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3-13-2016

### From Knowledge Sharing to Knowledge Building

Xiaopeng Ni

*Franklin University*, [xiaopeng.ni@franklin.edu](mailto:xiaopeng.ni@franklin.edu)

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#### Recommended Citation

Ni, X. (2016). From Knowledge Sharing to Knowledge Building. Retrieved from <https://fuse.franklin.edu/i4blog/4>

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# From Knowledge Sharing to Knowledge Building

March 13, 2016 | By Xiaopeng Ni  
Assessment/Evaluation  
Educational Technology  
Instructional Design

Our society is changing rapidly and innovation is becoming more recognized as a key factor for a competitive advantage. In order to prepare our students for success in innovation, it is necessary to re-examine our conventional pedagogy and to gear the design of students' learning experience toward the unknown. So, in higher education, how can we prepare our students for innovation?

Van Aalst (2009) distinguishes intentional learning into three levels:

1. Knowledge sharing
2. Knowledge construction
3. Knowledge creation

**Knowledge sharing** refers to the process of transmitting information to students (e.g. giving a lecture) and is typically classified as shallow learning. **Knowledge construction** refers to students making ideas, concepts, or phenomena meaningful through active interactions and is classified as deep learning. **Knowledge creation** refers to the process of advancing knowledge and creating intellectual artifacts such as a theory or a product.

While each type of learning activity is important, given that knowledge creation activities in conventional curricula are scarce, it is worth discussing the ways to promote knowledge creation.

So how can we build a class for knowledge creation? Scardamalia (2002) proposed 12 ways to advance knowledge and help students create intellectual artifacts in the classroom:

1. Students are engaged in addressing real world problems.
2. Student work is treated as improvable.
3. The environment promotes the diversity of ideas.
4. The process helps students reach higher level understanding.
5. Students exercise agency for their progress.
6. Contributions to common goals of the community are valued.
7. All individuals' contributions are respected.
8. Activities support knowledge exchange as expertise is distributed.
9. Inquiry fosters pervasive knowledge building culture.
10. Inquiry requires constructive uses of authoritative sources.
11. Students are engaged in knowledge building discourse.
12. Concurrent and embedded assessment is part of effort to advance knowledge.

I think these ideas can be further formalized into four essential pedagogical principles:

1. Start with an authentic task.
2. Follow through a formative process.
3. Build a polished product.
4. Engage into community.

To illustrate knowledge creation pedagogy, I would like to share one project example: "Creating Media Elements for Sale in the Global Online Marketplace," which I used in a graduate seminar. This case highlights ways in which knowledge creation can be achieved through appropriate design principles and the use of technology.

The seminar was intended to enrich students' understanding of current issues and trends related to instructional design and technology. The seminar was delivered online in a flexible format that included both synchronous and asynchronous interactions.

One of the goals is to involve students in designing responsive solutions to professional problems in "ordinary practices of the culture." The corresponding activity is to ask participants to analyze the need for digital/educational products in the marketplace and to create products meeting those needs. The instructor selected the website iStockphoto (<http://www.istockphoto.com/>) as a real market for students to explore. iStockphoto is an online provider for royalty-free stock images, media and design elements that are purchased for use by a wide range of consumers around the world. The ready-made media elements sold on the site are licensable for use in further production to illustrate specific things, concepts or ideas.

Seminar participants designed and created a small but effective digital work (e.g. an image of a water cycle, an animation of Hooke's law, etc). While creating their digital products, participants applied instructional design and technology skills learned in their program of study while also meeting predetermined societal needs.

During this project, participants completed the following steps:

Step 1: Visit <http://www.istockphoto.com/>. [Principle #4]

Step 2: Collaboratively research the current collection of digital products and recent purchasing trends. Begin identifying opportunities based on real world need and demand. [Principle #1]

Step 3: Identify the qualities and expectations for designing new digital products. You must focus on the real requirements determined from your market analysis. [Principle #4]

Step 4□Design your new media element as a team. [Principle #4]

Step 5□Create your media element as a team; ask for peer review and assistance. [Principle #2, #3]

Step 6□Zip the files and send them to the course instructor for initial review. [Principle #2]

Step 7□Upload your work to iStockphoto and wait for review results from the agency; make revisions as necessary. [Principle #4]

Step 8: Be patient until sales reach at least \$100. [Principle #4]

Step 9□Reach out and help! Donate your profits to a resident non-profit organization in need. [Principle #4]

By the end of semester, the class earned \$16 on the market, so the project later stopped at Step 8. Although students did not reach their goal of generating \$100 in sales, according to students' course exit feedback, this authentic project was perceived as motivational and many students valued their new creations and the process of practicing professional thinking.

This demonstrates how thoughtful course design can facilitate knowledge creation. My class observations confirmed that authentic tasks, formative assessments, tangible products, and the community of practice are motivational. This results in students who are more engaged and actively participating in their own knowledge creation process.

The case also used technology intentionally to reform learning. That is, we were more interested in how to use technology to **facilitate new learning** for knowledge creation than how to **extend learning** for knowledge sharing (e.g. using PowerPoint for a lecture is more like extending learning, but having students create digital story through PowerPoint is more like a new learning). My experiences and observations have led me to believe that knowledge creation pedagogy is one of the most important directions for higher education in future.

## References

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## About the Author

Xiaopeng Ni

Dr. David Ni is currently an instructional design faculty member at Franklin University.