

# CRYSTAL K. KESO

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## TEACHING PHILOSOPHY

“Our care of the children should be governed not by the desire to ‘make them learn things’, but by the endeavor always to keep burning within them the light which is called intelligence.”

“And so we discovered that education is not something which the teacher does, but that it is a natural process which develops spontaneously in the human being. It is not acquired by listening to words, but in virtue of experience in which the child acts on his environment.”

-Dr. Maria Montessori

My teaching philosophy is student-centered and focuses on student achievement of learning outcomes that are aligned with the overall academic goals and mission of the degree program. My teaching philosophy is guided by the wonderful insights, research, and pedagogy of Dr. Maria Montessori (1, 2), current research in evidence-based teaching methods (3-16, 18, 19), mentors, and my own experiences as a student, educator, trainer and lifelong learner. The quotes above use the words “children” and “child”, which might make one think of young students. However, I believe Dr. Montessori’s insights can be applied to a teacher’s pedagogy and andragogy. The key points in Dr. Montessori’s words are that to learn the learner must be motivated and must be actively involved in the learning experience or environment. In order to achieve this, the teaching must be focused on the student and in the student’s achievements. In the online learning environment, my teaching is focused on ensuring that the course design and delivery is performed in an intentional way that supports the creation of a positive learning community with student engagement, removes any barriers, and allows students to succeed in achieving learning objectives that are aligned with knowledge and skills needed to complete their degree and be successful in their career (17).

I began my instructor faculty appointment in the Chemistry Department at Northern Michigan University in the fall of 2018. I teach students in general chemistry and introductory biochemistry discussion sections as well as upper level biochemistry lab and forensic chemistry. Prior to NMU, I maintained a role in teaching and mentoring others through my education and career as a laboratory teaching assistant, development technologist, and clinical laboratory quality specialist. My career background has helped me immensely as an instructor in the Chemistry Department.

### **Objectives for Student Learning:**

My primary objective is to offer high quality teaching to students. The ingredients to high quality teaching can be summed up into four stages of a continuous improvement cycle: planning, doing, studying, and improving based on reflection (5, 7, 8, 15). High quality teaching in chemistry and biochemistry must also include the following elements and learning outcomes: students’ motivation is intrinsic, active learning is used, students interact with peers, students have prior knowledge that they can apply to learn new concepts, students use metacognition, research opportunities and lab courses that have discovery-based research, activities and assessment of conceptual comprehension, activities and assessment of cognitive skills (applying knowledge to novel situations), activities and assessment of visual literacy and visual skills, writing skills, communication skills, and support for students in math skills (5-14). My goal for online teaching is to achieve the above objectives with intentional focus on the course design and delivery within the online learning management system.

**Enactment of Objectives:**

The enactment of my objectives is first carried out by using the framework provided by the Quality Matters standards that have been developed for online teaching (17). My course organization strives to be easy to navigate. I intentionally design my courses to build community and a safe learning environment through the use of instructor and student introductions and interactions between myself and individual students as well as student-student interactions. I believe in being transparent with students about both my responsibilities as an instructor as well as theirs as students. I think it is important to set the stage for an inclusive, respectful, and safe learning environment. This allows for vulnerability in sharing thoughts and an openness to others viewpoints, which overtime develops emotional intelligence. At the post-secondary level, this may be a new way of interacting for some students. My focus is on coaching them through this transition, treating each new experience, whether good or bad, as a learning opportunity and focusing on a growth mentality (1, 2, 18, 19).

The further enactment of my objectives is performed through effective course delivery. Many factors contribute to highly quality course delivery. Evidence-based research has shown that active learning should be the primary method for learning activities (4, 10). The type of active learning strategy employed should fit the learning objective and learning environment (4). The materials and objectives should be currently relevant and in line with current policies, accrediting bodies, local and societal context, emerging technology. In addition, these material and objectives should take into account the student characteristics and needs (1-6). Activities should include student-material and student-student interaction (3, 17) Assessments should be varied, valid in measuring the learning objective, and should include both formative and summative methods (3, 5, 6, 15-17).

Specific examples of how I would enact my objectives are as follows. After taking into account the design elements that make a course high quality, my discussion sections will utilize retrieval practice through quizzing, active learning tools (concept mapping individual or collaboration assignments and think-pair-share synchronous chats or asynchronous discussion Q&A forums), guided reflection (through discussion forums), and elaboration activities (discussion forums and one-on-one communication). In regards to laboratory instruction, we are lucky to have experiments and laboratory experiences as ways to apply classroom information in the physical sciences. This fosters frequent use of active learning through the scientific method and guided-inquiry. The online environment can make laboratory exercises difficult; however, learning objectives can be achieved through virtual lab exercises, group projects, discussion forums, report writing, deep analysis of the literature, demonstrations interspersed with quizzes, deeper analysis of data sets, writing grant proposals, and presentation assignments (20).

Lastly, the instructor must be competent in the subject area and have self-efficacy in their teaching practice (1-3). Instructor-student interaction is very important to delivering high quality teaching. My philosophy is to provide schedule communication touch-points that will update students on the course schedule and assignments. These routine interactions will be interspersed with as-needed flexible communication with students. Such communication includes answering personal email, discussion boards, students visiting my virtual office hours, and phone calls. Moreover, students will interact with me when receiving timely feedback on all course assessments (17-21). I endeavor to show my passion for the material I teach and my focus is on being a highly effective facilitator, coach, and mentor.

### Assessment of Objectives:

High quality teaching involves the intentional use of valid assessment methods and my reflection and commitment to continuous course improvement (5-7, 15-17). My assessment methods for teaching effectiveness are not an afterthought, but instead I have built formative and summative assessment into the design of my courses with a focus on using the data as evidence for making change in my pedagogy (21).

The assessment of whether my philosophy is effective for my students occurs in many ways. The energy, alertness, and level of participation in the discussion forums, learning activities and assessments will indicate if I have achieved my objective in creating a safe and inclusive environment. An environment where my role is to be a guide and mentor and the classroom is both learner centered and driven. In the online environment this will be assessed formatively with the quality of informal communications (discussion posts, VoiceThread, synchronous chats or Zoom meetings), which includes student-instructor and student-student interactions. Next, the outcomes of assessments, quizzes, and active learning activities during discussion sections will indicate each student's achievement of learning objectives. The laboratory assignments will also indicate this and will show how well students can apply classroom knowledge. In addition, I use formative evaluations periodically throughout the semester and summative evaluation at the end of the semester to answer specific questions about my teaching pedagogy (21).

The evaluation of student performance in the course will be combined with student evaluations, peer evaluations, and my own self-evaluation to allow me to reflect on my teaching effectiveness and make improvements. Where applicable, the results of feedback (formative or summative) will be shared with students and administrators (21). Any improvements that I make are guided by my overall teaching philosophy of being student-centered and focused on student achievement of learning outcomes that are aligned with the overall academic goals and mission of the degree program.

### Summary Statement:

In closing, I reflect on my own experiences beginning early in my education through today. At each stage of my life, I have been lucky to have strong mentors who took the time to help me grow, learn, develop, and master different topics. I have a strong love for learning new things and I have a desire to share this with others. As my mentors did for me and in the words of Dr. Maria Montessori, I “endeavor always to keep burning within [my students] the light which is called intelligence.”

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