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The Faculty Retreat as Mindset Launching Pad

A demonstration retreat, focusing on *curiosity*

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Contents

Overview

The University of St. Thomas School of Engineering includes the following statement on its website, asserting the value of thought, practice, and engagement that includes, but transcends technical expertise [1]:

> It takes more than just theory to transform an idea into a useful technology for our society. One must be able to champion an idea with effective communication and a deep appreciation for the people, perceptions, policies, and business environment which will ultimately define the success of the technology.

The Kern Entrepreneurial Engineering Network (KEEN) shares this view, with a mission to "graduate engineers with an entrepreneurial mindset so they can create personal, economic, and societal value through a lifetime of meaningful work [2]."

The three-hour session, ***The faculty retreat as mindset launching pad***, will include a simulated "mini" retreat on the topic of Curiosity, followed by a discussion of potential benefits of a faculty retreat, typical components of a retreat and their functions, the steps to planning a retreat, strategies and tips for successfully facilitating the retreat, and a map of resources. All of these materials will be available after the National Conference on the KEEN Digital Engagement Platform, *engineeringunleashed.com*.

What is the retreat process?

The tradition of "the retreat" acknowledges that thoughtful, productive discussion about important issues sometimes requires dedicated time and space away from day-to-day work activities and pressures. The retreat can provide opportunities for learning, high-level dialogue, and action-oriented planning.

This demonstration "mini-retreat" will produce a list of concrete, actionable recommendations for how to:

- set up an environment conducive to curiosity,
- encourage curiosity in courses within the engineering curricula, and/or
- notice students' curiosity

The demonstration retreat will be an abbreviated one, containing most of the elements that would be present in an actual faculty retreat, but with some of the activities being shortened or simulated. Even in this shortened form, however, participants will take part in facilitated activities and discussions to generate recommendations, and we encourage groups from KEEN network schools to participate together, because even a simulated retreat can lead to real, actionable ideas.

How will the recommendations be generated?

The moderated working mini-sessions of the demonstration retreat are designed to encourage participation, exploration, and generative dialogue. These sessions will provide a structured framework to address specific topics and issues. In a full-scale retreat, meals, breaks, and free time would provide opportunities for rest, reflection, and more informal conversations.

At the end of the final mini-session, the group will work to come to agreement on a set of recommendations to be passed on to the implementation team. In seeking to build consensus, it is important for all participants to feel comfortable engaging in the process, and the moderator will offer some guidelines or ground rules for the discussion that can help create and maintain an environment conducive to productive exchange.

One guideline that has proven useful in similar discussions has been the following definition of consensus, adapted from [3]. Rather than unanimity, consensus in a small group can be considered to have been reached when each member of the group can say:

1. I believe that you understand my point of view,
2. I believe that I understand your point of view, and
3. Whether or not I agree with this alternative or prefer this decision, I support it, because it was arrived at in an open and fair manner and represents the best alternative for the group at this time.

We may ask participants to show (e.g. with a nod or thumbs-up) whether they can support a decision. If an individual is not yet able to support the decision, this provides an opportunity to

explore what changes would be necessary for the individual to be able to support it. In larger groups, it can be helpful to be more flexible, considering a recommendation final when it is supported by 90% of the participants, for example.

Schedule for the three-hour session

A demonstration mini-retreat

Welcome and setting the stage

Mini-session 1 – Challenges to curiosity, a “Pyramid Conversation”

Mini-session 2 – Thinking in systems, an activity involving movement and reflection

Mini-session 3 – Designing a way forward, a workshopping method

Closing and next actions

How to design and run a retreat

Pre, during, and post – the components of a retreat

The planning process – developing and deploying powerful questions

Facilitating – strategies and best practices

Curiosity research findings

The following overview is intended to provide a common vocabulary for the retreat participants; the retreat discussions and activities will not attempt to address all of the issues and questions raised here.

Definitions, and the goals of curiosity

The type of curiosity we are considering here is frequently called “specific epistemic curiosity.” “Specific” implies focused exploration of a particular topic, in contrast to the boredom-averse, novelty-seeking activity which defines “diversive curiosity [4].” “Epistemic” emphasizes the intention to know for the sake of knowing, an “urge to know about things that have no obvious or utilitarian function [5].”

The apparent contradiction between the valuing of curiosity and its distance from utility is echoed by an evolutionary perspective, where “attention to novel stimuli is adaptive because it increases knowledge, but the fear of novelty is also adaptive because the unknown may be dangerous [4, p. 127].”

Epistemic curiosity can be considered goal-oriented, but it operates with an internally-focused goal, such as “to learn,” or “to be learning.” The goal orientation of problem solving is more externally directed; learning in a problem-solving mode may involve the question, “How do I…?” or “I want to know how to…,” whereas in a mode of epistemic curiosity, the question might be formulated as, “I wonder how I could….” or “Why…?”

Significantly, epistemic curiosity and problem solving also share, to some extent, the goal of being “done.” In the case of curiosity, this is described as “satisfying one’s curiosity,” which means returning to a contented, unprovoked state [6], [7]. In problem solving, being “done” means “solving the problem,” after which time there is no longer a problem.

To the extent that curiosity motivates exploratory learning and openness to new inputs which may prove relevant, however, being able to sustain or re-engage curiosity can be inherently valuable. This may differ from problem solving, where emphasis tends to be on bringing a problem to solution (conclusion) rather than on sustaining the activity of working on the problem or reopening inquiry into the problem.

For effectively addressing real-world problems that may not be solved “once and for all,” it appears both curiosity and problem-solving skills may be essential.

A model of curiosity

Lowenstein’s “information-gap” theory of curiosity suggests that a perceived gap between what an individual wants to know and currently knows is what engages curiosity, increasing the likelihood of initiating or continuing exploratory learning [8].

Examples of situations that can stimulate curiosity by increasing awareness of an information gap include posed questions, surprises (violated expectations), “[e]xposure to a series of events with an anticipated but unknown resolution” (such as a sporting event, election, or experiment), and meaningful contact with another person who possesses more information (indicating that additional information is available and potentially accessible).

On the other hand, any situation that causes awareness of the information gap to diminish, such as distraction of attention, could be expected to reduce or end, curiosity. Perhaps most critically, when an individual does not perceive an information gap, curiosity simply does not arise: “[A] failure to appreciate what one does not know would constitute an absolute barrier to curiosity.”

The exploratory nature of curiosity

Warren Berger’s definition of a “beautiful question” highlights first the internal, epistemic quality of curiosity and then relates it to external goals: “A beautiful question is an ambitious yet actionable question that can begin to shift the way we perceive or think about something–and that might serve as a catalyst to bring about change [9].”

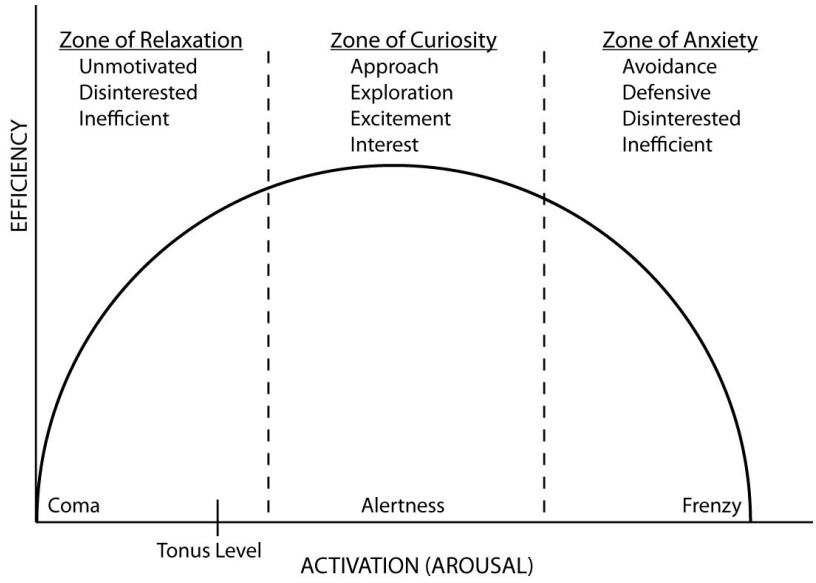
Since epistemic curiosity is not directed toward an external, practical end, it can seem inefficient when viewed from an outside perspective. Two common elements that are sometimes labeled inefficient are counterfactual thinking and exploration.

Children engaging in pretend play begin to exhibit and develop skills in counterfactual thinking: "considering alternative outcomes based on alternative facts [5, p. 165]." Counterfactual thinking is embodied in the question, "What if…?" and may be considered as a member of a family of related concepts, including Guilford's divergent thinking and Berger's connective inquiry [10], [11].

Curiosity-based exploration can be expected to take more time than following a set of instructions or executing a known procedure. Asking non-rhetorical questions requires a willingness to detach from an imperative for constant progress: "[A]t least temporarily, it's necessary to stop doing and stop knowing in order to start asking [9, p. 76]." Similarly, in external goal-directed problem solving, reluctance or refusal to pause to ask questions can provide a false sense of efficiency, because the efforts underway may be attempts to solve the wrong problem [11].

Entering and exiting the state of curiosity

Researchers find "substantial support for a quadratic or inverted U-shaped relationship between curiosity and the challenge of ongoing activities" as exemplified by H. I. Day's "Zone of Curiosity" diagram [12], [13]:



Too little or too much challenge adversely affects the of degree of engagement. Similar relationships are also described by Csikszentmihalyi in his work on the experience of flow [14] and Piaget's work on cognitive development in children [8, p. 82].

Curiosity is frequently considered to be "aversive," implying that satisfying the curiosity brings relief from an uncomfortable state of not-yet-knowing. This begs the question: why would individuals voluntarily enter this uncomfortable state? Loewenstein suggests:

> [I]t makes sense for people to expose themselves to curiosity-inducing stimuli if, by doing so, they enhance the pleasure subsequently derived from obtaining information. Voluntary exposure to curiosity can be viewed as a type of gamble. . . When the probability of satisfying the curiosity is low, or if it is likely that one will be left in a state of aversive curiosity for a long period, exposing oneself to curiosity will generally not be worth the gamble [8, p. 90].

Other researchers agree that an individual's confidence in his or her ability to win this "gamble" appears to correlate with the individual's tolerance for ambiguity [7], [11, p. 484], [15].

Some challenges

There is a paucity of research on interventions intended to initiate or sustain curiosity, but some possible approaches include "increasing mindfulness of what is known and unknown, facilitating autonomy and competence experiences, and setting up mentor relationships in personally meaningful domains [4, p. 140]."

Selecting specific techniques to support curiosity in group settings appears not to be straightforward, however. Kashdan and Fincham have suggested strategies for encouraging curiosity, such as "focus[ing] on improvement and the process of learning and mastery" and "purposely plac[ing] individuals in contexts that are discrepant with their experience, skills, and personality," but they simultaneously caution that there is evidence that the same strategy that may support curiosity in one individual may block it in another [11, pp. 490,499].

In addition, the internally-engaged state of curiosity is sensitive to many factors, with "internal pressures such as guilt and fear, external pressures such as threats and punishment, and tangible external rewards [diminishing] curiosity for specific tasks [4, p. 139]." External rewards in particular have been the subject of considerable research and highlight the fluid nature of motivation: "The same rewards that increase motivation in uninteresting tasks undermine motivation in initially interesting tasks because feelings of personal causation shift from internal to external [11, p. 484]."

Questions for reflection

Finally, as you prepare to participate in the retreat, we invite you to reflect on the following questions. There are no right or wrong answers, and we may not incorporate these questions directly into our discussions, but they may give you ideas or otherwise enable you to share the benefits of your experience with other members of the group:

- When you are focused on something in a creative way or out of curiosity, how do you interact with others? How do you respond to people who might not know what you're thinking about?
- Are you ever surprised to discover yourself curious about something? Why was it a surprise?
- Are there times when you have seen something shut down someone's creativity or curiosity? What happened next? When and how did this person switch back on?

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