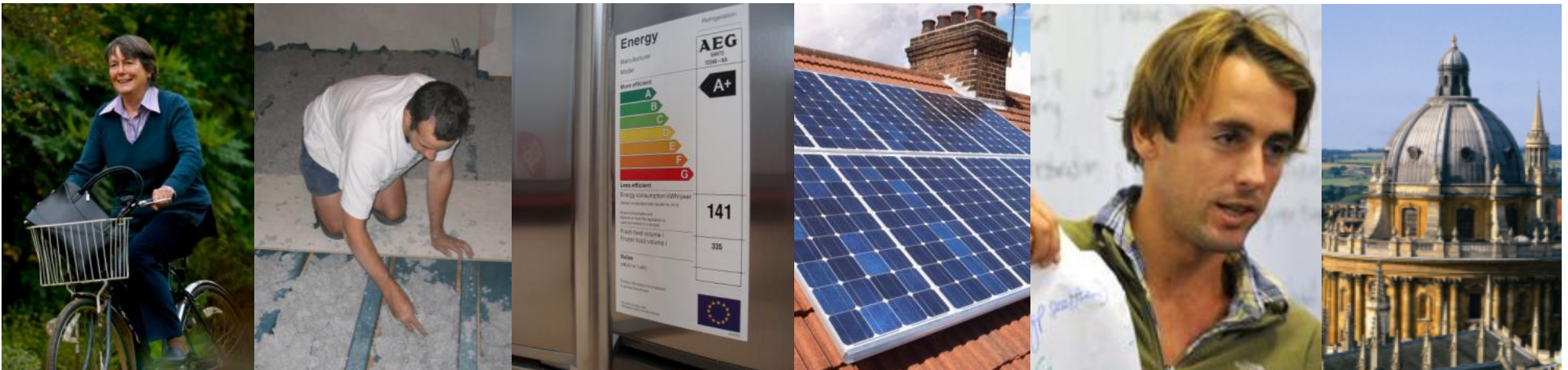


Environmental *Change* Institute



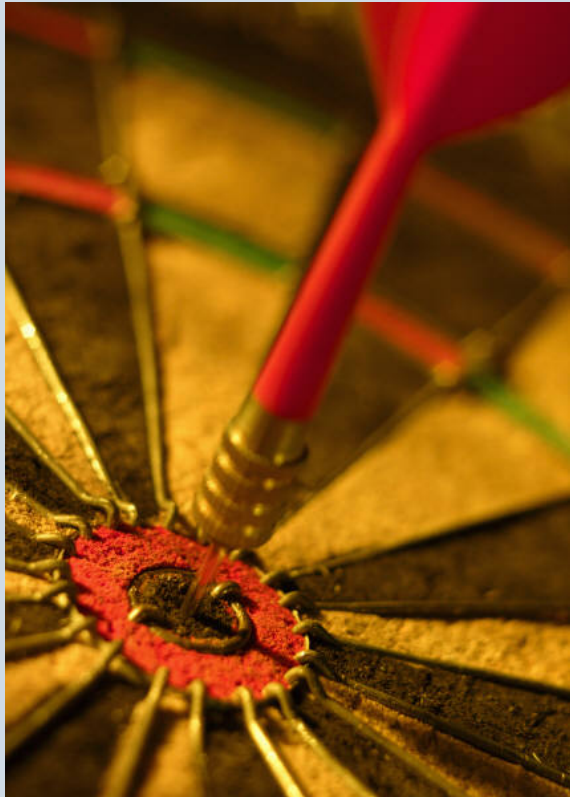
# Closing the Loop: Using Hero Stories and Learning Stories to Remake Energy Demand Policy



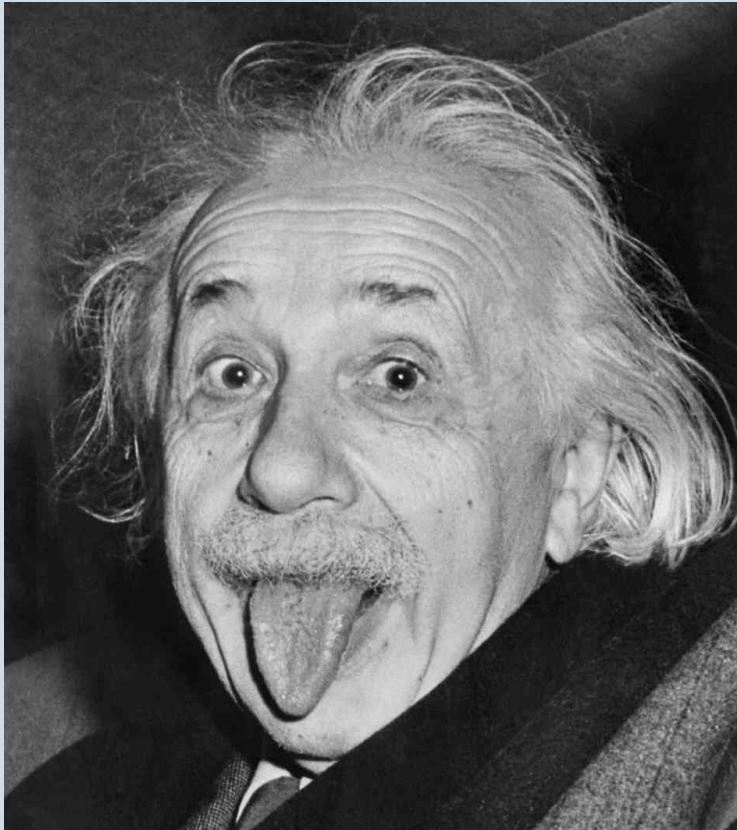
Kathryn B. Janda & Marina Topouzi

ECEEE, June 4 2013

# Why does energy demand research (particularly demonstration projects) need remaking?



# Insanity:



...doing the same thing over and over again and expecting different results.

Albert Einstein



# 1. We're lying...and we know it



**What the big  
print giveth,  
The small print  
taketh away.**





**Step right up, step right up, step right up!**

**Everyone's a winner, bargains galore!  
That's right, you too can be the proud owner  
Of the quality goes in before the name goes on  
One-tenth of a dollar, one-tenth of a dollar,  
we got service after sales.**

**That's right, it filets, it chops, it dices, slices,  
Never stops, lasts a lifetime, mows your lawn  
And it mows your lawn, it picks up the kids from school  
It gets rid of unwanted facial hair,  
It gets rid of embarrassing age spots,  
It delivers a pizza, and it lengthens, and it strengthens  
And it finds that slipper that's been at large  
under the chaise lounge for several weeks  
And it plays a mean Rhythm Master,  
It makes excuses for unwanted lipstick on your collar  
And it's only a dollar, step right up,  
it's only a dollar, step right up!**

**Excerpted lyrics from  
Step Right Up  
by Tom Waits**

## 2. We are overenthusiastic and fly too high





### 3. We have a hero complex





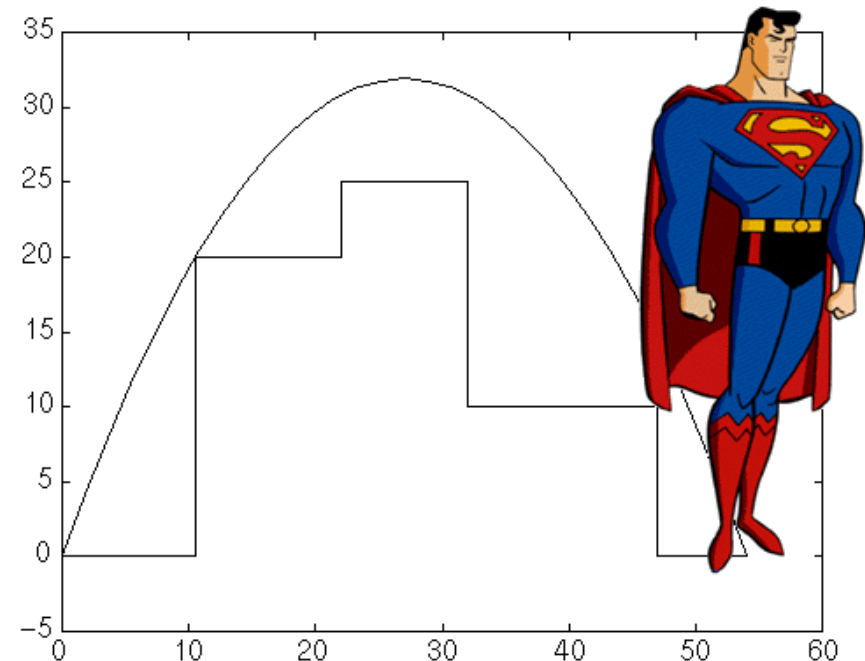
# Pros & Cons of acting like a superhero

## Positives

- Not fakers
- Not fanatics
- Selfless do-gooders, fighting evil
  - and saving the world!
- Soothing (someone else solve the problem)
- **Very popular with funders!**

## Problems

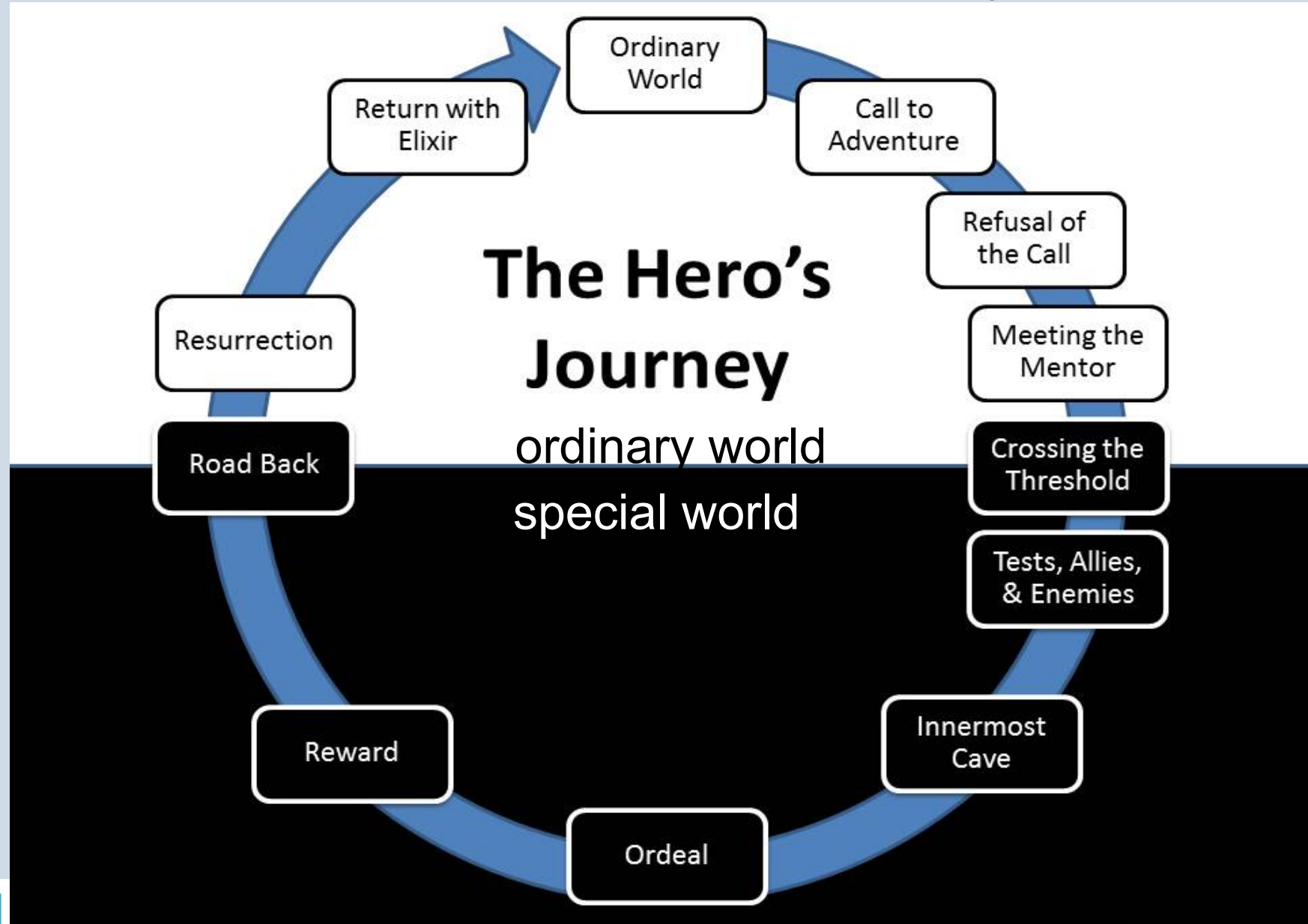
- Energy waste isn't evil
- We usually don't deliver exactly what we've promised
- Overly focused on "success"



# Can we learn anything from literature about telling a better story?



# Possible Narratives: The Hero Story

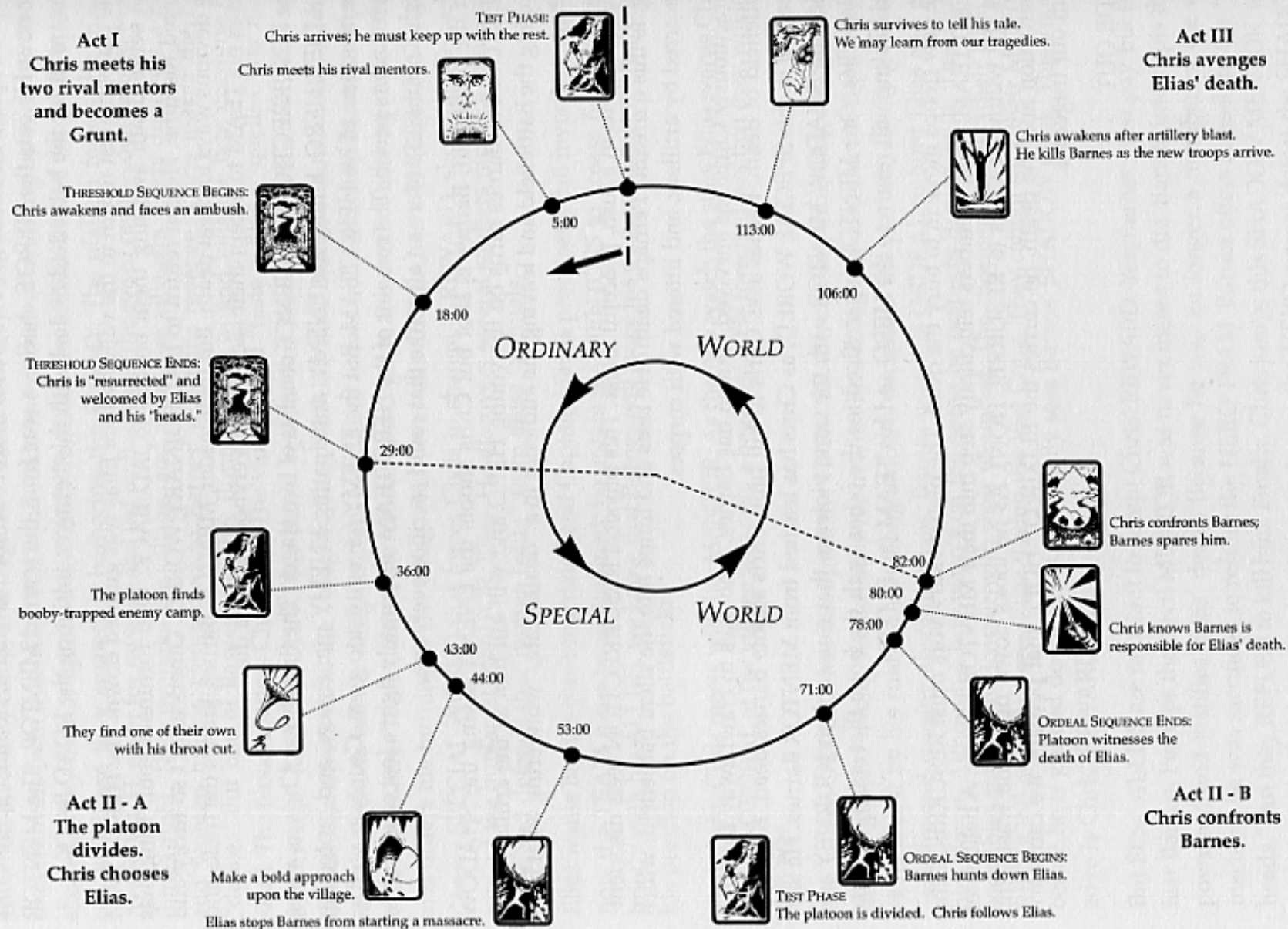




### The Journey:

A young soldier faces civil war within his platoon as Rival Mentors war for his soul.

PLATOON (U.S. 1986)  
120 min





# S U C C E S S

Because you too can own this face of pure accomplishment





# The Horror Story





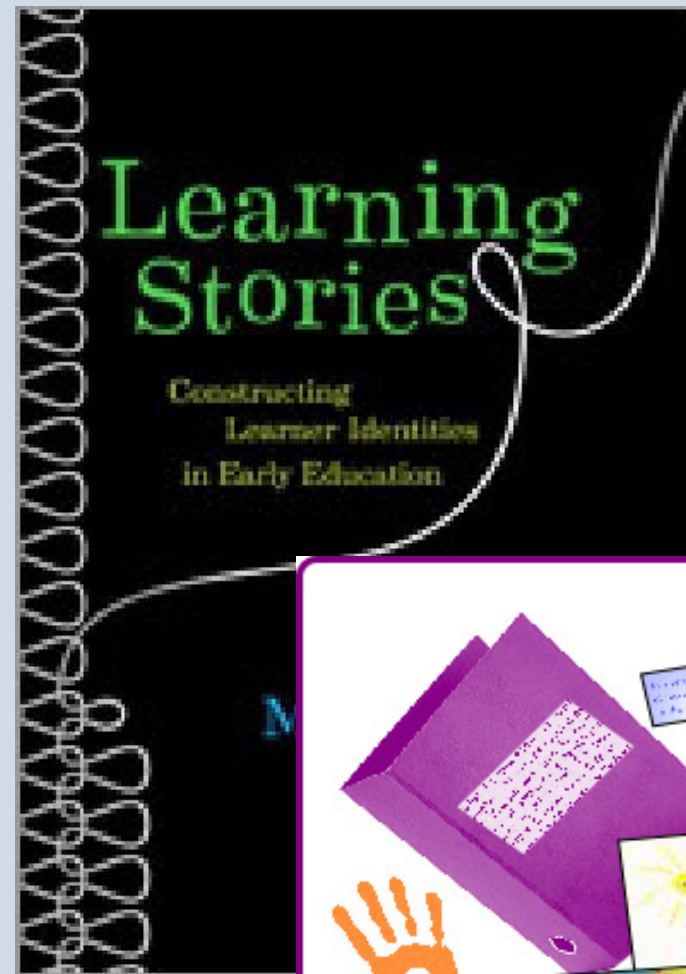
# FAILURE

Sometimes you just don't have an excuse



# The Learning Story

- Learning stories
  - Used in research & teaching, usually of children
  - Occur in the real world (not fictionalized spaces)
  - Specific context, place, and people play a role in the lesson
  - Require active engagement of teacher and learner





# Three Heroes (?) in Practice:

1. AJLC hero story: “a building like a tree, generates more energy than it consumes”
2. CONCERTO hero story: community scale renewable and rational use of energy will produce social & environmental benefits
3. UK Retrofit for the Future hero story: deep retrofits can deliver 80% carbon reductions



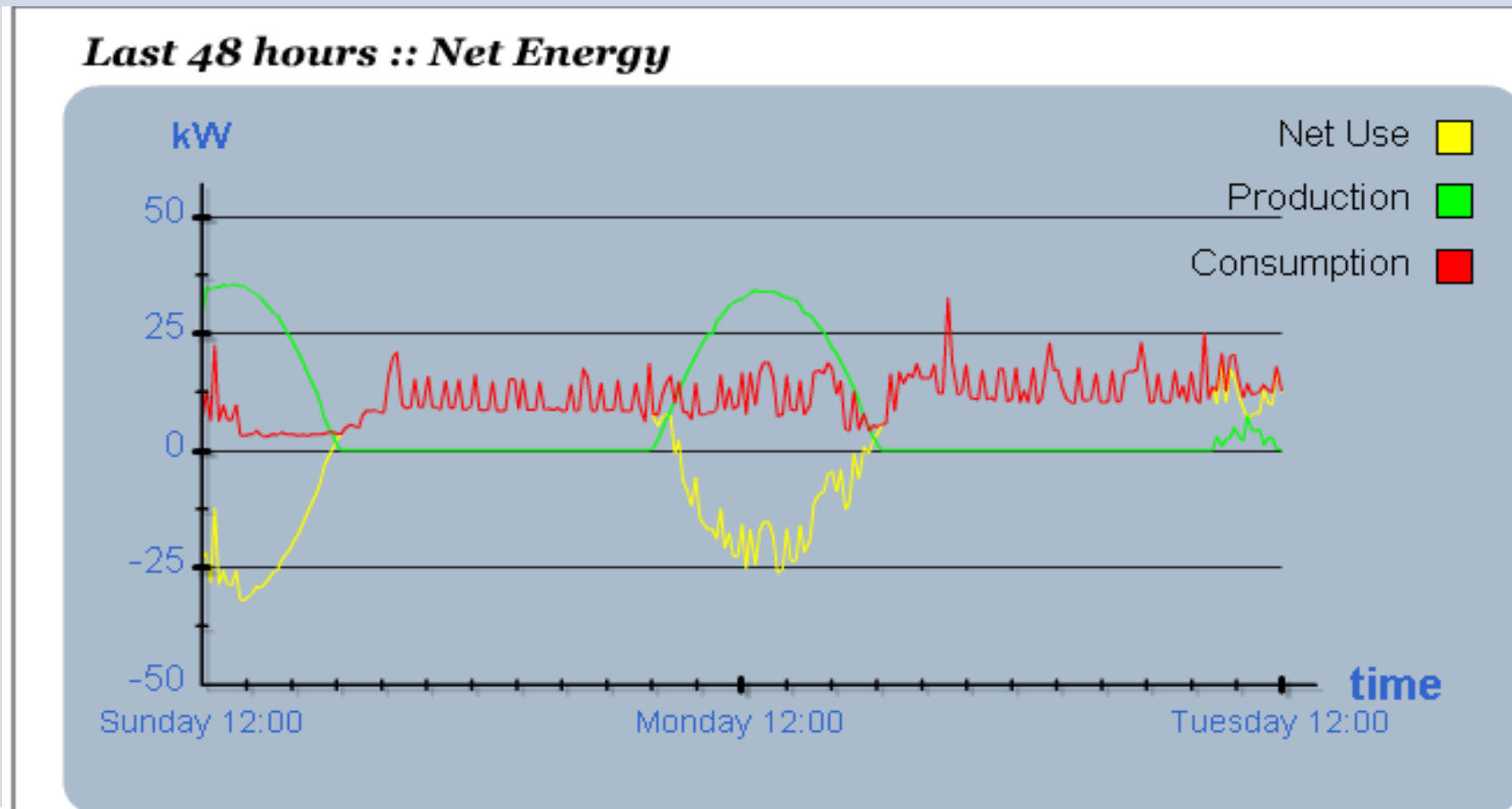
# 1. Adam Joseph Lewis Center (AJLC) for Environmental Studies, Oberlin College, USA

- 13,600 sq.ft.
- Classrooms, offices, library, auditorium
- Cost: \$ 7.1M
- Architect  
William McDonough  
+Partners
- **Green Features:**
  - **Passive solar heat**
  - **Daylighting**
  - **ground source heat pumps, 60 kW PV array**
  - **Living machine**
  - **Integrated landscaping**



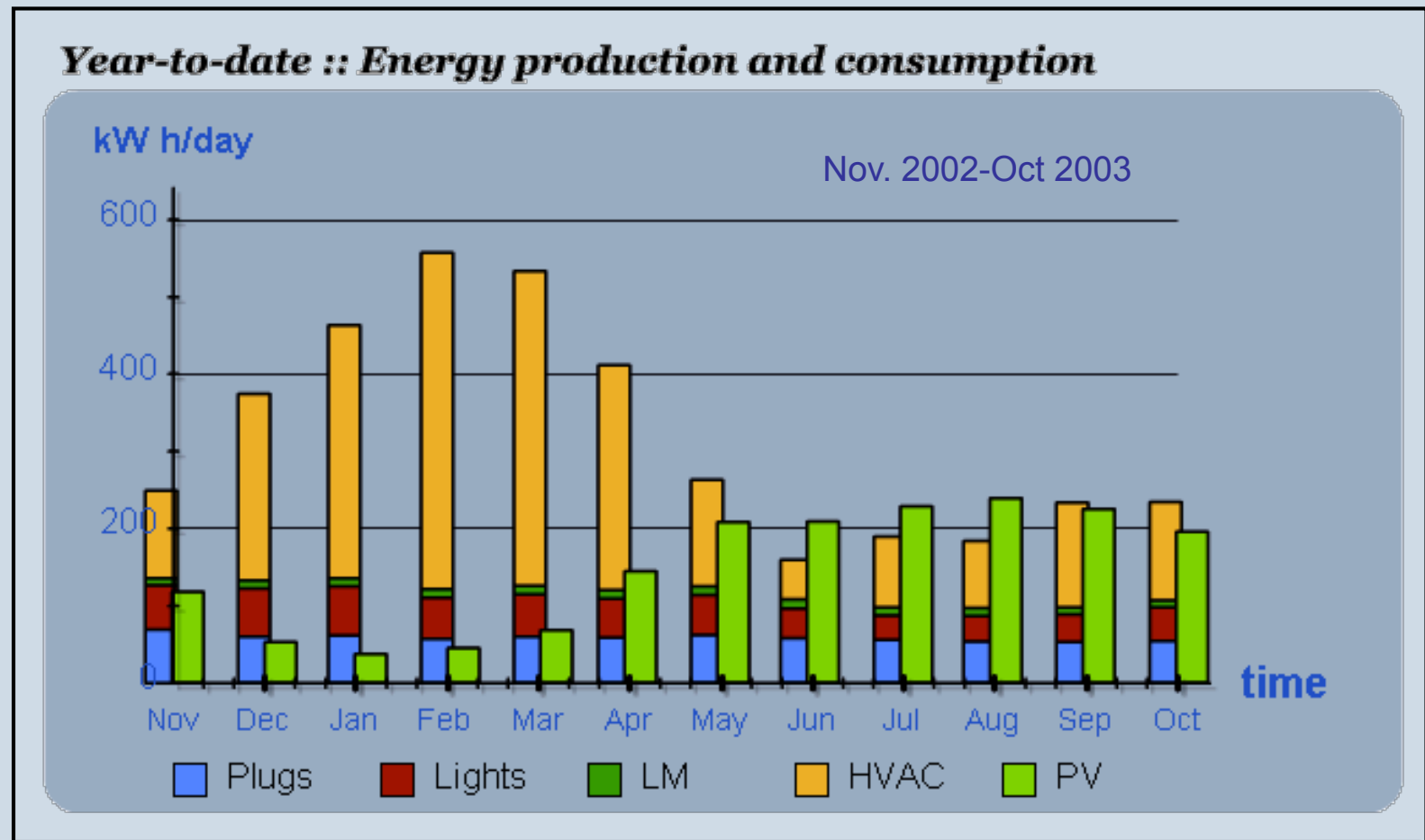
# Does the AJLC produce more energy than it consumes? Sort of...

Two-Day snapshot of energy production & use (October 2003)





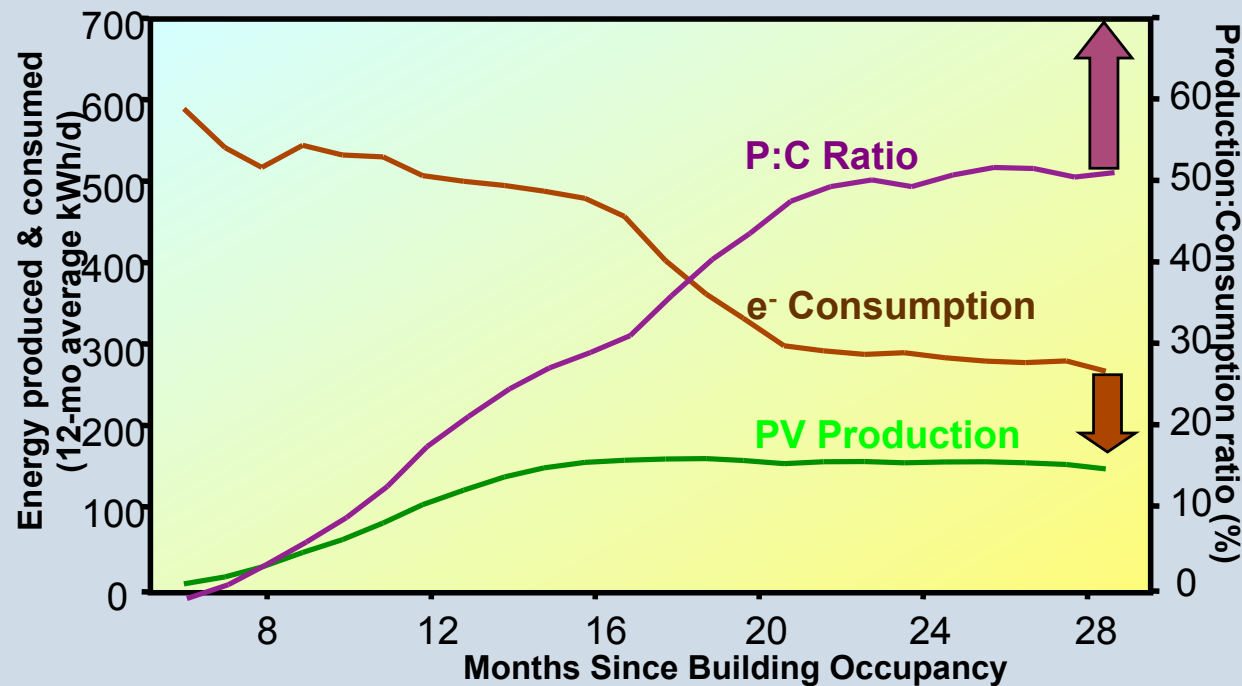
# Annual Snapshot of AJLC



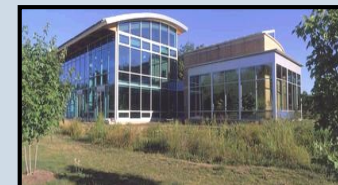
Source: J. Petersen

# Options for energy systems evolution

- (“Constant commissioning”)
- Fix, upgrade and expand specific technologies
  - e.g. Underfloor air distribution
- Alter control strategies
- Alter human behavior



Time



Or...add another 100 kw PV Array  
(for more than a million dollars)





## 2. CONCERTO: What is it?



- 22 technology demonstration projects comprising 58 communities and sites located in 23 countries in Europe

- innovative technologies ready to be applied
- use of renewable energies sources for cities
- energy efficiency measures
- sustainable building and district development
- economic assessments
- affordable energy
- energy transparency for citizens

- cRRescendo: 4 cities:

- Almere, Netherlands
- Milton Keynes, UK
- Ajaccio, Corsica
- Viladecans, Spain

- optimisation of whole communities will:
  - » Stimulate the local economy
  - » Reduce local emissions
  - » Change the energy generation mix



# Concerto Hero Story

**Table 1. CONCERTO Socio-Economic Indicators** (Issues 1-3 = Social; 4=Environmental; 5-8=Economic)

No.	INDICATOR	UNIT / SCALE OF MEASUREMENT
1	Degree of satisfaction / acceptance	a) % of owners/tenants/inhabitants/ etc. satisfied with the CONCERTO measure b) 5 point Likert scale: degree of acceptance by owners/tenants/inhabitants
2	Level of information & direct participation	a) % of stakeholders / inhabitants / tenants / etc. satisfied with the level of information on the CONCERTO activities b) % of stakeholders / inhabitants / tenants / etc. who feel more informed about energy topics after the CONCERTO measures than before c) 5 point Likert scale: degree of satisfaction with the level of information on the CONCERTO measure d) 5 point Likert scale: perception on involvement in decision-making in the CONCERTO area
3	Active/proactive householders behaviour	a) % of householders in the CONCERTO area taking part in a feedback system on their energy consumption b) % of householders who changed their energy consumption behaviour c) 5 point Likert scale: perception on how much the CONCERTO measure changed the behaviour of the householders d) 5 point Likert scale: willingness to invest in energy saving measures or to pay more for RES / EE / green electricity e) % of people who are willing to invest in energy saving measures or to pay more for RES / EE / green electricity
4	Improvement of local environment and internal comfort level (humidity, temperature, noise)	a) % of reduction of CO <sub>2</sub> emissions as compared to the basis year b) % of reduction of pollutants (PM10, SO <sub>x</sub> , NO <sub>x</sub> , CO, O <sub>3</sub> , etc.) c) % of inhabitants in the CONCERTO area feeling that the comfort level in CONCERTO district has improved
5	Economic-ecologic cost effectiveness	a) Costs in M € per avoided ton of CO <sub>2</sub> b) % of reduction in energy costs per m <sup>2</sup> of building area c) 5 point Likert scale: influence of the CONCERTO measures on the energy bills
6	Increase in local control of energy supply / local energy production due to CONCERTO measures	a) % of locally produced energy of the total energy consumption (thermal energy and electricity) - CHP b) % of locally produced energy of the total energy consumption (thermal energy and electricity) - RES c) 5 point Likert scale: perception / acceptance of local control of energy supply
7	Stimulation of local economy	a) Number of jobs created in course of the CONCERTO activities b) Number of new businesses created in the CONCERTO area c) Number of trainings/ of persons/ of day per person/ or hour per person offered in course of the CONCERTO measures d) % increase in real estate and flats value e) % Changes in community demographics - neighbourhood growth f) 5 point Likert scale: perception of stimulation of local economy
8	Pay Back Period (investor side)	a) Payback Period b) 5 point Likert scale: perception of Pay Back Period of CONCERTO measures

# Grand plans before the recession...

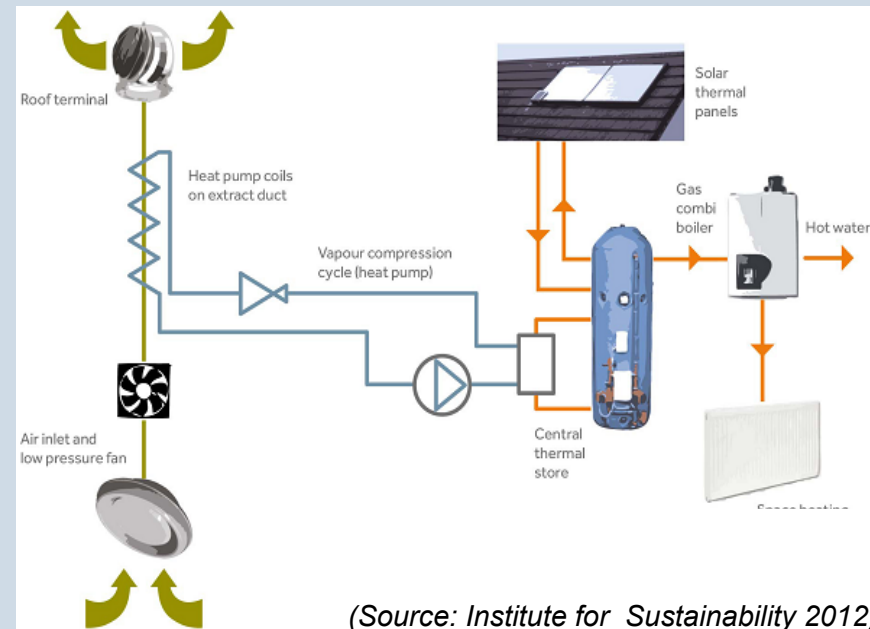
**Table 2. Summary of cRRescendo activities.**

	City Population	Project Building Types	Initial Estimate of Participant Population	% of population affected (initial)
Ajaccio (Corsica)	65,000	Mostly residential refurbishment	2,000	3%
<u>Viladecans</u> (Spain)	64,000	Non-residential (half refurbishment, half new build)	6400	10%
Milton Keynes (UK)	246,000	Residential, Office, + CHP (mostly new)	3800	2%
<u>Almere</u> (Netherlands)	190,000	Mostly residential, + new solar thermal "island" (all new)	5000	3%



### 3. UK TSB Retrofit for Future programme

- Low-carbon retrofit strategies to achieve 80% CO<sub>2</sub> reduction
- Innovative solutions, combined systems and low-carbon measures
- Social housing tenants
- 119 building units
- 86 different projects



**For more info: Panel 8 Today 11:00–12:30**  
Low-carbon refurbishments: How passive or active are technologies, users and their interaction – **Marina Topouzi**



## CO2 CUT: Eco-renovation for research project



■ **MORE EFFICIENT:** The Victorian house in Nelson Street, Jericho, with solar panels and heat exchange units on the roof; inset, Steve Bishop, Prof Rajat Gupta and Shirley Bishop with a monitor that displays CO2 amount and temperature; Prof Gupta and Mr Bishop with equipment in the loft  
Pictures: Jessica Mann and Andrew Walmsley

# Victorian terrace's big eco makeover

■ Fran Bardsley

**FROM** the outside, it is a typical Victorian terrace.

But behind its 19th century facade lies the latest in 21st century carbon-cutting ideas.

That is because the Nelson Street home in Jericho has been completely eco-renovated as part of an ambitious research project.

The couple living there, Steve and Shirley Bishop, are to be the subject of scrutiny for two years as their energy consumption and carbon emissions are monitored.

The house is one of 87 taking part in a Government project looking at how CO2 emissions can be slashed by making changes to housing stock.

Vast quantities of floor, ceiling and wall insulation have

### JUST SOME OF THE 'GREEN' RENOVATIONS

- Windows — new triple-glazed windows.
- Photovoltaic cells — 8m2 of solar panels on the roof.
- Solar thermal hot water — tubes on south-east facing roof supply hot water to the water cylinder in the first-floor bathroom.
- Front wall — 82.5mm internal insulation
- Rear wall — 82.5mm internal insulation plus 200mm external insulation
- Roof — 420mm loft insulation with airtight vapour barrier.
- Flat roofs — 230mm loft insulation covered with a high performance membrane.
- Ground floor — new floating chipboard floor with 10mm insulation taped to walls to ensure it is air tight
- Mechanical Ventilation Heat Recovery — ducts in loft supplying air to habitable rooms, and extracting air from wet rooms.
- Monovent sunpipe — to improve natural light and ventilation in the darkest part of the house

Mr and Mrs Bishop, 59 and 55, have lived in the council property for 21 years.

Mrs Bishop said: "It's amazing. There are no drafts, it's much, much lighter because of the triple glazing and taking out the wall."

"The air quality's really very good, not to mention the low energy bills."

She hopes people would be inspired by the project

could have a basis for comparison.

"It had no insulation, very poor daylight levels and poor ventilation so we used that information to choose the strategies for the house."

"The whole aim is to find out whether existing housing can achieve a target reduction of 80 per cent carbon emissions and so far the project shows this can be done."

£10,000 to £15,000 if improvements were rolled out on a wider scale.

The majority of the savings, amounting to a reduction of 65 per cent, came from 42cm thick insulation in the loft.

A highly efficient heating system, efficient lighting and appliances brought the carbon emissions down to 75 per cent, with the remaining 10 per cent from solar water

### IN BRIEF

#### Assistance for creating a will

**W OXON:** Mencap will hold a seminar in Witney next month to offer advice to parents on making financial plans for children with a learning disability.

The Planning for the Future event will be held at Witney Town Council, Market Square on Monday September 19 between 12.30 pm and 2.30pm.

An independent legal professional specialising in wills and trusts will talk about the options for how best to leave money in a will to a loved one with a learning disability, ensuring they get the best financial support they are entitled to.

To book a place or for more details call Gina Collins on 020 7696 6925 or email [willsandtrusts@mencap.org.uk](mailto:willsandtrusts@mencap.org.uk)

#### Volunteer drive

**OXFORD:** Representatives from the British Heart Foundation will visit the Westgate Centre on Thursday in their drive for volunteers.

The charity is looking for anyone with an hour to spare and will be at the centre from 11am until 5pm.

To volunteer, contact Rachel Davis on 07879 440415 or contact [davisr@bhf.org.uk](mailto:davisr@bhf.org.uk)

#### Ambulance aid

**ABINGDON:** The Abingdon Air and Country Show, which was held in May at Dalton Barracks airfield, raised £7,000 for Thames Valley & Chiltern Air Ambulance Trust.

The event has now raised £22,500 for the charity since 2007.

### A lifeline for animals

Can you give our needy animals a second chance?

The Blue Cross has many horses, dogs, cats, rabbits and small animals in need of loving new homes.

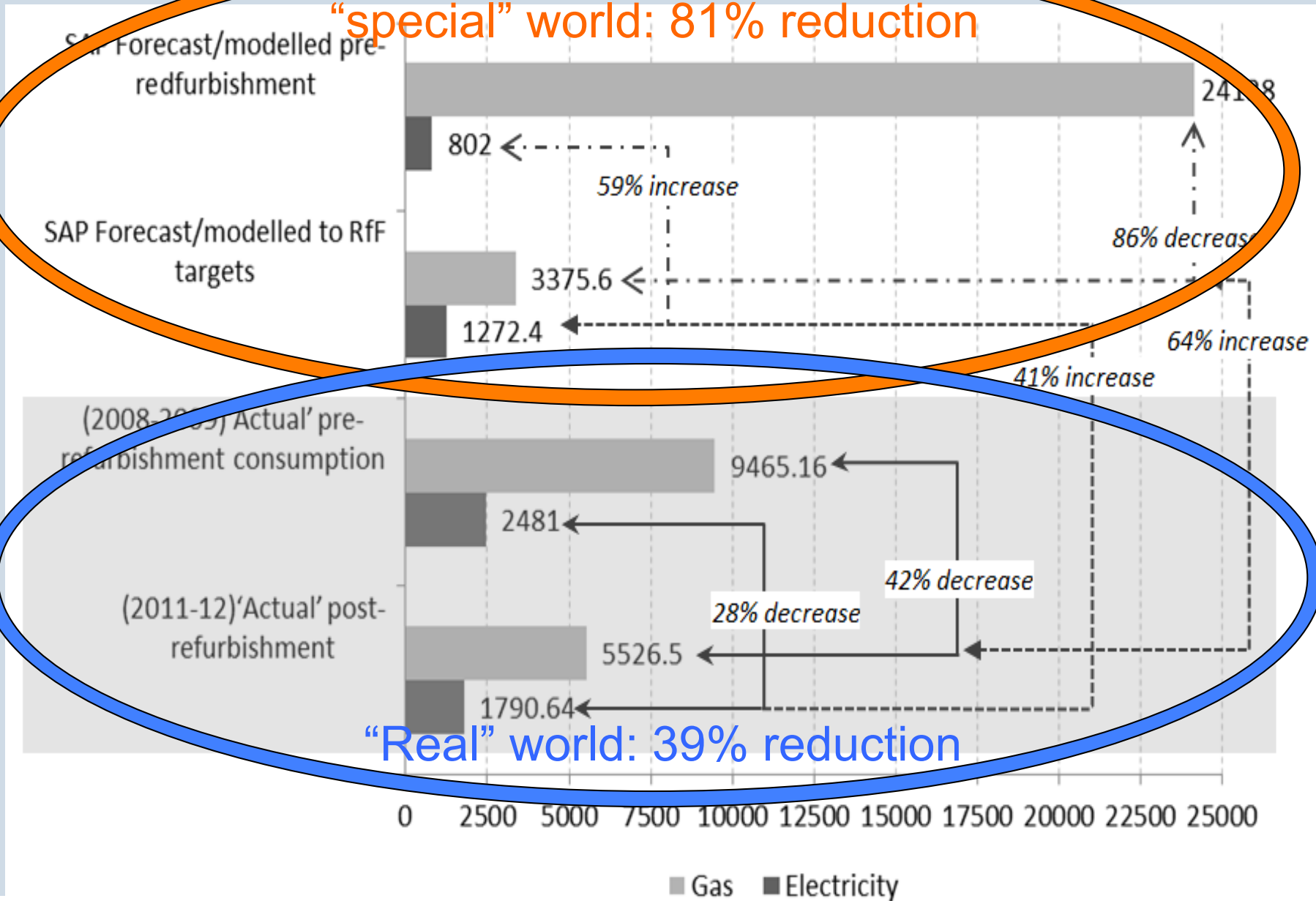


The Blue Cross  
Burford Adoption Centre

KERC



**“special” world: 81% reduction**



**“Real” world: 39% reduction**



# Three Heroes (?) in Practice:

- Goals not reached
- Learning stories in each case affected by requirements to tell the hero story



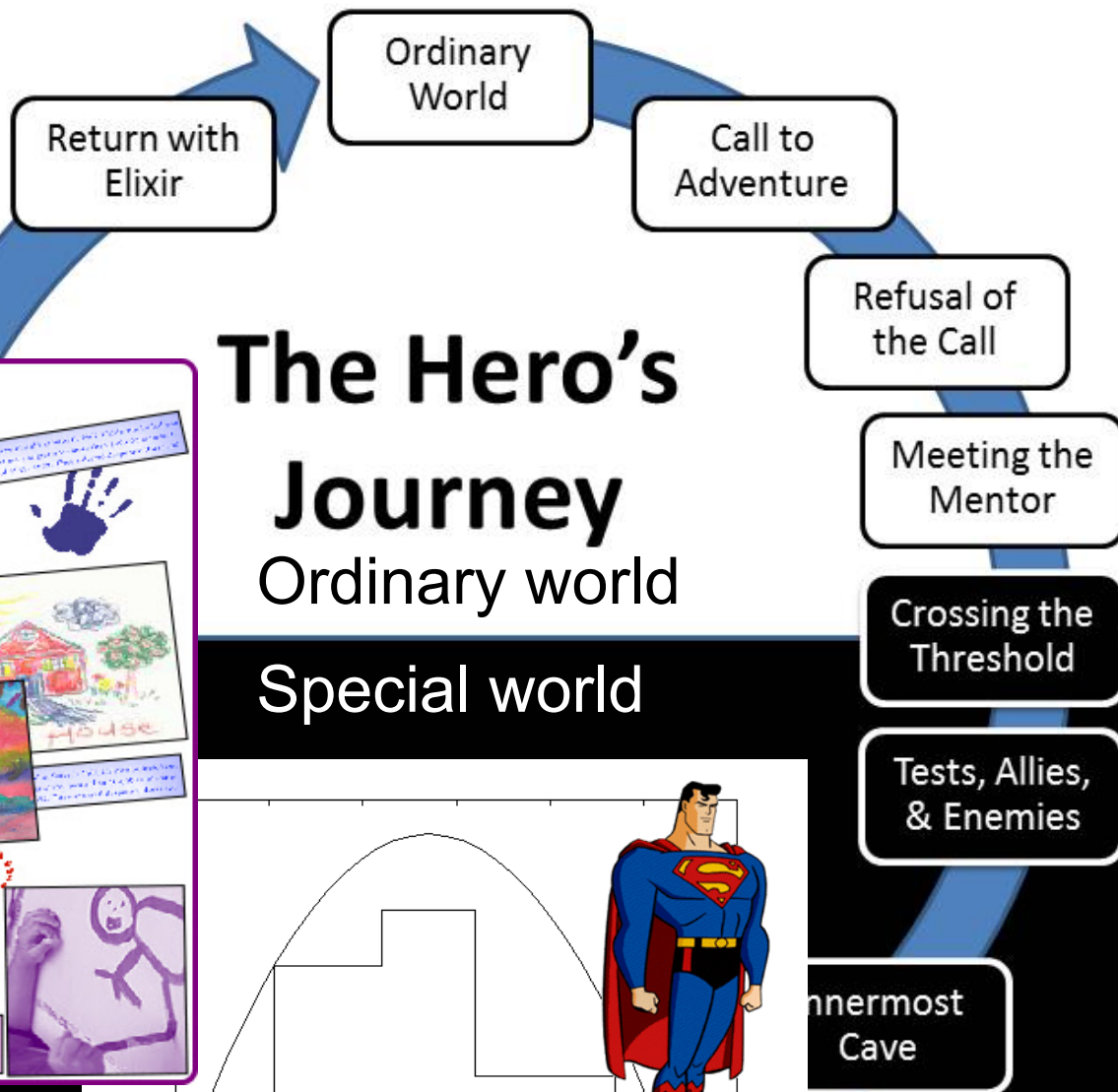
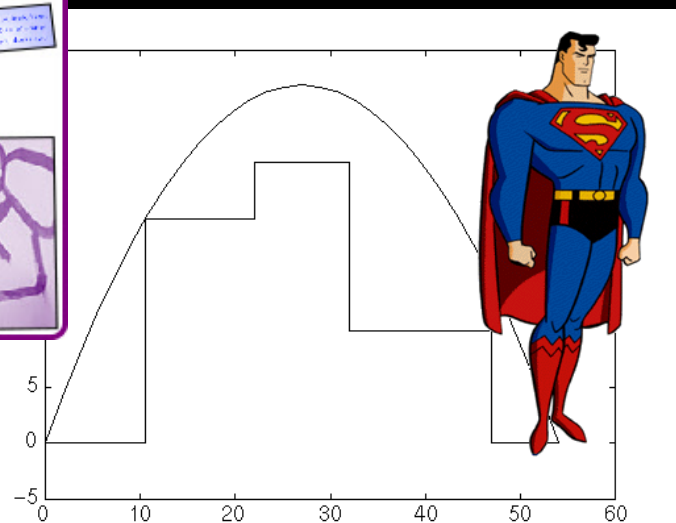
Is the imaginary world distracting us from the real one?



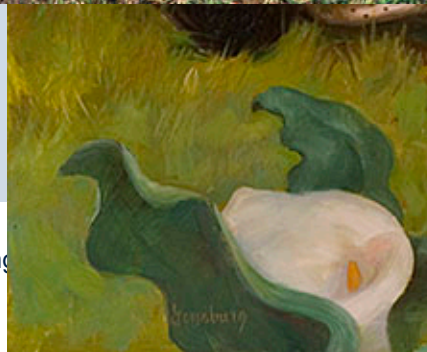
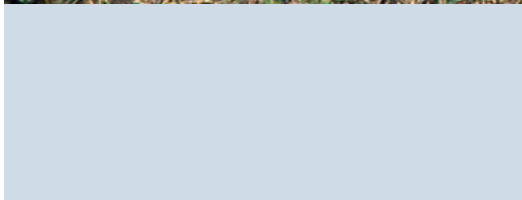
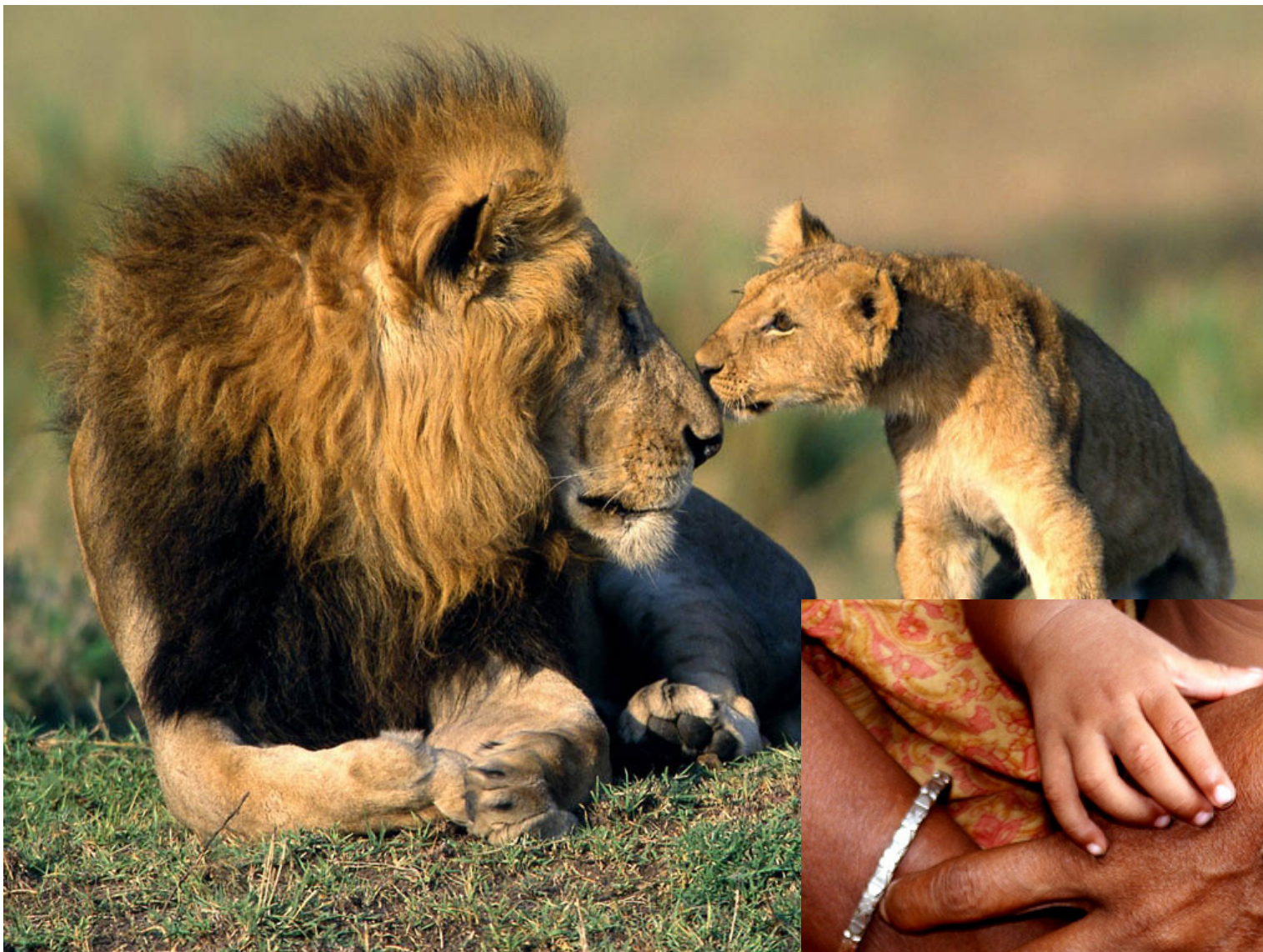


# The Hero's Journey

Ordinary world  
Special world



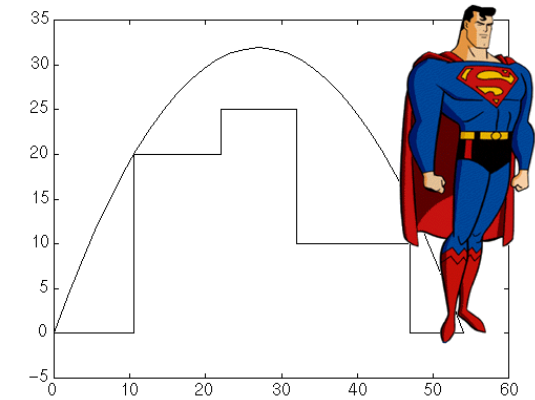
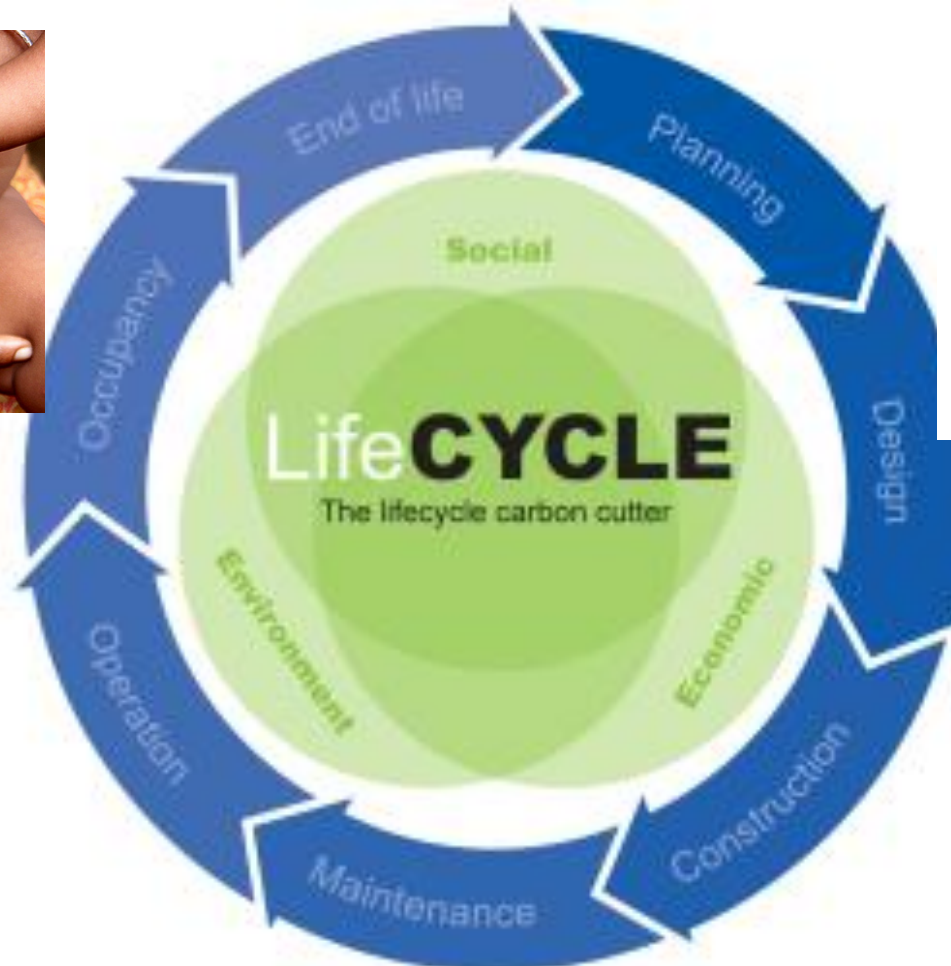




Hero & Learning

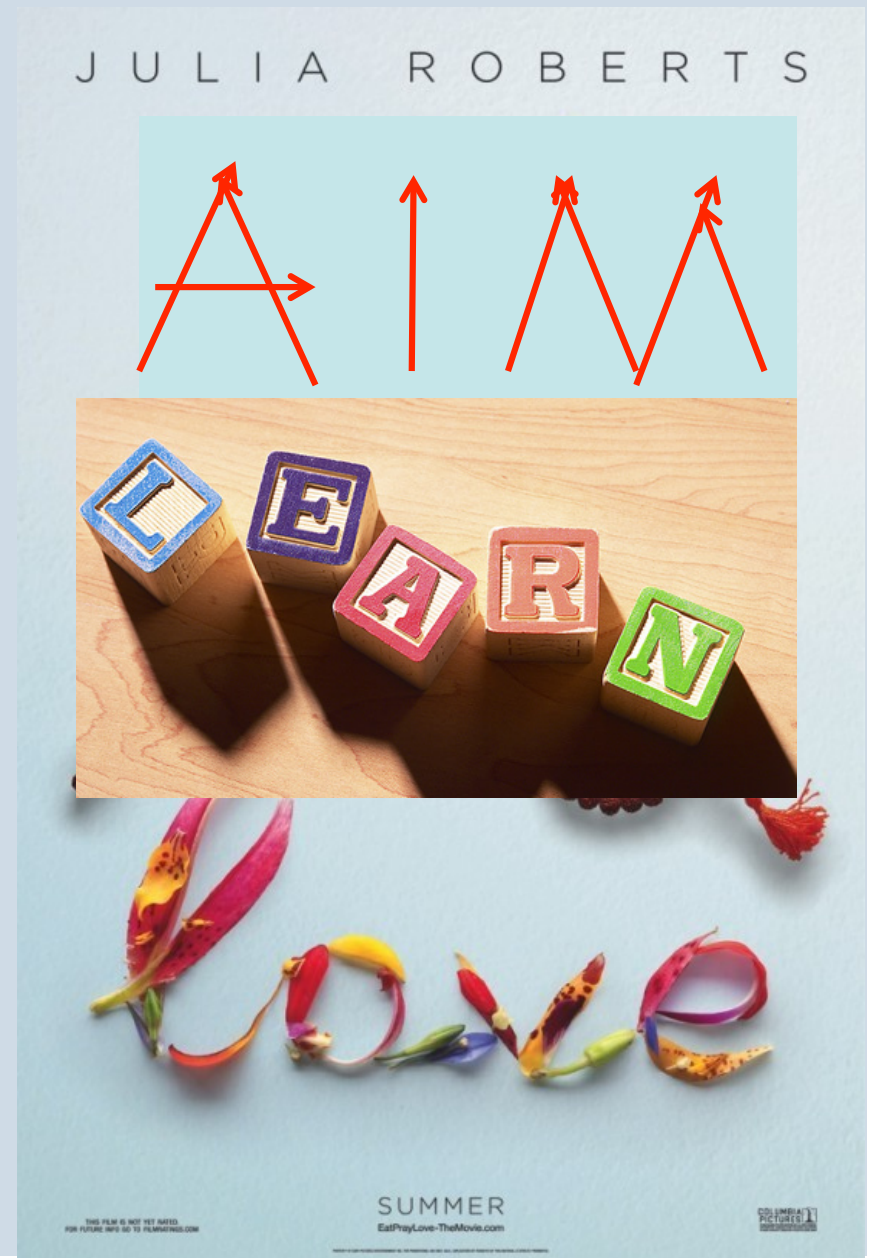


# Completing the Loop



# Conclusions

- Have one storyline
  - Hero story has some problems
  - Gets stuck in the “special world”
- Propose three storylines to better address our goals in the real world
  - Hero
  - Learning
  - Love





# Thank you!

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