LEARNING FROM GAMES

A GAME DESIGNER'S VIEW

VIDEO GAMES & LEARNING SYMPOSIUM

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- SO, I'M A **GAME DESIGNER**
- IN THIS TALK, I'M GOING TO DESCRIBE **MY** EXPERIENCE OF HOW PEOPLE **LEARN** THROUGH PLAYING GAMES
- NOTE: **LEARNING** IS NOT THE SAME AS **TEACHING**
- PEOPLE **WILL** LEARN FROM PLAYING GAMES, WHETHER YOU **WANT** THEM TO OR NOT
- IT'S THE LOT OF **EDUCATORS** TO FIGURE OUT HOW TO MAKE PLAYERS **LEARN** WHAT THEY **WANT** THEM TO LEARN

- 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

- THIS IS BECAUSE EDUCATORS KNOW **NOTHING** ABOUT **GAME DESIGN**
- SUPPOSE THAT INSTEAD OF TALKING ABOUT **GAMES** WE WERE TALKING ABOUT **NOVELS**
- A **SKILLED** EDUCATOR COULD WRITE A NOVEL THAT REALLY **TAUGHT** SOMETHING
- WHY WOULD **ANYONE** EVER WANT TO **READ** THAT NOVEL?!
  - IT WOULD SUCK!
- YOU WANT **NOVELLISTS** TO WRITE NOVELS!
  - AND GAME DESIGNERS TO DESIGN **GAMES**

- OF COURSE, GAME DESIGNERS KNOW **NOTHING** ABOUT PEDAGOGY

- THAT'S WHY I'M NOT EVEN GOING TO **TRY**

  - EDUCATORS WOULD **LAUGH** AT MY EFFORTS AT EDUCATING, MUCH AS **I** WOULD LAUGH AT **THEIR** GAME DESIGNS

- INSTEAD, I'M GOING TO TELL YOU **HOW** AND **WHAT** GAMES **CAN** TEACH

  - **THAT** WAY, YOUR GAMES WILL ONLY SUCK IN THE WAY THAT A **FIRST-DRAFT** NOVEL SUCKS, RATHER THAN A TEXTBOOK-**MASQUERADING**-AS-A-NOVEL SUCKS

- IF YOU WANT TO **TEACH**, YOU HAVE TO CONSIDER WHAT CAN BE **LEARNED**
- HERE'S MY **NON-PEDAGOGIST'S** VIEW OF WHAT CAN BE LEARNED:
  - **FACTS**: THE NORTH STAR IS CALLED POLARIS
  - **SKILLS**: HOW TO INTEGRATE AN EQUATION
  - **META-SKILLS**: HOW TO SOLVE PROBLEMS
  - **SELF-UNDERSTANDING**: WHO YOU ARE
- GAMES **CAN** TEACH **ALL** OF THESE, BUT THERE ARE **BETTER** WAYS TO TEACH SOME OF THEM
  - I'M NOT **EVANGELISING** FOR GAMES HERE

- I CAN LIST **EVERY** COUNTRY IN EUROPE
  - ICELAND, EIRE, UK, PORTUGAL, SPAIN, ANDORRA, FRANCE, MONACO, BELGIUM, HOLLAND, LUXEMBOURG, GERMANY, DENMARK, NORWAY, SWEDEN, FINLAND, RUSSIA, ESTONIA, LATVIA, LITHUANIA, BELARUS, UKRAINE, MOLDOVA, GEORGIA, AZERBAIJAN, TURKEY, BULGARIA, ROMANIA, GREECE, ALBANIA, FYROM, SERBIA, BOSNIA & HERZIGOVINA, MONTENEGRO, CROATIA, SLOVENIA, SLOVAKIA, CZECH REPUBLIC, HUNGARY, POLAND, AUSTRIA, LIECHTENSTEIN, SWITZERLAND, ITALY, VATICAN, SAN MARINO, MALTA, CYPRUS
  - MAYBE ALSO ARMENIA AND KAZAKHSTAN

- THE **REASON** I CAN LIST EVERY COUNTRY IN EUROPE IS BECAUSE I'VE PLAYED SO MANY GAMES **SET** IN EUROPE
- THOSE GAMES WERE **NOTHING TO DO** WITH LEARNING THE GEOGRAPHY OF EUROPE
  - I PICKED IT UP THROUGH **OSMOSIS**
- GAMES ARE **EXCELLENT** AT TEACHING FACTS
- **CRITICAL POINT**: THE GAME MUST **NOT** BE **ABOUT** LEARNING THOSE FACTS
- FACTS ARE LEARNED **INDIRECTLY**
  - **NOT** THROUGH THE GAMEPLAY!

- **ANYTHING** YOU CAN TEACH THROUGH REPETITION, YOU CAN TEACH THROUGH **GAMES**
- HOWEVER, THE GAME **MUST** BE ABOUT SOMETHING THAT WILL **APPEAL** TO YOUR TARGET PLAYERS
  - WHICH MEANS **NOT** ROTE LEARNING
- THEY **DO** THE ROTE LEARNING OF THEIR OWN VOLITION TO GET TO THE **FUN** FASTER
- THE GAME **MUST** BE PLAYABLE **WITHOUT** HAVING LEARNED THE FACTS
  - IT JUST GETS **QUICKER** IF YOU **DO** LEARN THEM

- IMAGINE A **2-PLAYER** GAME ON A 40X40 GRID OF SQUARES
  - PLAYERS START WITH A 10X10 GRID EACH IN OPPOSITE CORNERS
- ON YOUR TURN, ROLL **TWO** 10-SIDED DICE, **TWICE**
- CHOOSE **ONE PAIR** FROM WHAT YOU JUST ROLLED AND DRAW A **RECTANGLE** WITH SIDES THOSE LENGTHS, **FITTING** IT IN SUCH THAT:
  - IT TOUCHES AT LEAST **ONE** OF YOUR EXISTING RECTANGLES ORTHOGONALLY (NOT DIAGONALLY)
  - IT OVERLAPS **NO** OTHER RECTANGLE
- THE GAME **ENDS** WHEN ONE PLAYER CAN'T GO
- WHOEVER HAS THE **MOST** SQUARES **WINS**!

- WHAT I'VE JUST DESCRIBED IS AN **ABSTRACT** GAME

- IT WOULD BE LESS **STARK** IF I ADDED A **DRESSING** TO PROVIDE **CONTEXT**

- THOSE AREN'T **RECTANGLES**, THEY'RE
  - **QUADRANTS** IN OUTER SPACE
  - EXPANDING CITY **SUBURBS**
  - **FIELDS** FOR YOUR FARMS
  - **ANTS** CLAIMING **TERRITORY** AT YOUR PICNIC

- WHAT IT MOST CERTAINLY **ISN'T** ABOUT IS LEARNING YOUR **TIMES TABLE**

- IN THE GAME I'VE JUST OUTLINED, PLAYERS CAN **COUNT THE SQUARES** TO SEE IF A 6X9 OR 7X8 BLOCK IS "BETTER"

- AFTER A WHILE, THEY'LL JUST **REMEMBER** WHAT 6X9 AND 7X8 ARE SO THEY DON'T **HAVE** TO COUNT THE SQUARES

- GAMES TEACH FACTS **INCIDENTALLY**

- THE FACTS THEMSELVES ARE **NOT THE POINT** OF THE GAME!

- THEY'RE JUST THINGS THAT YOU **PICK UP** AS A RESULT OF **PLAYING** THE GAME

- GAMES ARE **FANTASTIC** AT TEACHING FACTS
- HOWEVER, THOSE FACTS CAN BE **MADE UP**
  - XAMION, VARICK, JUMYN, WHEST, BEQUEN, KAZLAN
- THEY CAN BE **FALSE**
  - WHEN YOU STOP RUNNING IN A RPG THE DECELERATION IS **INSTANTANEOUS**
  - I'VE PERSONALLY **MOVED A CITY** IN SPAIN IN ORDER TO GET A BETTER RAILWAY GAME MAP
- THEY CAN BE **INCOMPLETE**
  - SHIPS IN THOSE SWASHBUCKLING, 1670S CARIBBEAN PIRATE GAMES **NEVER** CARRY SLAVES

- IN 2007, 12-YEAR-OLD NORWEGIAN BOY **HANS JØRGEN OLSEN** WAS OUT WALKING WITH HIS SISTER WHEN A **MOOSE** ATTACKED

- USING HIS **WORLD OF WARCRAFT** HUNTER SKILLS, THE BOY **TAUNTED** THE MOOSE OFF HIS SISTER, THEN WHEN IT CHARGED HIM HE **PLAYED DEAD**

- THIS **WORKED**! IT SAVED HIS SISTER'S **LIFE**!
    - JUST AS WELL HE DIDN'T TRY TO **FIREBALL** IT...

- ACTUALLY, HE TRIED TO **SCARE** IT, NOT TAUNT IT, AND IT WAS AN **ELK**, NOT A MOOSE

- A **SKILL** IS A PROCESS OR ACTION YOU HAVE **AUTOMATED** TO THE EXTENT THAT YOU DON'T NEED TO **THINK** ABOUT HOW TO DO IT

- YOU START WITH THINGS YOU CAN **ALREADY** DO WITHOUT THINKING MUCH
  - PRESS A PEDAL, TURN A WHEEL, MOVE A STICK

- THEN YOU PRACTICE AND PRACTICE UNTIL YOU CAN DO IT **WITHOUT** THINKING
  - DRIVE A CAR

- IF YOU DON'T **HAVE** A GIVEN SKILL, YOU CAN'T PLAY A GAME THAT **REQUIRES** THAT SKILL

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- SKILLS ARE **EXACTLY** THE KIND OF THINGS EDUCATORS **WANT** TO TEACH USING GAMES

- IF YOU TRY TO **SNEAK IN** SKILL-LEARNING, MOST OFTEN THE RESULTING GAME **WILL** BE **ABOUT** THAT SKILL
  - – "THE PERSON BEST AT MATHS WINS!" IS **NO FUN**

- 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!

- **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

- 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

- MMOS ARE **UNPARALLELED** IN THEIR ABILITY TO DELIVER **SELF-UNDERSTANDING**
  - ER, THAT SHOULD BE **WELL-DESIGNED** MMOS...
- HOWEVER, IT **DOESN'T** WORK ON **CHILDREN** AND IT TAKES **2 YEARS** OF PLAYING **2-4 HOURS** A **DAY** TO WORK ON **ADULTS**
- NEVERTHELESS, BECAUSE MMOS ARE **MY** SPECIALIST FIELD, THEY GET A **SHOUT-OUT**
  - THEY'RE ALSO GOOD FOR **OBSERVERS** TO LEARN ABOUT **SOCIETY**, ECONOMICS, COMMUNITY, ...

- SO, HERE'S MY **ADVICE** FOR PEOPLE WANTING TO **TEACH** THROUGH GAMES

- **AVOID** MAKING WHAT YOU WANT TO TEACH BE THE CENTRAL **MECHANIC** OF THE GAME
  - THAT'S **NOT FUN**; IF IT **WERE** FUN, WHY WOULD YOU NEED THE **GAME**?

- YOU DON'T TEACH **ADDING UP** BY MAKING A GAME ABOUT **ADDING UP**

- YOU **TEACH** IT BY MAKING A GAME ABOUT FILMING **DINOSAURS** YOU HAVE TO ATTRACT WITH QUANTITIES OF **DINOSAUR FOOD**

- **DON'T** TRY TO TEACH A SKILL BY MAKING THE GAME **RELY** ON THAT SKILL

  – PEOPLE **LOATHE** THIS

- UNLESS YOUR **OPPONENT** IS AS RUBBISH AT SNOOKER AS **YOU** ARE, **PLAYING** SNOOKER **ISN'T FUN**

- IF A GAME **RELIES** ON A SKILL, YOU NEED TO TEACH IT **BEFORE** YOU PLAY THE GAME

- YOU DON'T USE THE **GAME** TO TEACH IT ANY MORE THAN YOU GIVE PEOPLE FRENCH **NEWSPAPERS** TO TEACH THEM **FRENCH**

- DON'T TRY TO **CONTROL** THE LEARNING OF **ABSTRACT**, META-SKILLS

- META-SKILLS INVOLVE **REFLECTING** ON SKILLS, WHICH MEANS YOU NEED **EXISTING** META-SKILLS TO **ANALYSE** THOSE META-SKILLS

  – META-SKILLS THEY MAY NOT **HAVE** OR (YOU TELL ME) EVEN BE **CAPABLE** OF HAVING

  – MUCH AS **I'M** NOT WIRED UP TO BE ABLE TO DRAW

- YOU CAN SET THE **CONDITIONS** FOR PEOPLE TO LEARN META-SKILLS, BUT YOU CAN'T **GUARANTEE** THEY'LL ACTUALLY **LEARN** THEM

- ASK A **GAME DESIGNER** TO **LOOK AT** YOUR GAME'S DESIGN

- INDUSTRY **SECRET**: MOST GAME DESIGNERS AREN'T REALLY VERY **GOOD** AT GAME DESIGN

- **HOWEVER**, THEY ARE AN ORDER OF MAGNITUDE **BETTER** THAN **YOU** ARE

- EDUCATORS SHOULD SPECIFY THE PEDAGOGICAL **PAYLOAD** A GAME MUST DELIVER

- GAME DESIGNERS CAN MAKE IT **FUN**

- IF ONE OF THEM **SAYS** YOUR DESIGN SUCKS, **BELIEVE** THEM

UN'GORO

- THIS IS THE **UN'GORO** CRATER IN *WOW*
- NAMED AFTER **NGORONGORO** IN TANZANIA
  - 610M DEEP!
- PLAY *WOW*, LEARN GEOGRAPHY

CONCLUSION

- USE GAMES TO TEACH **FACTS**

- TEACH THE FACTS **INDIRECTLY**

- DON'T MAKE **SUCCESS** IN THE GAME BE IN **ANY WAY** INFLUENCED BY **KNOWLEDGE** OF THESE FACTS

- DO MAKE IT THAT **IF** YOU KNOW THE FACTS, PLAY WILL BE **STREAMLINED** A LITTLE

- IF IN **DOUBT**, ASK YOURSELF, "WOULD THIS BE A STUPID THING TO DO IF THIS WERE A **NOVEL** INSTEAD OF A **GAME**?"

  – IF THE ANSWER IS "YES", DON'T DO IT!