

# **Fostering Innovation at RIT**

## **Part 3: Driving Student Innovation**

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### ***Background***

President Destler has established a vision and goal for RIT to become the nation's first "Innovation University." While faculty, staff, and students alike are intrigued and energized by this vision, to build and sustain a culture of innovation, we must start by developing a shared language and understanding of what is innovation and how we can build a culture that fosters innovation.

As you may recall from the second paper in this series, employers are ever more interested in hiring people who can not only execute well but can also create the next wave of innovation (Tapping America's Potential, 2005, para. 6). In fact, it is widely believed that our ability to innovate is a key factor in our global competitiveness (Devaney, 2008, para. 1). As educators, we have a unique imperative to develop students into innovative employees. America's educational system must move from focusing on traditional educational requirements to developing a creative and innovative workforce capable of creating new processes, products, and industries (Blinder, 2007, para. 9).

### ***Faculty role in student innovation***

But, can innovation be learned, or is it a gift that some people are just born with? Most experts agree that innovation is more about hard work than it is about genius (Drucker, 1985). While some innovations spring from a flash of brilliance, most—especially the successful ones—result from a conscious, purposeful search for opportunities (Drucker, 1985, p.96). In fact, there are certain conditions, knowledge, and attitudes that facilitate the emergence of innovative ideas, and these can be replicated and taught (Bezerra, n.d., p.1).

The way in which you teach students to be innovative may be easier to envision in some courses than in others. When the focus of a course is on the creation of something tangible, for example, your approach may be to teach the stages of the innovation process. To imagine how student innovation can be encouraged in classes where the focus is primarily on knowledge, it may be helpful to first review the definition of innovation:

Innovation is the design, creation, development and/or implementation of new or altered products, services, processes, systems, organizational structures, or business models for the purpose of creating new value for customers and financial return for the firm (BlessingWhite, 2007, p.3).

With this definition in mind, student innovation in a course on human capital strategies, for example, might involve the creation of a tool for managers to assess their current talent needs. Student innovation in a course on organizational behavior might be the design of a survey to assess the current cultural climate in an organization.

Student innovation should not be confused with creativity. Creativity involves generating new ideas. Innovation involves *acting* on ideas to make some specific and tangible difference. Innovation in the classroom may include ideation, but must also involve such things as exploration of the value of the idea from the end-user perspective. So, while our course in human capital strategies may require students to brainstorm strategies to close a talent gap, it should also require them to assess the feasibility of each potential solution and to demonstrate the value to the organization of the solution they propose. Students in our organizational behavior course might generate ideas for improving corporate culture but they should also evaluate those ideas based on the unique characteristics of each generation currently represented in the workforce.

### ***Teaching innovation***

While the innovation discipline is still relatively new, the *competencies* required to increase innovation are well known (Bezerra, n.d., p.1). A competency is a characteristic of an individual that contributes to successful performance and thus the achievement of desired results. These characteristics include knowledge, skills, and abilities, plus attributes such as values, motivation, and initiative. For educators to begin increasing the capability of students to drive innovation in the organizations they join, the focus in the classroom must be placed on the competencies inherent in innovation.

### **Critical innovation competencies**

According to investigators at the Research Institute in Management Sciences at the Solvay Business School, Belgium, there are four primary competencies related to innovation in organizations (Peeters & van Pottelsberghe, 2003, p.2):

1. The ability to develop a culture of innovation

Creating a culture of innovation requires the ability to shape corporate values that influence innovation and learning, and to create structures and policies that promote risk taking, idea sharing, and continual learning.

2. The capacity to generate ideas

Generating ideas requires skills in brainstorming, research, and other forms of data gathering, as well as evaluation and analysis ability.

3. The capacity to implement ideas

Implementing ideas requires knowledge of how to build structures to capture information and ideas, the ability to build coalitions of support for ideas, project management talent, and collaboration skills.

4. The efficient management of intellectual property

Management of intellectual property requires knowledge of legal issues related to copyright, fair use, and patents for example.

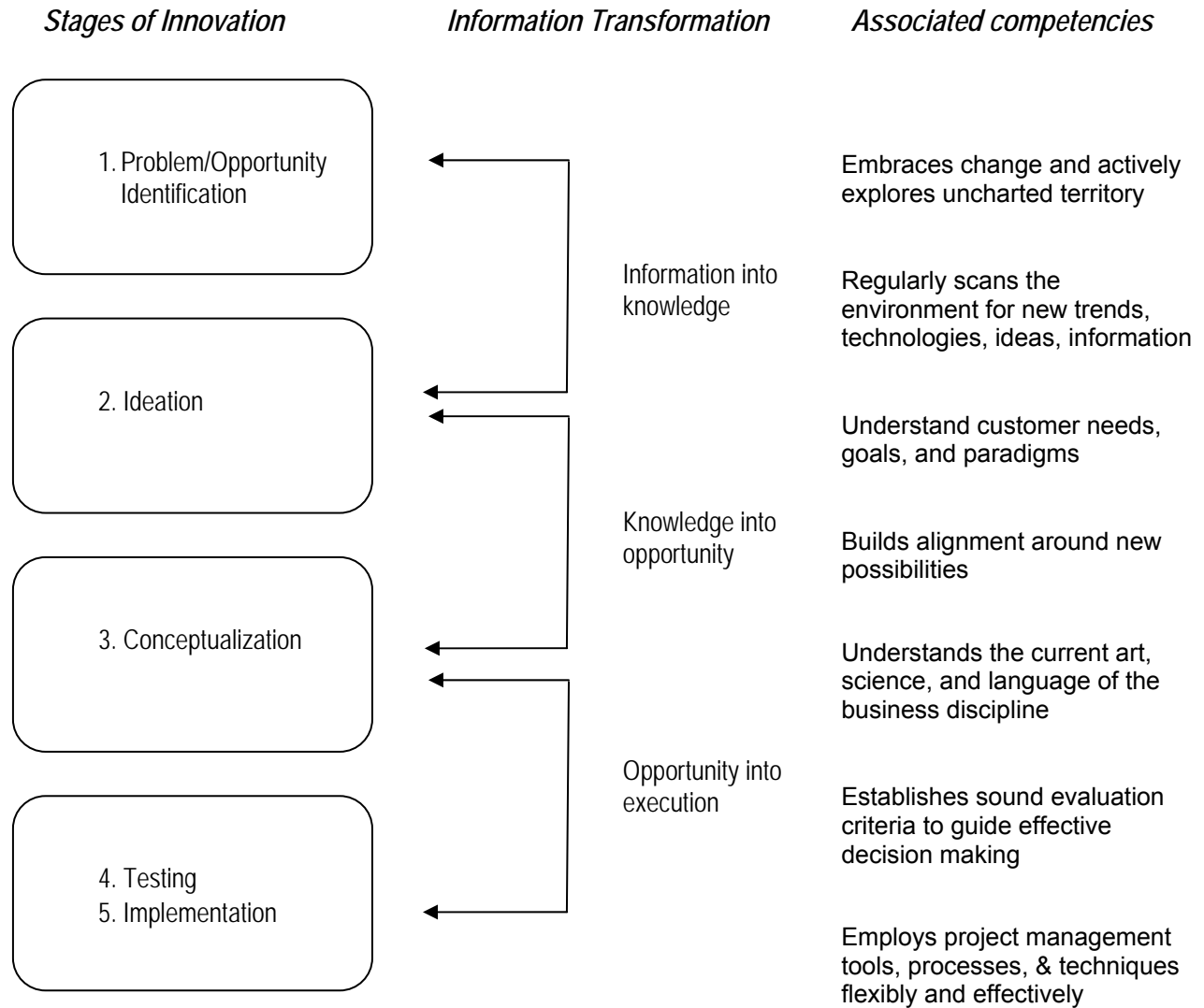
Another perspective on innovation competencies, outlined in a recent article, Learning How to Be Innovative (Slater, 2008, p.47), says innovation competencies are quite simply:

- Technological know-how  
Knowledge associated with products, technologies, and/or processes
- Market know-how  
Knowledge about customer needs, adoption processes, and reasons for satisfaction, as well as competitors' capabilities and strategies

The Learning Innovation and Technology Consortium (LITC) asserts that the innovation-related competencies young people need to succeed in today's economy include (2004, p.6):

- Analysis of problems to find novel solutions
- Use of relevant technologies
- Experimentation, exploration, and testing of ideas
- Collaboration
- Communicating ideas
- Sustaining and distributing innovation

While the specific competencies various researchers identify as vital to innovation may differ somewhat, there are commonalities. We can use the stage-gate system for innovation developed by Robert Copper (Gaynor, 2002) as an organizer for the innovation competencies most often cited in research. Figure 1 lists the innovation stages Copper defines and demonstrates how information is transformed during these stages (Bezerra, n.d.). This information transformation is readily translated into competencies.



**Figure 1.** Stages of innovation (Gaynor, 2002), information transformation (Bezerra, n.d., p.3), and associated competencies (Innovation Network, 2007)

The competencies listed below (Innovation Network, 2007) and organized according each stage of Copper's model are not meant to be exhaustive. Rather, consider these competencies as a starting place to identify opportunities for enhancements to your course learning outcomes, content, and activities.

**Stage 1. Problem/opportunity identification**

- Challenges conventional approaches and answers
- Embraces change and actively explores uncharted territory
- Embraces diversity as a vital source of new perspectives and possibilities

**Stage 2. Ideation**

- Seeks out new connections between unrelated concepts
- Regularly scans the environment for new trends, technologies, ideas, and information
- Remains open-minded and searches for opposites, anomalies, and outliers

**Stage 3. Conceptualization**

- Understand customer needs, goals, and paradigms
- Understands the current art, science, and language of the business discipline
- Relates new ideas to existing business strategies and objectives

**Stage 4. Development**

- Builds alignment around new possibilities
- Speaks to the styles and concerns of each stakeholder
- Cultivates collaborative relationships intentionally

**Stage 5. Testing**

- Establishes sound evaluation criteria to guide effective decision making
- Assesses failures and successes to find and share lessons learned
- Challenges own assumptions

**Stage 6. Implementation**

- Employs project management tools, processes, and techniques flexibly and effectively
- Focuses on the germane issues and effectively manages priorities
- Scans the business climate to optimize timing of actions

## ***Application in the classroom***

Any professor of any course can teach students to be innovative by providing knowledge and skill-building opportunities related to the competencies outlined in this paper.

We do not, and should not, all teach in the same manner. What is critical, however, is that we work to enhance student learning and innovation through thoughtfully designed and clearly informed teaching approaches (Volk, n.d.).

The following 12 strategies might jump-start your thinking about ways to help students build innovation competence:

1. Require students to explain *why*
2. When a student asks a question, invite the other students to answer it first
3. Include guest speakers to provide a wider context and broader point of view
4. Require students to collaborate on at least one graded assignment
5. Network students to resources outside of the course
6. Experiment with non-traditional learning approaches, such as games or structured debates, in addition to lecture, small group work, or labs
7. Design an activity that requires students to seek connections between apparently unrelated concepts
8. Add experiences that allow students to practice building support for their ideas
9. Connect course content to real-world customer value creation
10. Teach at least one method for testing an idea, whether it is through a focus group, by prototyping, or an observation
11. Require peer review/editing for an assignment



## **Summary**

Regardless of the discipline or the course, professors can instill greater passion for innovation among students, and help them build the competencies necessary to drive innovation in the organizations they join. First and foremost, as Dr. Churchill, professor of Chemical Engineering at the University of Pennsylvania, stresses, "...we can inspire our students to innovate by establishing an atmosphere in the classroom, conference room, and laboratory in which it is encouraged, welcomed, and rewarded (2001, p.4)." And as Churchill emphasizes, providing students with the sense that, "their ideas, however incomplete, unrealistic, or naïve, are welcome and will be given fair consideration (p.5)," is key to fostering their innovation.

Please join me at this year's Faculty Institute on Teaching and Learning (May 27, 28, 2009) to exchange additional tools and techniques to drive student innovation.

Part 1 of the series examined types of innovation styles and how to manage the polarity of these styles.

In Part 2 of the series explored building a culture of innovation.

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