

# Designing Instruction for Future Gifted Science Teachers

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## **EXECUTIVE SUMMARY**

*Honors programs are designed to provide talented students the opportunity to excel with a group of peers having a similar level of ability, motivation, and prior academic achievement. A problem that results is Honors Programs and education programs rarely interface, and thus, current models do not optimally serve the gifted adult who will become a science teacher. Gifted students are not easily identified in the science methods class. Notices about involvement from Honors Programs are often not forwarded to people in teacher education programs. Such lack of information means that science methods instructors must identify the students without benefit of Honors Program insight. This chapter discusses identification and curriculum for gifted adults.*

## **SETTING THE STAGE**

There are many factors that potentially influence the motivational trajectories of university among gifted students. The challenge, however, lies in the identification of the gifted among a selection of students who have met university entrance requirements on the undergraduate level and that have degrees granted by accredited colleges and universities especially if the education program is not informed about the honors designation of the teacher candidate. Consequently, science methods and other education faculty must learn to identify and then differentiate instruction for this population. So some key questions are, how do we challenge the gifted among an already select group of teacher education candidates? What differentiation of teaching methods needs to occur, and what products should the instructor expect from the gifted and talented teacher education candidate? These questions must be answered because the general characteristics that all future teachers hold is a desire for autonomy, a desire to study a topic in depth and the ability to be creative with lesson planning and classroom implementation, and projects that motivate future teachers and include integrated curricula and activities in either solo or group work that also meet the social needs of the gifted student.

Gifted students exhibit one or more of the following characteristics:

- Intense devotion to personal interests.
- Independence.
- Boredom when not engaged in the activity presented.
- Ability to see to the root of problems.
- Tendency be a maverick and a rapid learner.
- Ability to anticipate outcomes.
- Capable of abstract thinking and learning skills.
- Have talent in creative or leadership abilities.

Gifted students who enroll as adults in science methods classes may possess these characteristics. These students actively accept the responsibilities of the requirements, work independently to produce excellent materials and are not afraid to challenge the professor when opinions and techniques differ.

Gifted adult students may be viewed as driven with perfectionist tendencies aiming at high standards. They can also be overly sensitive and perhaps exhibit odd or intimidating behaviors and are prone to question authority. Psychologists who work with gifted adults find them to be independent, original, curious and open to changes. Thus, it becomes the task of the science educator to work with these gifted students so that they become excellent science teachers who are capable of utilizing these same characteristics when they become teachers. Gifted students who want

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