

Curriculum Vitae

Name : Gül

Surname ÜNAL ÇOBAN

Date of Birth: 10.12.1975

Education:

Degree	Program	University	Year
BSc	Physics Education	Middle East Technical University, Ankara	1999
BSc	Physics (Double Major)	Middle East Technical University, Ankara	1999
MSc	Science Education	Dokuz Eylül University, Izmir	2005
PhD	Science Education	Dokuz Eylül University, Izmir	2009

Master Thesis:

"Deep Learning in Science Teaching: Modelling for "Pressure" [in Turkish]

Supervisor: Prof.Dr. Ömer ERG N (2003-2005).

Summary: The purpose of this study was to explore the effects of constructivist science course including discovery learning activities for "Pressure of Liquids and Gases" with respect to students' academic achievement, science learning approaches and mental models. In this study, 30 experimental and 29 control group students were instructed by the same teacher from 30 A ustos Primary School during spring semester in 2005. During the instruction, the experimental group received discovery learning science activities while the control group utilized traditionally designed science instruction over a period of 5 weeks. Both groups were given multiple choice academic achievement test, open-ended science examination and learning approaches questionnaire as pre and post-tests. Besides, 4 students from each group were interviewed before and after the instruction. Also, both groups were observed during the instruction. The results showed that there is a significant difference between experimental group students and control group students with respect to their academic achievement in favor of experimental group students. On the other hand, there is not a significant difference between experimental and control groups with respect to their science learning approaches and mental models.

Key words: Constructivism, discovery learning, learning approaches, mental models, science teaching.

Doctoral Thesis:

"The Effects of Model Based Science Education on Students' Conceptual Understanding, Science Process Skills, Understanding of Scientific Knowledge and its Domain of Existence: The Sample of 7th Grade Unit of Light" [in Turkish]

Supervisor: Prof.Dr. Ömer ERG N (2005-2009).

Summary: The purpose of this study was to explore the effects of model based science and technology course on students' conceptual understanding, science process skills, understanding of scientific knowledge and its domain of existence during the 7th grade unit of light. The study was conducted with 34 students as experimental group and 31 students as control group in Vali Rahmi Bey Primary School of Buca, zmir during the

spring term in 2008. The experimental group received model based science teaching while the control group received regular science education depending on the Science and Technology Curriculum over a period of 6 weeks. Both groups were given conceptual understanding test, science process skills scale, scientific knowledge scale and the scale for the existence domain of scientific knowledge. The conceptual understanding test, scientific knowledge scale and the scale for the existence domain of scientific knowledge were developed by the researcher. Besides, 5 students from each group were interviewed before and after the instruction about the scientific knowledge and its domain of existence by the forms developed by the researcher. The results showed that there are significant differences between experimental and control group students with respect to their conceptual understanding, science process skills in favor of experimental group. Although there is not a significant difference between experimental and control group students with respect to their understanding of scientific knowledge regarding the results of quantitative data, it was seen that the experimental group students improved their understanding of scientific knowledge regarding the results of qualitative data. On the other hand, it was seen that there is a significant difference between experimental and control group students with respect to their understanding of the existence domain of scientific knowledge in favor of experimental group regarding the results of quantitative data. Besides, it was seen that the experimental group students improved their understanding of the existence domain scientific knowledge regarding the results of qualitative data.

Keywords : Model Based Teaching, Science Education, Concept Learning, Science Process Skills, Scientific Knowledge, Epistemology, Ontology

Projects:

- 1- "The views of science teachers and students on the newly proposed teaching methods and scientific process in The Science Curriculum of year 2000" (completed)
- 2- "Preparing a material bank for 6th graders" (completed)
- 3- "Water awareness: Preparing materials for water education" (completed)
- 4- "Determining the scientific problem solving skills of primary students" (on going)

Memberhips:

European Science Education Research Association (ESERA)
 Turkish Physics Society
 Educational Volunteers Foundation of Turkey (TEGV)

Courses Given

<p>Undergraduate Level General Physics I-II Science Teaching Methods I-II School Experience Teaching Practice Science Laboratory Applications</p>	<p>Graduate Level Teaching of Science Process Skills The Philosophy and The Development of Science Education</p>
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Some Selected Papers

A. Published Papers in International Journals:

- A1.** Ünal, G., Akpınar E. (2006). "To What Extent Science Teachers are Constructivist in Their Classrooms", *Journal of Baltic Science Education*, 2, 10, 40-50.
- A2.** Ünal, G., Ergin, Ö. (2006). "The Effects of Discovery Learning on Students' Science Achievement, Learning Approaches and Attitudes", *Journal of Turkish Science Education*, 3, 1, 36-52.
- A3.** Ünal Çoban, G. (2010). "The Scientific Understanding Level of Prospective Science Teachers". *Journal of Baltic Science Education*, 9, 3, 237-254.
- A4.** Ünal Çoban G., Akpınar, E.; Küçükçankurtaran, E.; Yıldız, E.; Ergin, Ö. (2011). "Elementary School Students' Water Awareness", *International Research in Geographical and Environmental Education*, 20, 1, 65-83.
- A5.** Ünal Çoban G., Kaya engören, S. (2011) "A Simple Way of Modeling the Expansion of the Universe: What does light tell us?", *Science Activities: Classroom Projects and Curriculum Ideas*, 48, 2, 39-42.
- A6.** Kaya engören, S., Ünal Çoban, G.; (2011) "The Special Conditions for the Principal Rays" *Latin American Journal of Physics Education*, January.
- A7.** Ünal Çoban, G.; Kaya engören, S., Korkubilmez, S. (2011). "An alternative tool to explain Hook's Law and the principle of Dynamometer: The rubber band". *Latin American Journal of Physics Education*, March.
- A8.** Ünal Çoban, G.; Ate , Ö.; Kaya engören, S. (2011). "The Epistemological Views of Prospective Physics Teachers" [in Turkish]. *International Online Journal of Educational Sciences*.
- A9.** Ünal Coban , G. (2011). "The Turkish Primary Students' Understanding of Scientific Events and Questions", *Journal of Turkish Science Education*, 8, 2, 23-38.
- A10.** Capellaro, E.; Ünal Çoban G., Akpınar, E.; Yıldız, E.; Ergin, Ö. (2011). "An Applied Sample Environmental Education for Adults: Water Awareness Education", *Journal of Turkish Science Education*, 8, 2, 157-173.

B. Proceedings

- B1.** Aktamı , H.; Ünal Çoban, G. "Astronomy Education in Science Education", ESERA-European Science Education Research Association 2009 Conference, STANBUL , 31.08.2009-04.09.2009.

C. Published Papers in National Journals:

- C1.** Ünal, G., Tatlı, A., Eryılmaz, A. (2000). "Comparision of Pre-Service and In-Service Science Teachers' Perceptions about Good Science Teachers' Characteristics", *Hacettepe Üniversitesi E İtim Fakültesi Dergisi*, 19, 139-148.

- C2. Akpınar E., **Ünal, G.**, Ergin, Ö. (2005). "The Attitudes Towards Science Teaching of Science Teachers Graduated From Different Fields" [in Turkish], *Milli E itim Dergisi [Journal of National Education]*, 168, 202-212.
- C3. **Ünal, G.**, Ergin, Ö. (2006). "Science Education and Models" [in Turkish], *Milli E itim Dergisi*, 171, 188-196.
- C4. **Ünal Çoban G.**, Aktamı , H., Ergin Ö. (2007). "The views of 8th Grade students about Energy" [in Turkish], *Kastamonu Üniversitesi, Kastamonu E itim Dergisi [Kastamonu University Journal of Education Faculty]*, 15, 1, 175-184.
- C5. Aktamı H., **Ünal G.**, Ergin Ö. (2008). "The Parents' Effect on Students' Attitudes towards Science" [in Turkish], *Aile ve Toplum [Family and Society]*, 4, 14, 39-48.
- C6. **Ünal Çoban G**, Ergin Ö. (2008) "The Learning Approaches of Primary Studentsé [in Turkish], *Uluda E itim Fakültesi Dergisi [Journal of Uluda Faculty of Education]* , 21, 2.
- C7. **Ünal Çoban G.**, Ergin Ö. (2008). "The Instrument for Determining the Views of Primary School Students about Scientific Knowledge" [in Turkish], *İköretim-Online Dergisi [Elementary Education Online]*, 7, 3, 706-716.
- C8. **Ünal Çoban G.**, Kaya engören, S. (2009). "Prospective Physics Teachers' Mental Models about Shadow" [in Turkish], *Dokuz Eylül Üniversitesi Buca E itim Fakültesi Dergisi [Journal of Dokuz Eylül University Buca Faculty of Education]*, 25, 1-8.
- C9. **Ünal Çoban G.**, Ergin Ö. (2010). "The Scale for Determining the Views of Primary School Students about the Existence Domain of Scientific Knowledge" [in Turkish], *İköretim-Online Dergisi [Elementary Education Online]*, 9, 1, 188-202.
- C10. Küçükçankurtaran, E., **Ünal Çoban, G.**, Yıldız, E., Akpınar, E. (2010). "An Investigation on Raising The Awareness of Water based Environmental Problems" [in Turkish], *Türkiye Sosyal Ara tırmalar Dergisi [Journal of Turkish Social Researches]*, 14, 3, 187-202.
- C11. Yıldız, E.; Akpınar, E.; **Ünal Çoban G.**, Küçükçankurtaran, E.; Ergin, Ö. (2010) "Developing The Water Usage Questionnaire towards Adults" [in Turkish], *Aile ve Toplum Dergisi [Journal of Family and Society]*, 6, 22, 91-104.
- C12. **Ünal Çoban, G.**; Ergin, Ö. (2011). "View of The Scientific Knowledge's Existence Domain Through Model Based Instruction" [in Turkish], *Gazi University Journal of Turkish Educational Sciences*, 9, 2, 211-254.