

Why It Makes Sense to Give Stuff Away (The CANTEACH Project)

by

Bill Garland, McMaster University

Malcolm Lightfoot, CANDU Owners' Group

Dan Meneley, AECL (Retired)

Mersedeh Safa, CANDU Owners' Group

Table of Contents

- **What is CANTEACH?**
- **How is CANTEACH implemented?**
- **Why CANTEACH is needed?**
 - **SDT**
 - **Examples**
- **Conclusion**


What is CANTEACH?

- CANTEACH is a web-based resource library aimed at preserving knowledge of the CANDU[®] nuclear-electric generating system technology.
- It is open to the public domain for use by anyone interested in knowing more about CANDU including present and future members of the CANDU community.
- This paper briefly introduces CANTEACH and discusses the rationale behind ‘giving stuff away’.



**Why we
need
CANTEACH**

**Intellectual Capital
=
Key Asset**



Expertise gap due to:
- early expansion,
- then stagnation,
- then retirements.

**Access to
information**

is required for

**Education
and Training**



CANTEACH

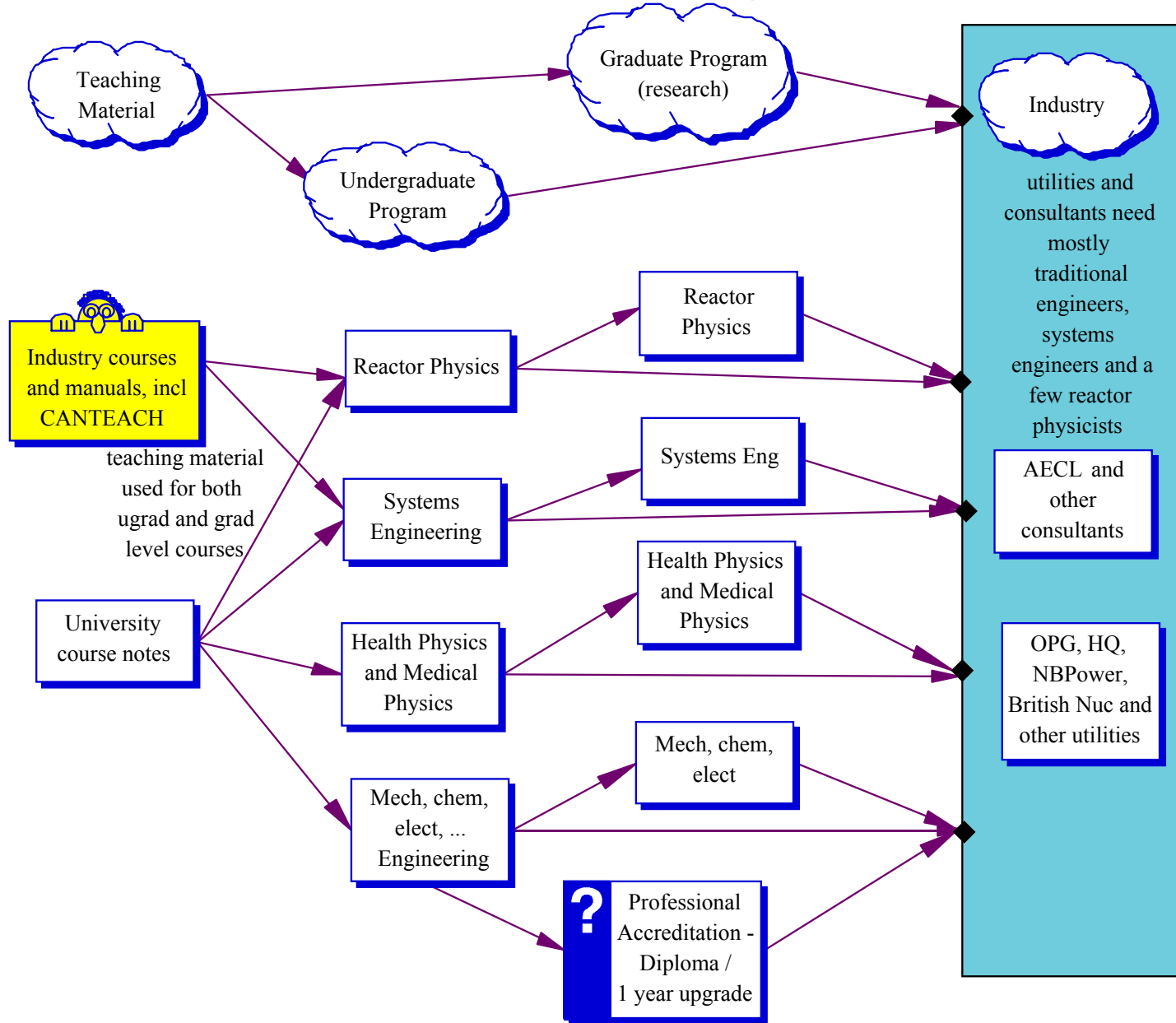
This
underpins
all we do.

**The
Web**

**CANDU
Docs**

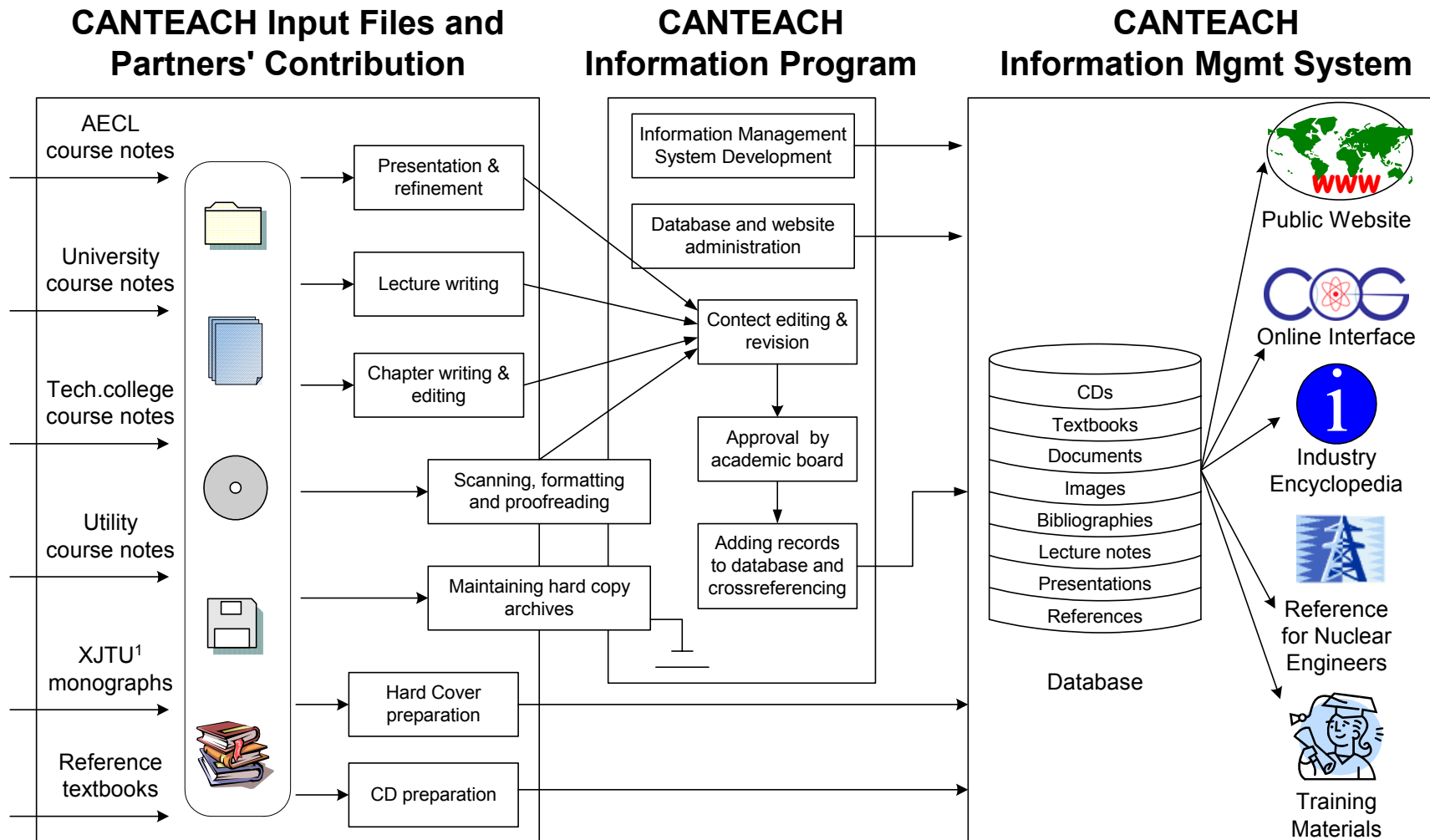
The focus is on
education and
training in the
fundamentals, not in
trade secrets

Nuclear Education Program



- Prior to CANTEACH, there existed almost no PUBLICALLY available technical educational material.
- Young people entering our field of study need it.
- University professors need it.
- Very few of the documents detail why CANDU is designed the way it is.
- How can designs evolve appropriately and how can retrofits and design changes be implemented correctly if the ‘whys’ are not elucidated?
- How are the graying experts passing on their experiences, knowledge and wisdom?
- Addressing these issues will help give us the ability to share the knowledge. It is this need that the CANTEACH project is striving to fill.

Project Model



¹ A group of technical monographs being prepared by academic staff of Xi'an Jiaotong University in China with the support of AECL.

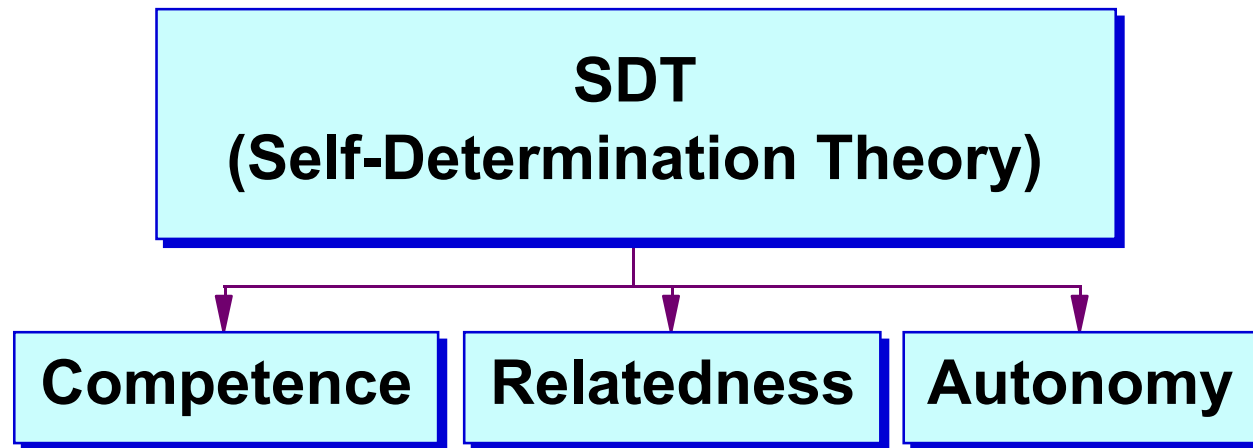
Website Tour

The screenshot displays the CANTEACH website interface. At the top left is the logo, which features a stylized atom symbol with a book inside, next to the text 'GG ANTEACH'. To the right of the logo is a search bar with a 'Search' button. Below the logo and search bar is a navigation menu with the following items: Home ♦ What's New ♦ CANTEACH Project ♦ Library ♦ Help. Underneath the navigation menu is a grey banner with the text: 'The most comprehensive educational and reference library on CANDU technology'.

Below the banner is a scrollable box containing the text: 'Welcome to CANTEACH Project' and 'Find out what CANTEACH is'. The main content area is organized into a grid of sections:

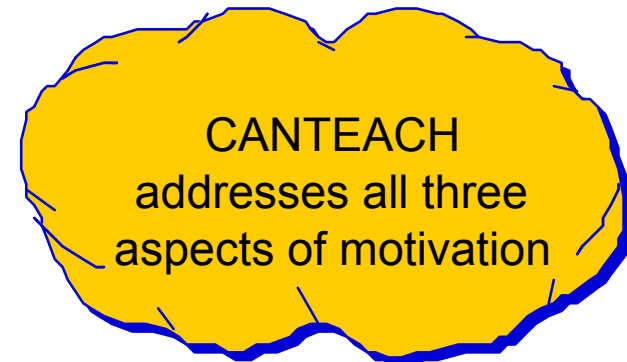
- Concept Map Library**: See the bigger picture of how technical information on CANDUs is organized.
- CANDU Systems and Components**: Information organized by BSI, components, etc.
- Site Map**: Represented by a globe icon.
- Help Desk**: Represented by a red question mark icon.
- Teacher's Lounge**: Introduction to CANDU, Bibliography, Who's Who, Links.
- Documents Library**: Browse, search and download documents. Represented by a stack of books icon.
- Image Library**: Browse, search and download images.
- New Arrivals**: Represented by a green exclamation mark icon.
- Index**: Represented by a stack of books icon.

At the bottom of the main content area is a footer bar labeled 'CANTEACH Library'.



A person is motivated to do something if:

- she is good at it,
- it is meaningful or matters in some way, and
- if she has decided this herself.

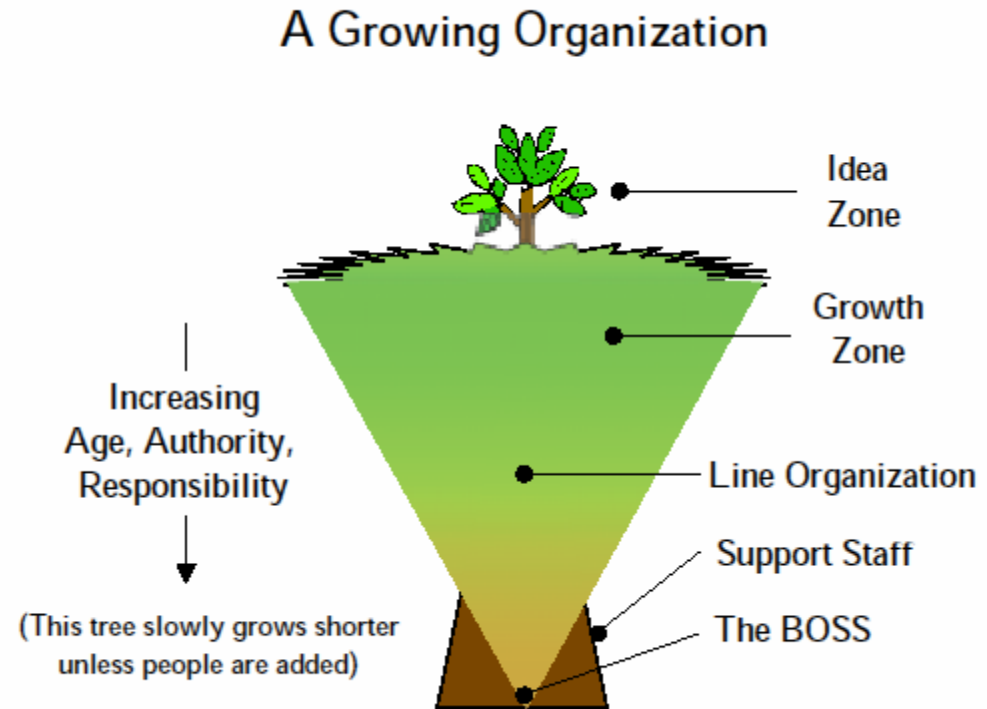


CANTEACH aids the gaining of skills and competency

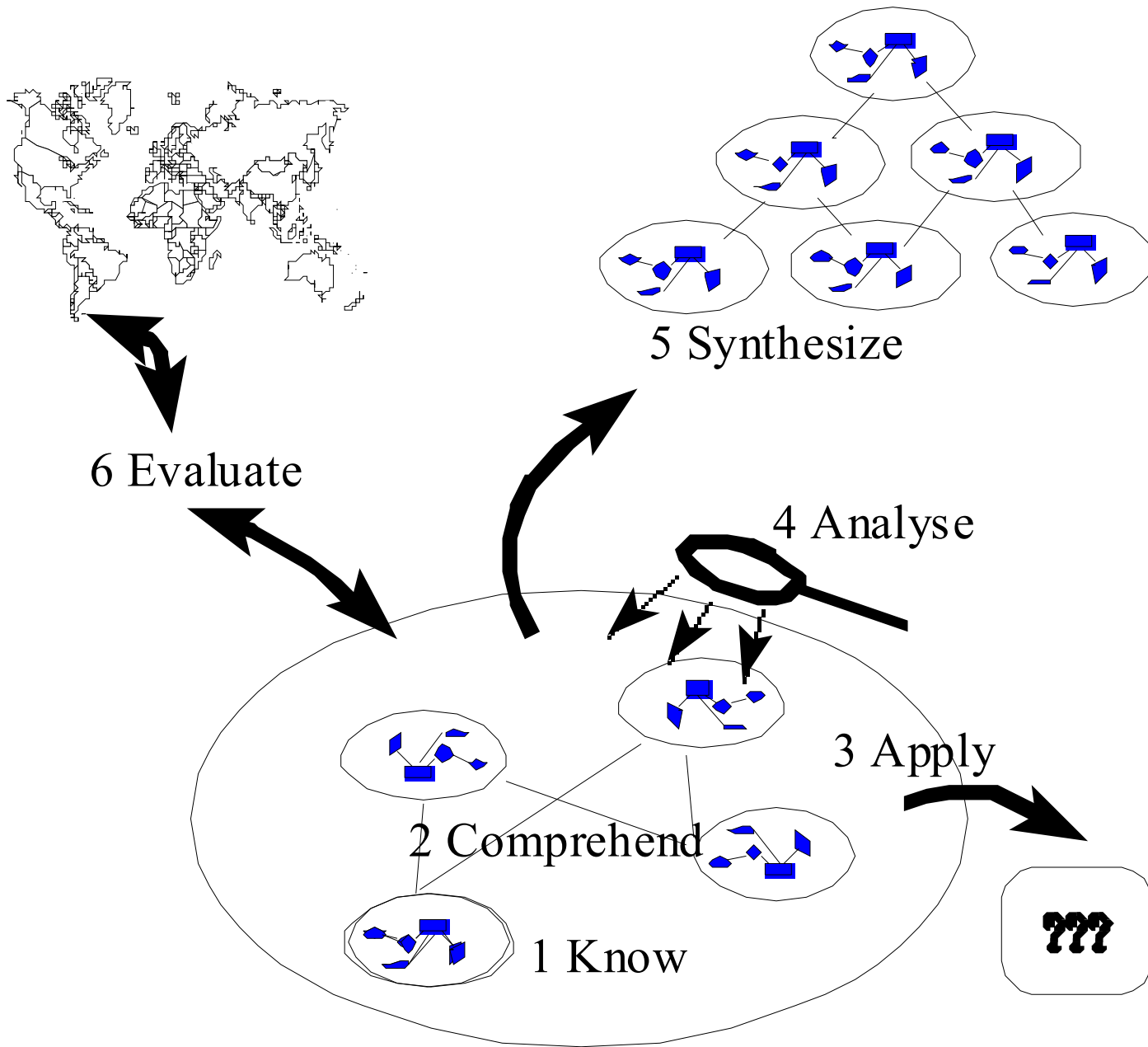
CANTEACH is all about CANDU, therefore is relevant

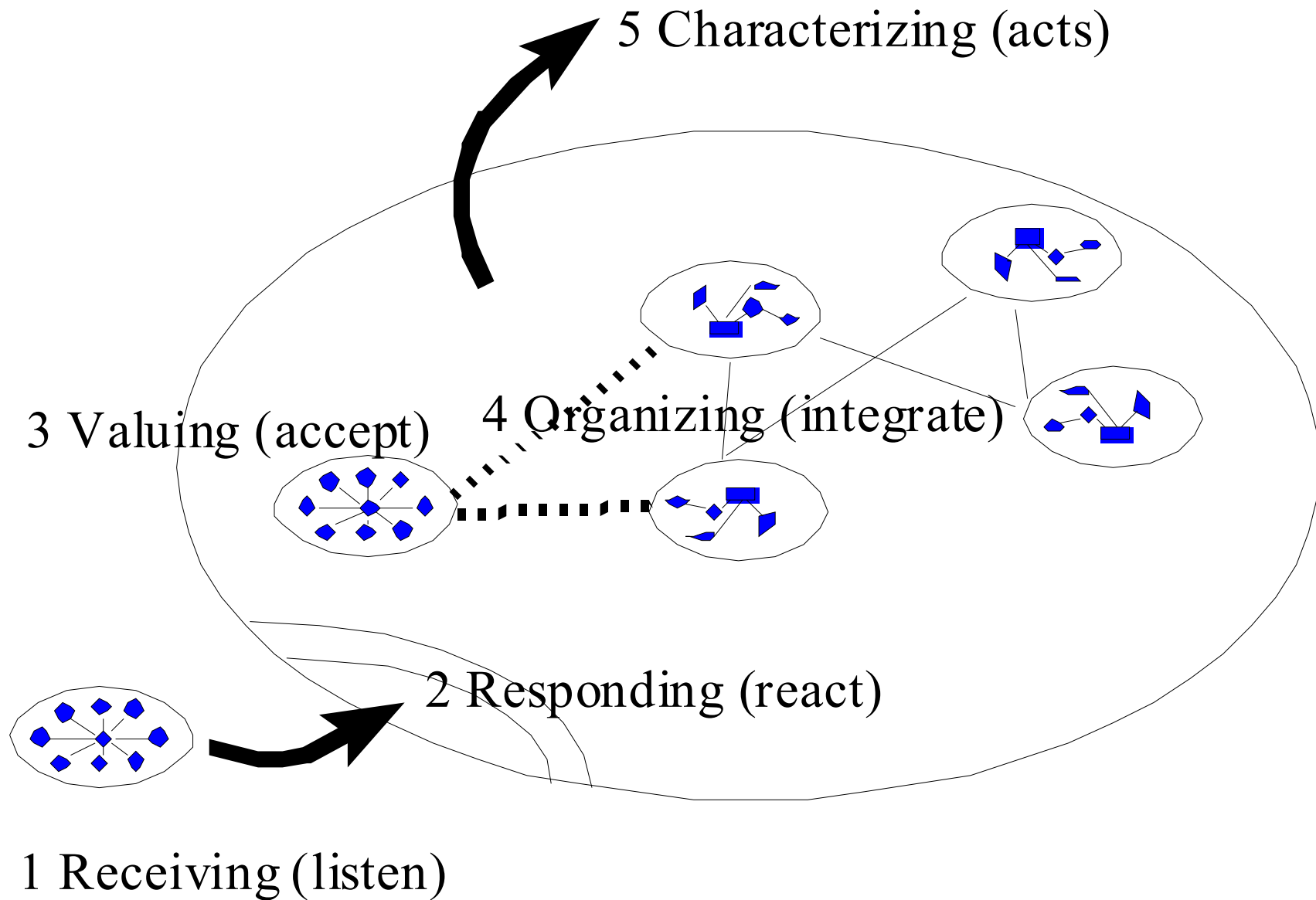
CANTEACH is freely available for when YOU want the info, therefore, YOU have control

- This is relevant since
 - it engages people
 - It empowers them
 - It is transparent.
- We don't tell people what to think but we provide the means to permit thinking and aid the personal decision.
- This is key in generating an engaged, enthused and knowledgeable bunch of engineers.
- These are the main sources of growth in an organization.



- But why give away this technical knowledge by making it public domain on the web?
- Let's address this good question by
 - Acknowledging that this is an attitude issue
 - Drawing on a series of examples.





From the Mouths of Babes:

1, 2, 3.....∞

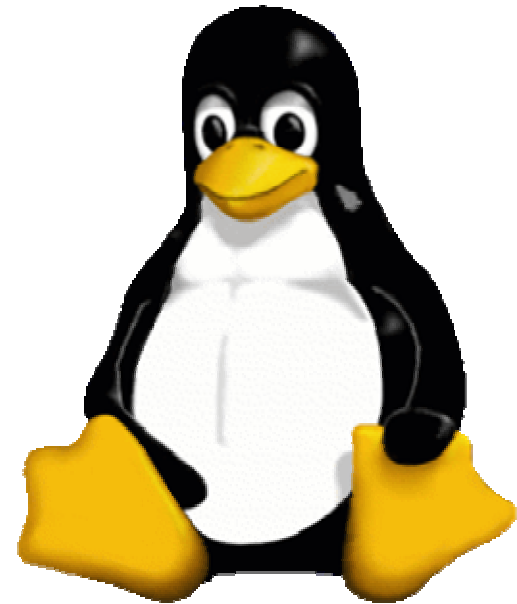
1, 2, 3..... ∞ OUTfinity

- With a single word, a 4 year old burst through an existing constraint.
- We are left more receptive, more open, to novel schemes that on the surface seem counterintuitive.
- In the context of the current discussion, **it just might make sense to give stuff away.**

The Linux analogy:

- Open source computer code
- The Linux operating system is completely free, is gaining market share and surpasses Microsoft in some areas.
- How is that possible?
- Simple; you survive, and even thrive, by selling service.
- Robert Young states

“No one expects it to be easy to make money in free software. While making money with free software is a challenge, the challenge is not necessarily greater than with proprietary software. In fact you make money in free software exactly the same way you do it in proprietary software: by building a great product, marketing it with skill and imagination, looking after your customers, and thereby building a brand that stands for quality and customer service.”



Apple vs. IBM:

- Apple chose to keep its architecture closed.
- IBM, opened its architecture to the public domain.
- IBM got a small percentage of a very large market.
- Apple ended up with 100% of a very much smaller market.
- IBM profited more by far than Apple in the PC market.



The Twisted Fork:

- It holds cooking classes and releases its recipes – which is key information for them
- Apparently, they are a thriving business.
- The value lies in expertise that exists in the chefs and in the service that they provide.
- Giving away culinary secrets in classes only enlarges their client base.



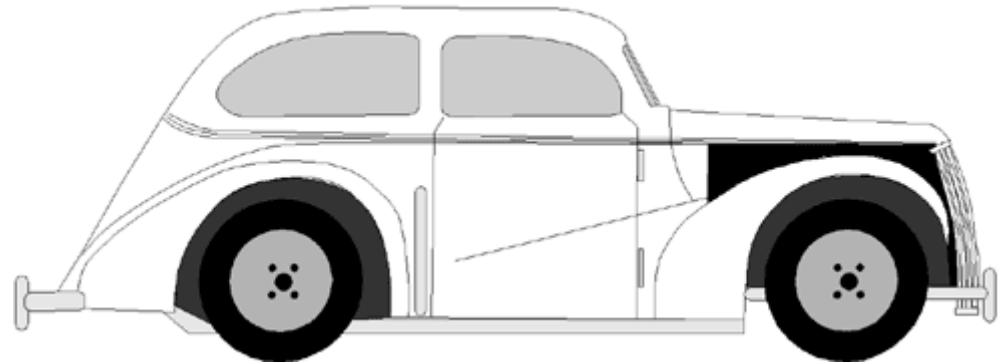
Happy Days:

- Howard Cunningham, the father, who ran a hardware store, was ill.
- His wife filled in for a week.
- She sold paint at well below cost.
- Yet made a profit
 - because of increased sales of paint brushes and other accessories.



Auto Industry:

- How do car makers survive given that a competitor can buy and disassemble your product?
- The answer is brand loyalty, reputation, service, quality, and cost effectiveness.



Standing on the Shoulders of Giants:

- Implicit in this discussion is the notion that we have not and do not learn and innovate in a void.
- Education is very much a social phenomenon.
- Sir Isaac Newton:
 - “If I have seen further, it is by standing on the shoulders of giants.”
- Hal Abelson, an EE professor at MIT:
 - “If I have not seen as far as others, it is because there were giants standing on my shoulders.”
- Insular thinking is a giant barrier to learning.
- We should do what we can to ensure that there are no such giants standing on the shoulders of the **New Nuclear Generation**.

Conclusion

- The CANTEACH project exists to provide access to existing legacy education and training documents and images, to distill the essence of these documents and to prepare new documentation.
- The underlying philosophy of an open and free, cooperative exchange of fundamental CANDU design and operation information has proven to be sound.
- We look forward to hearing your contributions, comments and suggestions after you visit the CANTEACH web site.
- Contact email addresses can be found at <http://canteach.candu.org/>.

Acknowledgements

The authors wish to thank all those individuals who have kindly donated to CANTEACH and the Partner institutions for their continuing support.