

**EHR Strategic Planning at the  
Center for Adaptive Optics (CfAO)**

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Presented at:

*Early Challenges Session*

*Visions and Voices: Educational Leadership in the Research  
Center Environment*

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# Outline

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- **History of CfAO EHR**
- **Strategic planning**
  - **Important elements to consider**
  - **Lessons learned by CfAO**
  - **Examples**
- **Time for questions**

# CfAO EHR: First two years

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- **Year 1:**
  - **Interim personnel “piggy-backed” on existing programs to get started.**
  - **Year 2 funding decisions made (CfAO has proposal process for all projects).**
  - **Permanent EHR director hired, just prior to site visit.**
  - **Site visit: very negative review of EHR:**
    - **Piggy-backing (some on past center projects)**
    - **Not based on “best practices”**
    - **Eclectic mix of programs, no focus, all levels**
    - **What will our legacy be?**

# CfAO EHR: First two years

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- **Year 2:**
  - **Terminated some programs, others carried along due to funding promises.**
  - **Developed and implemented new programs with limited funds.**
  - **Developed “essential elements” for all EHR projects.**
  - **Said “no” to lots and lots of requests to piggy-back.**
  - **Spent time changing the mind set of center related to EHR.**

## **What did we learn?**

**Strategic planning is essential and best done as early as possible!**



# Strategic Planning: Element to Consider

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- **Needs and opportunities**
- **Integrating research and education**
- **Bridging educational research and practice**
- **Overall program/individual projects**
- **Enabling EHR leadership**

# Needs & Opportunities

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- **Is project/program well matched with defined needs?**
- **Does project lead in a way that supports and utilizes existing efforts?**
- **Use of center resources: good use of people, places, research area? Significant in scope and duration? (IS THIS A “CENTER” PROJECT?)**
- **Being an NSF STC is prestigious - doors open for you. Are we taking advantage of this opportunity?**

# Needs & Opportunities: Early Challenges

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- Center not funded to “piggyback.” Institutions and others inclined to support existing programs.
  - *Lesson learned:*
    - Established “CfAO EHR Essential Elements.” Start every presentation this slide. This helps us maintain focused discussions, and say “no” to the stream of ideas that come through the door. Centers funded to do new things!
    - Find an unmet need amongst existing programs.
    - Find the balance between partnering and piggybacking (can we clearly define and evaluate our contribution?)

# “Essential Elements” for CfAO EHR Projects

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- **Uses the “center mechanism” (scope, scale, change, duration, high risk, resources, leverage)**
- **Involving all CfAO scientists and engineers in CfAO education (5% commitment by all)**
- **Increasing participation of underrepresented groups**
- **Trains US students for broad set of career paths**
- **New, innovative projects that bridge educational research and practice**
- ***Leading* in a way that supports and utilizes existing efforts (partnering, but not piggybacking)**
- **Authentic partnerships**

# Strategic Planning: Elements to consider

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- **Needs and opportunities**
- **Integrating research and education**
- **Bridging educational research and practice**
- **Overall program/individual projects**
- **Enabling EHR leadership**

# **Integration of Research & Education**

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- **Does project incorporate CfAO research into activities? Is it needed? Appropriate?**
- **Will it raise the importance of education and/or diversity in Center research environment?**
- **Will it provide opportunities for researchers to meaningfully contribute?**
- **Does it serve the needs of the community that supports research efforts?**

# Integrating Research & Education: Early Challenges

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- **Developing explicit goals/outcomes for researchers as “participants.”**
- **CfAO 5% EHR commitment: getting >100 researchers involved in focused efforts.**
  - ***Lesson learned:***
    - **Great leverage for getting scientists involved!**
    - **Make it a long-term goal.**
    - **Getting researchers involved in unfocused efforts just to get started is not always beneficial.**
    - **Develop programs that push them away from “feel good outreach.”**

# Integrating Research & Education: Early Challenges

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- **Expectation by some of the scientific membership that contributing to EHR will be primarily school visits and talks.**
  - ***Strategies:***
    - **Start with, and build on, preconceptions (sound familiar?).**
    - **CfAO focuses on two major approaches: Inquiry based learning and mentoring. Generally requires something beyond a “guest appearance.”**
  - ***Critical support:* NSF feedback/guidance has been really helpful. Researchers are taking it seriously and now ask “so...what are best practices?”**

# Strategic Planning: Elements to consider

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- **Needs and opportunities**
- **Integrating research and education**
- **Bridging educational research and practice**
- **Overall program/individual projects**
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# Bridging Educational Research and Practice

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## Use research approach!

- **Is project based on scholarly literature?**
  - **What is known in this area?**
- **What is innovative about project? New approach? Existing model in new context?**
  - **What are we planning that builds on or expands existing knowledge?**
- **If successful, what impact will project have? Will it contribute to the educational body of knowledge?**
  - **What will our contribution be when all is said and done?**

# Strategic Planning: Elements to Consider

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- **Needs and opportunities**
- **Integrating research and education**
- **Bridging educational research and practice**
- **Overall program/individual projects**
- **EHR leadership within center leadership**

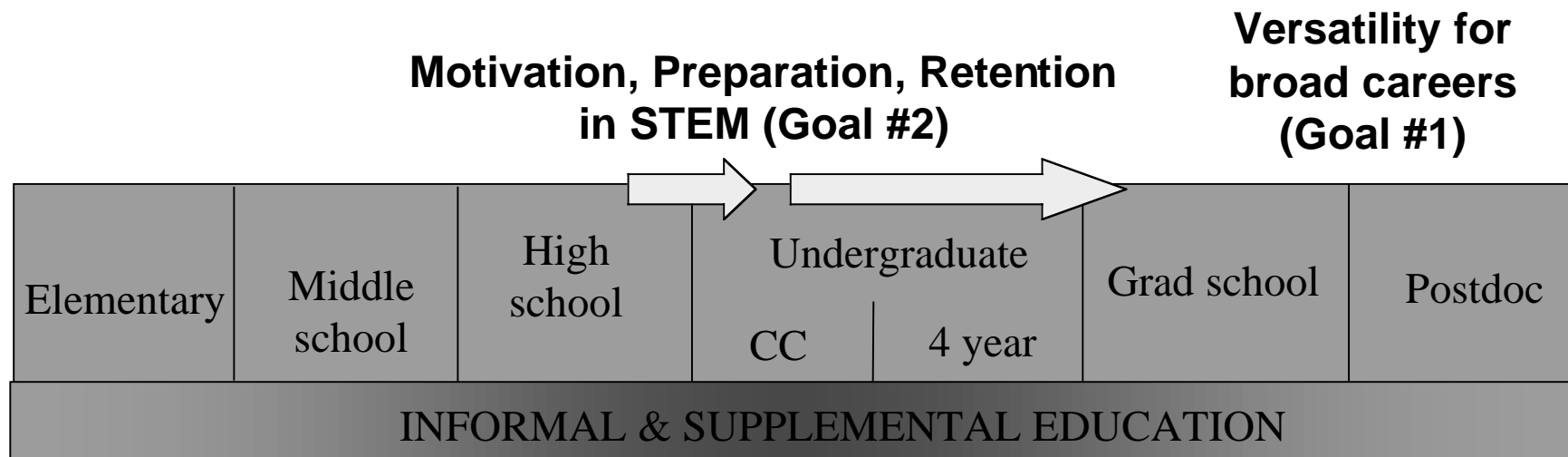
# Overall EHR Program

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- **Created a set of projects that fit together and complement each other.**
- **Designed some projects that are higher risk, some that are based on successful models (CfAO Core Programs).**
- **Defined focus, and only diverge for a very good reason (haven't yet).**
- **Don't feel obligated to cover pre-K to postdoctoral. Where do we best fit? At what level can we best contribute?**
- **Continually ask: "What will be our legacy?" (very likely one of our high risk projects!)**

# Overview of CfAO EHR goals



**Knowledge & interest in CfAO  
related science and technology  
(Goal #3)**

**Recruitment and retention of  
underrepresented groups is  
emphasized throughout (Goal #4)**

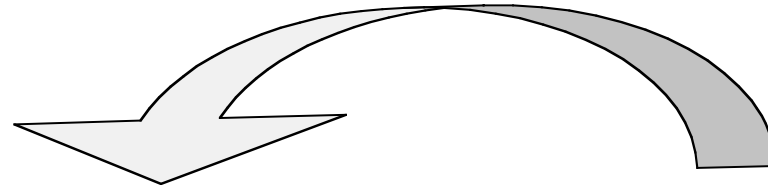
**Major Strategies in Y1-5:**

- Inquiry
- Mentoring

# Integrated EHR programs



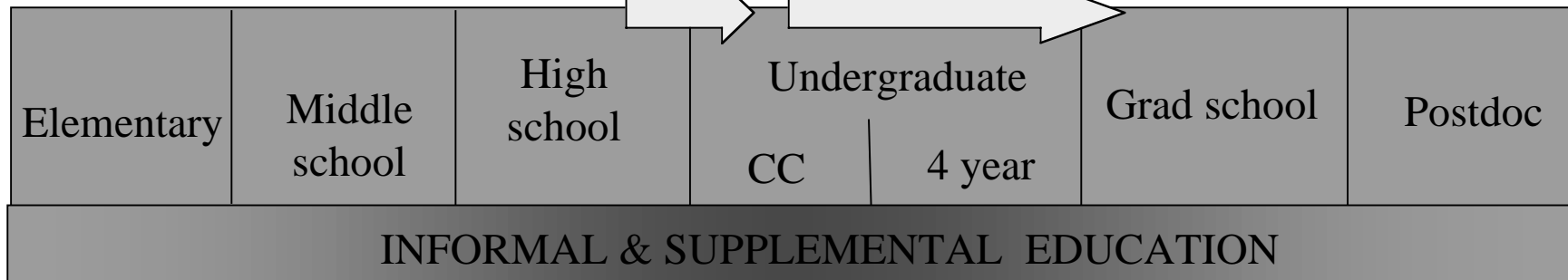
Innovative instructional material developed  
for Core CfAO Programs (high school to  
college level)



**Core CfAO Programs:**

- “Stars, Sight and Science”
- “SETT”

**“Next Gen”  
(Professional  
Development)**



# Designing Projects for EHR Program

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- **Can the following elements be defined:**
  - **Need (specific!)**
  - **Goal (baseline? measurable?)**
  - **Measurable objectives (or outcomes)**
  - **Activities**
  - **Theory of action (how activities are expected to accomplish objectives/goals)**

**General need: Improve technology education in Hawaii**

**Specific need: Maui Community College course content that incorporates locally relevant technology, delivered in an “inclusive” social and cultural context.**

# Project Design & Implementation: Early Challenge

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- **Lots of confusion about objectives vs. activities:**
  - **Communicating the difference:**
    - **Example of Activity:** A one-week optics short course will be taught each year
    - **Example of Objective:** Students enrolled in short course will learn the following content objectives: x, y, z. (3-4 other objectives to cover process goals, career awareness, knowledge of local technology a, b, c).
  - **Putting objectives, and need, in the driving position**
    - “Our goals and objectives are ..., so the activity should be... vs. “We should work with teachers”

# Strategic Planning: Elements to Consider

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- **Needs and opportunities**
- **Integrating research and education**
- **Bridging educational research and practice**
- **Overall program/individual projects**
- **Enabling EHR leadership**

# Enabling EHR Leadership

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- **This is an important position. Give it the pay and status of other center leaders. Stay away from “coordinator” title.**
- **To be successful within center, EHR director must have positions on all leadership teams (executive committee, “kitchen cabinet,” etc.)**
- **EHR directors must walk in multiple worlds: research environment, education researchers, women/minority organizations, administration. Support the participation of your director in all these “worlds.”**

# Enabling EHR Leadership

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- **When the center talks about research and technology, make sure EHR is also talked about. (“Integrating research and education”). Send the message to the research community that your center takes EHR seriously.**
- **EHR personnel are often “outsiders” in research environments. Bring them inside.**

# Summary

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- **Developing, and using, an EHR strategic plan is extremely important.**
- **Find a way that your unique resources can address a specific need.**
- **Create a focus, and stay focused. It takes constant vigilance!**
- **STC's provide an exciting opportunity to do something new and significant – use the doors that will open for you!**