Science Teacher Preparation in a Virtual Environment: The Western Governors University Model.

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Abstract

Access to high quality education in the field of science teacher preparation can often depend on the proximity of a student to a suitable program at a local university. Western Governors University prepares and graduates ‘highly qualified’ science teachers via a distance education format with technology and student-mentor relationships being the driving mechanisms. This innovative teacher preparation format provides exposure to science content, pedagogy, and demonstration teaching. This roundtable will explain and discuss this model.

Establishing the Model

In 1997, 19 governors of western states established Western Governors University with the following mission: to improve the quality of American Higher Education while expanding student access by using distance learning technologies to deliver academic programs based entirely on the demonstration of competency (Education Without Boundaries, 2004).

Western Governors University was accredited by the Northwest Commission on Colleges and Universities, the Higher Learning Commission of the North Central Association of Colleges and Schools, the Accrediting Commission for Community and Junior Colleges of the Western Association of Schools and Colleges, and the Accrediting Commission for Senior Colleges and Universities of the Western Association of Schools and Colleges. The University is also nationally accredited by the Distance Education and Training Council. We are currently pursuing NCATE accreditation.

From the inception, WGU pursued a model where students work directly with a mentor to find an individualized path through accredited content. Students often use independent study means to delve into science content areas. Online communities where there are synchronous and asynchronous methods of discussing topics make teacher preparation programs rich with experiences and relevance.

The Teachers College at WGU contains the Secondary Science Education programs as well as programs in Elementary Education, Math, Social Sciences, and English Language Learning. WGU confers bachelor degrees, certification-only, endorsement, and Masters degrees in both science content and pedagogy.

Our faculty members are called Faculty Mentors who take on a role of advisor, coach, subject matter experts, and guides. Communication is critical in online learning environments (Podoll & Randle, 2005). We currently have 3 faculty with firsthand online learning experience from the student perspective as well as distinguished faculty from traditional collegiate environments.

How is a Science Teacher Created in a Virtual Environment?

Our competency-based model focuses on students proving what they know by passing a variety of assessments. Students prepare for these assessments through independent study and online courses such as the NSTA recommended American Museum of Natural History courses. Performance assessments are completed online with essays and diagrams. Online objective exams are scheduled in proctored environments. Science content and pedagogy is assessed in the format that matches the required knowledge of the graduate. For example, students learn to find and interpret national, state, and local education and teaching standards by researching them and then writing a summary of the components and connections between the three sets of guidelines. Students can also work thorough online workbooks and website examples as well as CDs of dynamic science content.

A typical bachelor degree program consists of:
• general education requirements
• an upper division science generalist core touching upon Life Sciences, Earth & Space Science, Chemistry, and Physics
• an upper division education core with theoretical and practical research-based methods
• a demonstration teaching experience at the student’s local district.

Effective student-mentor relationships are at the heart of this technology driven format. Particular mentoring strategies have proven effective in promoting student success. These strategies will be discussed and compared/contrasted with more traditional teacher preparation formats.

Conclusion

Western Governors University science program graduates have the proven skills & knowledge to teach in a variety of environments. They also have the experience of one of the most innovative education programs in the United States with dynamic use of technology such as online communities, email, document sharing, chat functions, online portfolios and student-faculty mentoring. As the only national accredited competency-based online university, we fulfill a unique niche in the science teacher preparation field.

References

