Statement of Purpose

The unit on genetics in high school biology classes often causes students much distress, because there are so many new vocabulary words and concepts to learn. The purpose of this curriculum development is to better help students make an easier transition into the harder biological concepts. Especially, if there is a wide diversity of students within your class, equitable learning opportunities need to be put in place. Equitable learning opportunities occur when formal schooling (a) values and respects the knowledge and experiences students bring from their home and community environments, (b) articulates such knowledge and experiences with academic disciplines, and (c) offers educational resources and funding to support all students’ learning (Lee & Buxton, 2008).

There are many values that each student possesses regarding school and learning. Therefore, each student is specific to what they need as a learner of your material. One variation of a learner is that the education will prepare the individual for achieving maximum social and economic success. The curriculum proposed here definitely has the potential to do just that, especially with the DNA technology section. There are more and more jobs opening up in the science field, and I would encourage my students to explore those types of jobs if they are genuinely interested. Secondly, the other conception of learners is that they view individual needs and interests in terms of developing a well-balanced person. Biological science is not an easy subject for everyone, but if students work hard at it they will gain plenty of knowledge from it.

Biology and genetics are definitely subjects that society can and do benefit from. Genetic engineering of plants and animals for food is a huge industry in today’s society. Therefore, students have much to gain by learning about genetics. Not only will they learn about the biological concepts of genetics, they will learn whether some of these issues are ethical or not. Getting the students to inquire about ethical situations is a major stepping stone into learning about society as a whole. Also, learning about various genetic disorders will spread some light on why some disorders are more prevalent in other countries.

The value of the subject matter is extremely important. I always say, “If it weren’t for biology, none of us would be here!” There is a growing recognition that students are more motivated and learn more when they have opportunities to refine understandings through revising representations (Carolan, Prain, & Waldrip, 2008). Therefore, I would approach genetics by giving the students several of representations of what the subject is all about. Genetics is a continuously growing field, and it is important to teach our students about such topics. It is exciting for students to learn about how they obtained certain traits from their parents. Without genetics, there would not be the enormous amount of the medical breakthroughs scientists and doctors have discovered throughout the years. Genetics is also relevant, because most of the food we eat is probably genetically modified, and students need to realize what the field of genetics brings to the world.

The educational goal of this genetics unit is to make students more aware of themselves biologically, and how genetics impacts society. It is my goal to encompass the four competence areas in biology education: subject knowledge; inquiry acquisition; subject-related communication; and valuing and decision making (Elster, 2009). By using authentic contexts within this genetics unit, students will be able to achieve better higher-order thinking levels, be more knowledgeable about the subject, and possibly contribute to society.

**References**

Carolan, J., Prain, V., & Waldrip, B. (2008). Using representations for teaching and learning in science. *Teaching Science*, *54*(1), 18-23.

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