Chapter XII

Tessellations:
A Tool for Diversity Infusions in the Curriculum

Reza Sarhangi, Towson University, USA

Gabriele Meiselwitz, Towson University, USA

Goran P. Trajkovski, Towson University, USA

Abstract

Introducing diversity topics in the natural, mathematical and computer sciences is a hard task, since these disciplines are traditionally labeled as "diversity-unfriendly," due to their primary foci of study. In this chapter we illustrate how tessellations may be used as a tool for infusion of multicultural topics, as well as a framework, designed after the Towson University course "Computers and Creativity," where these concepts have been successfully implemented.

Introduction

Diversity is an omnipresent buzzword in academic circles in the continuing efforts to diversify the curricula. The term "diversity" is hard to define, but everyone seems to understand it as plethora of varieties. We can define it as narrowly or as widely as needed in a given discourse, but the bottom line is that diversity is "being aware of what is there." Due to the nature of the subject, it seems easy to have whole courses or significant modules on women's issues, gender, national origins, disability, etc., in the social sciences and the humanities. However, the natural, mathematical and computer sciences are believed to be more hostile to these topics. The infusion of diversity in such courses cannot be done as explicitly as in some other disciplines, but many of us do it every day in our classrooms.

In order to illustrate the microinfusion of diversity topics in teaching "diversity-unfriendly" disciplines, here are some tidbits that can be used not only to achieve the educational goal of a lecture, but also go the extra mile. They refer to the computer sciences specifically. Instead of showing the students how to build tables in Excel on a generic example using data on the imaginary "ACME Tomato Company" (Parson et al., 2001), use data on the Gross National Products of various countries, for example. When discussing the Fibonacci numbers, and the recurrence relations, tell the story of Fibonacci, whose real name is Leonardo and came from Pisa (the town of the Leaning Tower of Pisa), and make a side-point on the role of this Italian genius from some 800 years ago in the introduction of the Arabic numerals and the positional numbers system in Europe. In Human Computer Interaction-related topics, spend some time discussing Equal Opportunity Computing, i.e., computing for people with disabilities. When discussing computer security, privacy and ethical issues, spice it up with the geographical distributions of the domiciles of the viruses, while stressing that the different laws that different countries have with respect to Internet privacy. Often what is legal in one country is not necessarily legal in others.

Rather than theorizing on how to integrate diversity topics in the curriculum, this chapter showcases the use of the tessellation theory as a tool for infusion of multicultural topics, and presents the Towson University course, "Computer and Creativity" (Meiselwitz, 2005), where tessellations suitably fit the educational goals.

This chapter is organized as follows: In the next section we discuss the tessellations and tilling from a mathematical perspective, and its foundations in

16 more pages are available in the full version of this document, which may be purchased using the "Add to Cart" button on the publisher's webpage: www.igi-global.com/chapter/tessellations-tool-diversity-infusions-curriculum/8644

Related Content

M-Readiness Assessment Model Development and Validation: Investigation of Readiness Index and Factors Affecting Readiness

Muhammad Bakhsh, Amjad Mahmoodand Nazir Ahmed Sangi (2018). *International Journal of Distance Education Technologies (pp. 1-23).*

www.irma-international.org/article/m-readiness-assessment-model-development-and-validation/192070

Research on the Application of Chinese Teaching Based on Social Media Video Platforms

Guihua Wang, Guoxiang Zhouand Zhe Li (2022). *International Journal of Distance Education Technologies (pp. 1-16).*

www.irma-international.org/article/research-on-the-application-of-chinese-teaching-based-on-social-media-video-platforms/296699

Creating an Electronic Student Teaching Portfolio

Patricia A. Shawand Susan Slick (2005). *Encyclopedia of Distance Learning (pp. 462-468).*

www.irma-international.org/chapter/creating-electronic-student-teaching-portfolio/12145

Gender Differences in Cognitive Loads, Attitudes, and Academic Achievements in Mobile English Learning

Zhonggen Yu (2019). *International Journal of Distance Education Technologies (pp. 21-35).*

www.irma-international.org/article/gender-differences-in-cognitive-loads-attitudes-and-academic-achievements-in-mobile-english-learning/236116

Ubiquitous Agent-Based Campus Information Providing System for Cellular Phones

Akio Koyamaand Leonard Barolli (2007). *Future Directions in Distance Learning and Communication Technologies (pp. 94-107).*

www.irma-international.org/chapter/ubiquitous-agent-based-campus-information/18747