OF GAMES FROM THE **OUTSIDE**, THEY WILL NATURALLY USE **EXTERNAL** MEASURES
  - **STORY** IS TODAY ACCEPTED AS AN ART FORM, SO GAME **STORIES** CAN CLEARLY BE ART
  - GRAPHICS INVOLVE **PICTURES**, WHICH CAN BE ART
  - **ANIMATION** IS A RELUCTANTLY ACCEPTED AS ART
  - **VOICE ACTING** IS AN ART
- KILLING **PRETEND MONSTERS**, HOWEVER, **ISN'T** AN ART
  - EXCEPT IN ANGLO-SAXON EPIC POETRY, **THEN** IT IS

## GAME ART

- **ALL** THESE CREATIVE POSITIONS **ARE** ART FORMS IN THEIR **OWN** RIGHT
- THEY'RE NOT **THE** ART OF GAMES, THOUGH
  - ANY MORE THAN ACTING, CINEMATOGRAPHY, MUSIC, COSTUME DESIGN AND SCREENWRITING ARE **THE** ART OF FILM-MAKING
- THE **ART** OF GAME DESIGN LIES IN WHAT GAMES **ALONE** CAN DELIVER
- THAT MEANS THE **GAMEPLAY**
- GAME DESIGNERS **SPEAK** TO PLAYERS THROUGH THE **GAMEPLAY** OF THEIR GAMES

## EMOTION

- “BUT CAN A GAME **EVER** MAKE A PLAYER **CRY?**”
- THERE’S A ONE-WORD ANSWER TO THIS
- **PERMADEATH**

## EDUCATION

- SO WHAT DOES THIS HAVE TO DO WITH **EDUCATION**?
- IN THE SAME WAY THAT A GAME'S **ARTISTIC** PAYLOAD IS CARRIED BY ITS GAMEPLAY, SO IS ITS **EDUCATIONAL** PAYLOAD
- WHY WOULD YOU CHOOSE A **GAME** TO TEACH SOMETHING THROUGH STORY OR FICTION?
- GAMES AREN'T **ABOUT** THESE THINGS
- GAMES ARE ABOUT **GAMEPLAY**
- BOOKS AND FILM HANDLE STORY **BETTER**

## PHYSICS

- LIKEWISE, IF YOU WANT TO TEACH HOW THE **PHYSICAL** WORLD WORKS, JUST USE A **SIMULATION**
- REAL-WORLD PHYSICS OFTEN GETS IN THE **WAY** OF GAMEPLAY AND IS **ABSTRACTED** OUT
- EXAMPLE: WHEN YOU STOP RUNNING, YOU DO SO **INSTANTLY**, WITH NO MOMENTUM
  - LIKE IN *ROAD RUNNER* CARTOONS
- **DOUBLE** JUMPS ARE COMMON, SO YOU CAN DO A SECOND JUMP **WHILE JUMPING**
  - **NO** PHYSICAL EXPLANATION

## NOT HELPING

- **UNFORTUNATELY**, GAMES **CAN** ACTUALLY **TEACH** SOME THINGS **OUTSIDE** GAMEPLAY
- IF YOU READ A **BOOK** SET IN ANCIENT GREECE, YOU'RE GOING TO LEARN A LOT OF **NAMES** OF ANCIENT GREEK **CITIES**
- THE SAME APPLIES TO **GAMES** SET IN GREECE
- I CAN LIST **EVERY** COUNTRY IN EUROPE BECAUSE I'VE PLAYED FAR TOO MANY GAMES **SET** IN EUROPE
- YET THOSE GAMES WERE **NOTHING TO DO** WITH LEARNING THE GEOGRAPHY OF EUROPE

## UNFORTUNATELY

- I SAID “**UNFORTUNATELY**” BACK THERE BECAUSE IF GAMES CAN TEACH **FACTS**, PEOPLE ASSUME THEY CAN TEACH **ANYTHING**
- GAMES **ARE** EXCELLENT AT TEACHING FACTS
- **CRITICAL POINT**: THE GAME MUST **NOT** BE **ABOUT** LEARNING THOSE FACTS
- FACTS ARE LEARNED **INDIRECTLY**, THROUGH **OSMOSIS**
  - **NOT** THROUGH THE GAMEPLAY!
- HOWEVER, GAMES ARE **WEAK** AT TEACHING WHAT TEACHERS **WANT** TO TEACH: **SKILLS**

## GAMES & SKILLS

- GAMES ARE **HOPELESS** AT TEACHING SKILLS
  - EXCEPT **SOCIAL** SKILLS IN MULTI-PLAYER
- THIS IS FOR **THREE** REASONS
  1. SKILLS AREN'T EASILY **RESKINNABLE**
    - HOW CAN YOU DISGUISE MATRIX MULTIPLICATION AS SOMETHING **ELSE**?
  2. YOU MAY LEARN THE **WRONG** SKILL
    - YOU'LL LEARN TO **TYPE** PLAYING TEXT ADVENTURES, BUT YOU WON'T LEARN TO **TOUCH-TYPE**
  3. PROCESSES GET IN THE **WAY** OF GAMEPLAY
    - THE GAMES END UP BEING **ABOUT** THE PROCESS

## SKILLS

- IF YOU DON'T **HAVE** A SKILL, YOU CAN'T PLAY A GAME THAT **REQUIRES** THAT SKILL
  - AGAIN, EXCEPT FOR **SOCIAL** SKILLS
- FURTHERMORE, IF YOU TRY TO **SNEAK IN** SKILL-LEARNING, THE RESULTING GAME WILL BE **ABOUT** THE SKILL YOU WANT TO TEACH
- THIS MEANS THAT FOR PEOPLE TO FIND THE **GAME** FUN, THEY WOULD HAVE TO FIND THE SKILL ITSELF **INTRINSICALLY** FUN
- SO ... WHY THEN WOULD YOU NEED A **GAME**? JUST LET THEM DO IT **ANYWAY** IF IT'S FUN!

## MEANWHILE, IN THE 1940S

- DURING THE 1940S, THE UK'S **CROWN FILM UNIT** CHURNED OUT OVER **300** FILMS
  - **ALL** OF THEM WERE DOCUMENTARIES - MANY VERY GOOD!
- THE THING IS, THOUGH, THEY **WERE** DOCUMENTARIES
- ALTHOUGH **SOME** (SUCH AS *MORE EGGS FROM YOUR HENS*) WERE **ENTERTAINING**, THEY WEREN'T **ABOUT** ENTERTAINMENT
  - THEY WERE ABOUT CONVEYING **INFORMATION**
- ONLY **SERIOUS** FILMS WERE FUNDED

## 70 YEARS LATER

- **GAMES** TODAY, LIKE **FILMS** 70 YEARS AGO, NEED TO BE "SERIOUS" TO ATTRACT FUNDING
- YET WHERE IS THE BRITISH FILM INDUSTRY AS A **RESULT** OF OUR 1940S SERIOUSNESS?
  - WELL, OUR TV DOCUMENTARIES ARE OFTEN **SUPERB...**
- HOLLYWOOD CAME AND **ATE OUR LUNCH**
- WHERE WILL THE **GAMES** INDUSTRY BE IF THE ONLY PUBLIC MONEY AVAILABLE IS FOR GAMES-**AS-ANYTHING-BUT-GAMES?**

## GAMEPLAY

- OK, SO ALTHOUGH GAMES **CAN** TEACH FACTS VERY WELL, SO CAN **OTHER** MEDIA
- ALSO, GAMES AREN'T GOOD FOR TEACHING SKILLS
- IS THERE **ANYTHING**, THEN, THAT GAMES CAN TEACH WHICH **NO** OTHER MEDIUM CAN TEACH?
- WELL THEY **NATURALLY** TEACH THROUGH THEIR **GAMEPLAY**, WHICH IS **ABOUT** STRATEGIC THINKING AND PROBLEM-SOLVING
- THE **GAME-EXCLUSIVE** EDUCATIONAL PAYLOAD THEREFORE DELIVERS **META-SKILLS**

## META-SKILLS

- **META-SKILLS** ARE PICKED UP FROM PLAYING **LOTS** OF **DIFFERENT** GAMES
- THESE ARE **HIGH-QUALITY** PROBLEM-SOLVING, SOLUTION-SEEKING SKILLS
- PLAYERS BENEFIT **HUGELY** FROM ACQUIRING AND HONING THESE
  - SOCIETY REALLY **NEEDS** PEOPLE WHO CAN ANALYSE AND DISCUSS, INTERPRET AND CREATE
- UNFORTUNATELY, THESE ARE **NOT** SKILLS YOU CAN EASILY **TEST** FOR DIRECTLY IN **EXAMS**
  - THEY ALSO TAKE **TIME** TO BUILD UP

## PLAYING SKILLS

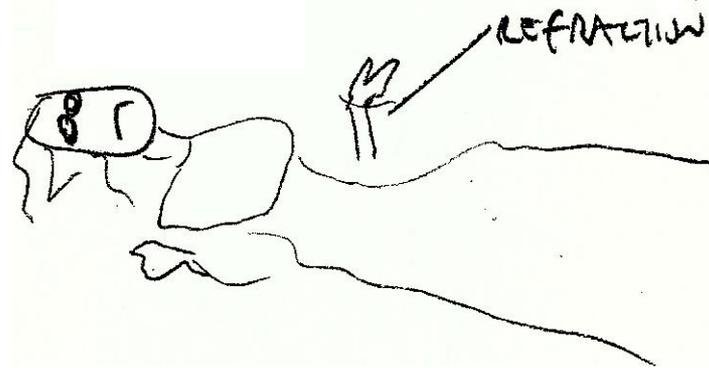
- GAMES ARE **MAGNIFICENT** FOR LEARNING META-SKILLS!
- PEOPLE WHO HAVE A **YEN** FOR THEM GENERALLY COME ACROSS AS BEING **SMART** INDIVIDUALS
- I **DO** BELIEVE THAT IF YOU PLAY ENOUGH GAMES YOU CAN BECOME **MUCH BETTER** AT PROBLEM-SOLVING
  - BECAUSE I'VE SEEN IT **HAPPEN**
- **HOWEVER**, I **DON'T** KNOW IF JUST **ANYONE** CAN LEARN META-SKILLS OR IF IT COMES FROM AWAKENING **LATENT** TALENT

## EDUCATIONAL GAMES

- MOST GAME DESIGNERS DON'T HAVE A **HIGH OPINION** OF EDUCATIONAL GAMES
- THIS ISN'T BECAUSE THEY **DON'T LIKE** EDUCATION
  - IT'S BECAUSE THEY **LIKE** GAME DESIGN
- THE **LOGIC** BEHIND EDUCATIONAL GAMES IS:
  - GAMES = **FUN!**
  - EDUCATION = **UNFUN**
  - THEREFORE GAMES+EDUCATION = **FUN** EDUCATION!
- THE **REALITY** IS:
  - GAMES+EDUCATION = **UNFUN** GAMES

# OPHELIA





- IF I WANT TO **TEACH** USING A **PICTURE** AND I **CAN'T DRAW**, I SHOULD GET AN **ARTIST**
- IF I WANT TO TEACH USING A **GAME** AND I **CAN'T DESIGN**, I SHOULD GET A **DESIGNER**

## ART OF GAMES DESIGN

- FOR EDUCATIONAL GAMES, YOU NEED PEOPLE WHO UNDERSTAND **BOTH** EDUCATION **AND** GAMES
- EDUCATORS WOULD **LAUGH** IF A GAME DESIGNER CREATED A **LEARNING** SYSTEM USING A RIDICULOUSLY **NAÏVE** PEDAGOGY
- YET THEY WONDER **WHY** GAME DESIGNERS LAUGH AT THE GAMES **THEY** CREATE
- **NOW**, THOUGH, EDUCATORS ARE GETTING DESIGNERS **INVOLVED** IN SERIOUS GAMES
  - LIKEWISE FOR **OTHER** FIELDS, *EG.* ECONOMICS

## SUMMING UP

- GAMES **CAN** TEACH FACTS, BUT THEY'RE NO MORE FUN IF THEY'RE **ABOUT** THOSE FACTS THAN A **NOVEL** ABOUT THEM WOULD BE
  - YOU HAVE TO MAKE THE FACTS **INCIDENTAL**
- GAMES CAN TEACH **SKILLS**, BUT ONLY IF THEY'RE **ABOUT** THOSE SKILLS
  - WHICH ISN'T **FUN**
  - OR IT **IS**, BUT THEN WHY DO YOU **NEED** A GAME?
- GAMES ARE **UNEQUALLED** AT TEACHING **HIGH-ORDER** PROBLEM-SOLVING
  - BUT IT TAKES **TIME** AND IS **VERY** HARD TO TEST

## CONCLUSION

- IF YOU **WANT** TO MAKE GAMES TO TEACH A **SKILL**, MAKE SURE YOU **REALLY DO** WANT TO USE THEM
- ASK A **GAME DESIGNER** FOR HELP WITH THE GAME DESIGN
  - EVEN GAME DESIGN **UNDERGRADUATES** ARE BETTER THAN THE AVERAGE NON-GAMES PROFESSOR
- HOWEVER, **DON'T** GIVE YOUR TAME GAME DESIGNER COMPLETE CREATIVE **FREEDOM**
  - THEY KNOW ABOUT **GAME DESIGN** BUT **NOT** ABOUT **TEACHING...**