



Using ProScopes in Elementary Classrooms

A Case Study Report

Submitted to Bodelin Technologies

by

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ABSTRACT

Professor MacGregor Kniseley conducted a case study with teachers representing all grade levels, K-Grade 5. After a three-hour training, participants piloted ProScopes in their classrooms. They provided suggestions for using ProScopes and feedback about the benefits, challenges, and impact of training and materials. The following is the case study report.

ABOUT THE AUTHOR

Professor MacGregor Kniseley began his 35-year education career as an environmental educator. Next, he taught for ten years in elementary and middle schools. Since 1990 he has been Professor of Elementary Education at Rhode Island College, teaches science methods and other teacher education courses, and supervises student teachers. He works with college faculty, teachers and students to develop effective instructional uses of digital microscopes, classroom response systems, assessment and learning management systems, and iPads.

ACKNOWLEDGEMENTS

The project director is grateful to the following people for their generous contributions to the case study project:

- Peter White (Bodelin Technologies) provided excellent support including ten ProScope digital microscopes with lens, stands, and carrying cases and Skype conference during the initial training. Peter quickly responded to participant questions and challenges in using the ProScope throughout the piloting phase.
- Dean Alexander Sidorkin, (Feinstein School of Education, Rhode Island College) for permitting the project director to use his professional development funds to support participant honoraria.
- Participating teachers generously devoted time after school for training and final meeting, classroom time to pilot ProScope, and feedback in online surveys.

INTRODUCTION

Elementary teachers commonly use low-power plastic magnifiers with their students in science to observe small objects. Increasingly, teachers are accessing document cameras to project and record images of small objects to the whole class. However, elementary teachers seldom use hand-held digital microscopes. Many elementary teachers are unaware of them.

The purpose of this case study project was to provide K- 5 teachers at each grade level a ProScope to use in their classrooms and report their experience. Focus questions included:

- How do K-5 teachers use ProScope with their students?
- Is the ProScope developmentally appropriate for all elementary students?
- What are teachers' perceived benefits and challenges of using a ProScope?
- What support do elementary teachers need to be comfortable, confident users?

IMPLEMENTATION

This section describes the implementation of the project including goals, recruitment, description of participants, initial training, piloting, and final meeting.

Goals

1. To pilot ProScopes in several Rhode Island elementary schools with 10-15 teachers and teacher candidates at different grade levels.
2. To receive feedback and advice on use of ProScope from elementary teacher candidates and professional teachers users.

Recruitment

The project director recruited twelve K-5 teachers from each grade from three Rhode Island elementary schools during Fall 2012. Participants were informed about the nature of the project, expectations and offered an honorarium and use of ProScope in their classroom from February – April 2012. They registered by completing an initial survey to help the project director plan for the initial training and piloting.

Description of the Participants

Participants represented all K-5 grade levels. Their professional teaching experiences ranged from no experience (student teachers) to 15 years. The average teaching experience was nearly eight years.

Classrooms differed in the equipment available for magnifying materials. Most classrooms were equipped with document cameras and plastic magnifiers. Participant differed in their use magnifiers. Most were using plastic magnifiers, power plastic microscopes, and document cameras. They used document cameras to magnify printed materials; explore small objects such as insects, pill bugs, and Bess beetles, fingerprints and crystals; model instructions for activities using small materials; and teaching geometry. NOTE: Source of data for this section is an initial participant survey.

Initial Training

During January 2012, the project director developed materials for professional development for teachers. On February 6, 2012 the project director conducted a three-hour after-school training at Rhode Island College. 12 participants learned about the following:

- Case study project goals and expectations
- Key terms for teaching about magnification and digital microscopes
- Operating a ProScope
- Teach elementary students to operate ProScopes
- Examples of using ProScope to observe and compare different materials and activities in different disciplines
- Using ProScopes to improve scientific and creative thinking

Using Skype conferencing Peter White introduced participants to the ProScope, presented how it was developed and used by law enforcement, manufacturing, and

education; demonstrated how it could be used with students; and answered participants' questions.

The project director and participants discussed ways to field-test the ProScope and provided focus questions to explore during February-April, 2012:

- What motivates you to use the digital microscope?
- How did you use the digital microscope in your classroom in science and other content areas?
- What accommodations, modifications, and strategies did you use with students with special needs?
- What worked well?
- What were your challenges?
- What instruction is needed for teachers and students to be successful users of digital microscopes?
- How does the digital microscope compare with a plastic 6x hand lens?
- What resources supported the use of the microscope?
- How do the ProScope and SM 45x Mini Microscope compare?
- What advice do you have for users?

Piloting Phase

From February-April 2012, 15 participants piloted digital microscopes in their classrooms and provided feedback and advice for using digital microscopes. During the piloting phase, the project director used a Google Collection to post participants' use of digital microscope. Some the participants submitted ways they were using the ProScope after the first month.

Final Meeting

On April 30 2012, participants met for two hours at one of the participating elementary schools, presented successful activities and engaged in a general discussion about what worked well, challenges and other advice for future users. And, participants completed an online final survey.

RESULTS

Participants' reported increased comfort and confidence in using the ProScope in the classroom at different grade levels and with special needs students. They provided strategies for first time users and other advice and explained the benefits and challenges of a ProScope and the impact of initial training on their ability to use the ProScope in their classroom. See the Appendix for participants' responses to a survey. These responses were used to present the results in this section.

Increased Comfort and Confidence

At the end of the project, a most participants reported that they felt very comfortable/confident or highly comfortable/confident using a digital microscope. All participants recommended their principals purchase a digital microscope for their classrooms and/or other teachers' classrooms in their school.

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Participants explained that purchasing digital microscopes was a huge challenge. The cost of a digital microscope is half or more of classroom materials budget. Funding was needed to purchase enough digital microscopes for each teacher. Purchasing multiple (4-6) digital microscopes for teachers to check out). A plan for repairing or replacing damaged digital microscopes needed to be in place.

Using ProScope at Different Grade Levels and Students with Special Learning Needs

All participants reported that using the ProScope in their classroom was "developmentally appropriate." After presenting procedures for safe and proper use of the ProScope, students at all grade levels were able to use the ProScope and enjoyed experimenting with it. Teachers used the ProScope to promote scientific thinking (e.g., observing, comparing, experimenting, and communicating), make connections to other disciplines. Participants employed a few accommodations for students with special learning needs such as pairing a special education student with a general education student. Some participants commented that special education students used the ProScope without assistance due to the hands on approach to learning and relying with less on reading and writing.

Classroom Strategies

Participants used different instructional strategies to engage students. Strategies included observing objects brought from home; playing *20 Questions* and scavenger hunts; creating secret messages; observing nonliving and living items from their science kits; teaching analogies; creating center activities that included open investigations; and writing/drawing about their observations.

Advice for Users

Participants advised teachers to plan well for their first classroom use of the ProScope. They suggested testing the device before using with students, delivering clear instructions on proper use and safety, establishing learning centers with interesting materials to observe, and including opportunities for open investigations.

Benefits

Participants explained the instructional benefits of using the ProScopes. Students improved their observation skills, were more highly engaged, highly interested in using technology. Using ProScopes provides opportunities for "open investigations."

Challenges and Solutions

Participants reported challenges of using the ProScope in their classroom. Peter White and the author offered some solutions.

CHALLENGES	SOLUTIONS
1. One ProScope per classroom reduces the engagement of students. Several ProScopes in the classroom are needed	Work with your principal and colleagues to purchase several ProScopes for the school. Set up a school-wide system for sharing equipment.

for some investigations.	
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2. Before using the ProScope, teachers need for more planning time to integrate the use of the digital microscope across the curriculum.	Use time during the summer to plan for use of ProScope or include time during grade level meetings to plan for use of the ProScope.
3. Observing and recording live organisms is difficult for users.	In general, moving objects are difficult to photograph well. It takes skill (and practice) to observe and record moving objects. For beginners, start by viewing stationary, flat objects. As the user's skill develops, observe and record small objects that move! To reduce movement of live organisms, you can place them in a small clear container (vial, petri dish). And, you can refrigerate live invertebrates to slow its movement.
4. Participants needed support for using the software features for video and time lapse recording.	Provide more time during training to address the use of the software features. Go to http://www.bodelin.com/proscopehr/support_proscopehr and click on "ProScope HR Software Guide."
5. Students experience technical problems such as focusing an object, focusing and recording clear images in non-touch (distance) view, holding the ProScope without movement while capturing images, and labeling images	Consult the touch-view video for proper focus for "touch view and distance view. Go to http://www.bodelin.com/proscopehr/how_it_works/ and download hardware and software guides at http://www.bodelin.com/proscopehr/support_proscopehr
6. Dust particles collect on the imager.	A video for instructions to clean the imager is under development. For now, contact support@bodelin.com for instructions on cleaning.
7. The cost of a ProScope is too high for our limited budgets.	Unfortunately, this is the high cost of producing USA made products, rather than out-sourcing to China. Bodelin Technologies is developing and manufacturing a lower cost digital microscope.

Impact of Initial Training

The three-hour February 6 2012 training included presentations by the project director, hands on station activities, Skype conferencing with Peter White and use of *Adventures with a Digital Microscope* guide and workshop handouts. Participants were inspired, informed and prepared to use the ProScope. They enjoyed the fun hands on activities and the printed materials were helpful.

Other Results

Overall, participants appreciated the opportunity to participate in this case study project. They looked forward to using ProScopes in their classroom. However, a few expressed concern about their ability to acquire a digital microscope due to cost and having several ProScopes to use in the classroom at one time.

One of the participants and project director co-presented the ProScope at the Rhode island College's Technology Showcase on April 5, 2012. The showcase included still and video images of elementary students using the ProScope and student work.

The project director wrote a teacher guide on using handheld digital microscopes and planned professional development services for schools and districts.

CONCLUSIONS

Overall, the project was highly successful in increasing participants' motivation, enthusiasm, comfort and confidence in using digital microscopes. Participants implemented whole class and learning center activities or using a digital microscope in a one digital microscope classroom. They recognized the value of having several microscopes in a classroom to increase the students' opportunity and engagement. Participants provided valuable feedback including advice for future users, strategies for using the ProScope in the classroom with different learners, benefits, and challenges

Participants at every grade level reported that the digital microscope was developmentally appropriate. However, early childhood students require more assistance before using the microscope independently. They lack fine motor control. They need to develop understanding of magnification concepts such as "focus" and "part and whole."

Participants recognized the instructional benefits of using a ProScope to engage students and use a technical resource in science and other subjects. They looked forward to using digital microscopes in their classroom. Several reported purchasing digital microscopes for their schools immediately following the project. However, others expressed concern about acquiring funds to purchase digital microscopes.

Participants reported some technical challenges using the ProScope such capturing focused images with proper lighting, using video and time-lapse images and cleaning the lens. With improved training, some of these challenges can be addressed.

RECOMMENDATIONS

The project director recommends to Bodelin Technologies the following:

1. Provide two-three hours of hands on training that include procedures for proper and safe use of the digital microscope and strategies for using the digital microscope in different subject areas. Participants desire hands on experience to learn how to capture and label still, video, and time-lapse images.

2. Provide teacher guides and package classroom “digital microscope kits” with ready to use, interesting materials.
3. Develop a generic how to elementary teacher guide that includes information about:
 - Aligning Digital Microscope Activities with Common Core Standards
 - Planning for the First Use of a Digital Microscope
 - Introducing Early Childhood Students to Magnifiers
 - Using a ProScope in a “One Digital Microscope Classroom”
 - Beginning and Advanced Digital Microscope Activities
 - Observing Different Materials in Life, Earth, and Physical Science
 - Improving Scientific and Creative Thinking with a Digital Microscope by Writing and Drawing
 - Activities for Recording Video and Time-Lapse Images
 - Teachers Resources
 - Children’s Literature
4. Develop video instructions for setting up and adjusting the flexible stand for viewing different objects.
5. Develop video instructions for cleaning the lens.
6. To connect further with the education market, develop a lower cost product for educators that competes well with other educational digital microscopes (e.g., SmartScope). For instance, substitute the current flexible stand with a less expensive and easy-to-use flexible stand.
7. Develop a digital microscope with dials that students can adjust the magnification and light - without removing and changing the lens.
8. Develop school/district discounts for bulk purchases of ProScopes.

APPENDIX: FINAL SURVEY RESPONSES

The appendix includes summaries and participants' final survey responses on different topics. The author edited responses slightly (e.g., grammar, punctuation), to improve clarity.

Using Digital Microscopes in Elementary Schools at Different Grade Levels and Students with Special Learning Needs

Summary:

All participants reported that using the ProScope in their classroom was "developmentally appropriate." After presenting procedures for proper and safe use of the ProScope, students at all grade levels were capable of using the ProScope and enjoyed experimenting with it. They used the ProScope to promote scientific thinking (e.g., observing, comparing, experimenting, and communicating), make connections to other disciplines. Participants employed a few accommodations for students with special learning needs such as pairing a special education student with a general education student. Some participants commented that special education students used the ProScope without assistance due to the hands on approach to learning and relying with less on reading and writing.

Final Survey Responses:

- Kindergarteners were very confident and comfortable using the equipment once they were introduced to the proper procedures.
- Grade 1 students were very interested in using the microscope. They loved to control the microscope and choose items to observe from our nature center.
- Grade 2 students were able to use the microscope independently and engage in activities related to the microscope.
- Grade 4 students were already developing strong observation skills. They used higher-level thought processes by comparing specimens and distinguishing slight similarities and differences. They were very comfortable with using technology and had the motor skills for holding the microscope. They had a sense of responsibility for using the ProScope with extreme care.
- Grade 5 students were capable of using the microscope independently in class.
- The ProScope was easy to use and manipulate and worked well with curriculum-science and other content areas as well. Using the ProScope helped students make connections from one curriculum area to the next, to observe carefully their world in all areas, and enhance writing.
- Students used the microscope to accomplish tasks on their developmental level using the microscope.
- Usually, I would pair students together for the use of the ProScope so they would not have to always rely on just themselves for the exploration. For my special education students, this idea worked well.
- None
- None
- The students worked in partners so that they could have a successful experience with the ProScope. This helped students share ideas and observations and helped them learn from each other.
- Review of proper handling and safety rules.

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- I thought it worked really well for my special needs students.
- I think that the hands-on nature of the ProScope required very little modification. My students are very "tech" savvy and easily made adjustments when they were observing their rocks and minerals. I think I would have to establish more behavior modifications if the students were to use the ProScope in a center, but I did not utilize the scope in that way.
- None. I think the opposite happened. ProScope allowed for some special education (resource) students to participate when they don't always have the chance due to reading and writing levels..
- No accommodations were needed.

Classroom Use of ProScope

Summary:

Participants used different instructional strategies to engage students. Strategies included observing objects brought from home; playing *20 Questions* and scavenger hunts; creating secret messages; observing nonliving and living items from their science kits; teaching analogies; creating center activities that included open investigations; and writing/drawing about their observations.

Final Survey Responses:

- Students brought in random objects to explore under the microscope.
- During the *STC Microworlds* unit, we began a project relating to fingerprinting.
- Students explored natural materials brought to school from home.
- Students investigated the growth of seeds -- from the germinations to the eventual development of the plant. Every aspect was explored and documented.
- Students played *20 Questions*. We displayed images taken with ProScope using digital projector. Students posed ask questions and guessed what the image was.
- In writing we used the ProScope to observe our fingerprints. We captured images and wrote poems about what we saw.
- In science we used the ProScope to observe rocks and minerals.
- We used the ProScope to conduct a "scavenger hunt" outside.
- I set up a nature center and encouraged students to observe objects from our center using the naked eye first and then again with the digital microscope. Each student had a nature journal that they recorded their observations in. The students discussed the differences between their observations. They enjoyed looking through the microscope to find new things they had never seen before. We started using the microscope after reading the book *Greg's Microscope*.
- We used them to explore our skin, teeth, and eyes through a "free explore" time.
- We explored our clothes with different colors, fabrics, and textures.
- We created a terrarium where the students were free to bring in live organisms to house and record information on.
- We also observed fruit turn moldy in the terrarium over time.
- We used them in a writing model to create a "secret message" in Word and write about it.
- We shared the ProScope with a colleague for a week so they could get a chance to see the equipment and all the possibilities it gives you in the classroom.
- We observed still pictures of fingerprints. Then students wrote poems to match the story on their fingerprint

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- We conducted a "scavenger hunt." We captured still images of objects in our school playground insert the images into a Word document. The students were asked to be careful observers of the world around them, name the object and defend their thinking.
- While the students were researching rocks and minerals they used the ProScope to observe their rock/mineral up close. They added their observations to the research project and finally presented their findings in a PowerPoint presentation. Also, the still images were put into poster
- As part of a morning meeting activity, we played Twenty Questions. I displayed a still image (taken with the ProScope) of an object. The objects were captured from the classroom or outside of the classroom. I gave them hints about the object and they guessed using my clues.
- We observed the conditions of our hands throughout the day
- We compared and contrasted the characteristics of skin at different age levels.
- We found clues in mystery objects that led to discovery.
- We followed the healing process of the burn on the teacher's arm.
- We used the ProScope for teaching analogies, open Investigations
- Students created a ProScope song.
- To introduce the microscope, I showed them captured images and asked them to guess what they predicted the objects were. I showed them how ordinary objects appeared under the ProScope.
- I set up a learning center for them to have open discovery of different objects I put at the center, and then they wrote an observation in their notebooks.
- I looked for ways to implement it into our regular science curriculum.
- During our Grade 4 Electricity unit, I first showed them how the inside of a light bulb looked under the ProScope. We were studying all the different parts of a light bulb. I set up a learning center with different objects from the electricity kit for them to examine under the microscope, such as a battery, light bulb, wire, etc. and write observations in their science notebooks.
- For homework students were given the assignment to bring in an object from home to view under the microscope, and their classmates would have to guess the object.
- During our Grade 4 Earth Materials Kit, we used it to observe rocks in place of a hand lens.
- I set up a learning center for them to compare and contrast how rocks and minerals appear under the ProScope with how they compare under normal view. They did this using a Venn Diagram.

Advice for Users

Summary:

Participants advised teachers to plan well for their first classroom use of the ProScope. They suggested to test the device before using with students, deliver clear instructions on proper use and safety, and establish learning centers with interesting materials to observe and include opportunities for open investigations.

Final Survey Responses:

- Plan for the first classroom use of the digital microscope. Test the microscope first before using it with students.

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- Provide clear instructions for proper care and use of the ProScope. Provide sufficient time for practice.
- Facilitate one on one use at first until students are comfortable and you are confident that they can appropriately use it. Once they understand how to use it, the students have a lot of fun!
- Begin by leading a whole class discussion and modeling proper use and care. Next, provide non-living items to explore. Living organisms were difficult to "catch" in such a small area. With increasing skill, provide more challenging objects to observe such as live organisms that move in a small area.
- Maintain a high interest level by providing different objects to observe.
- Ideally, provide classrooms with more than one ProScope. Establish a permanent learning center where students could access multiple scopes to observe objects on a weekly basis.
- Keep students accountable by having them write or draw what they observe occasionally during or after using the digital microscope.
- Create a learning center and provide opportunities for open investigations. Students can develop and act on their interests.
- Use the digital microscope whenever students need to observe with a hand lens.
- Be sure to label captured images.
- Use it as a tool whenever you want students to compare and contrast specimens/objects.

Benefits

Summary:

Participants explained the instructional benefits of using the ProScope digital microscope. Participants noticed that the students improved their observation, increased their engagement, tapped into their interest in using technology, and created opportunities for open investigations.

Final Survey Responses:

- The greatest value it added was in how the images on the ProScope could be enhanced with computer technology. It was a really was a useful scientific tool. We could hook up the ProScope to the laptop and then show the students a sample through a projector. Also, students enjoyed the ease of use of the ProScope. The idea of pointing and clicking works well in the students' world.
- In my case, the children were able to witness the first aspect of the growth of a plant - the opening of the seed - to the structure of a stem and the vascular system, to the pollen on the flowers. The children were able to see things that they would have never seen with the naked eye. It provided a much more rich and understandable experience.
- The ProScope made students more observant.
- I think the students developed a deeper understanding of objects in nature. They were really excited about the new technology and it made a simple "nature center" a place kids really wanted to go to learn.
- "First it engaged the students very well in classroom discussions. Students were excited to discuss their new observations were always bringing things in to look at under the ProScope.

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- Students who typically were not engaged in class became more animated and invested in the activities.
- Students could take their collected images and use them as parts of other lessons (writing, math, etc.).
- Students love technology, any kind of technology. The students' interest in what the world around looked like close up was amazing. It taught them to see things from a different perspective. I feel it enhanced their descriptive language when writing about the images they saw.
- Mostly it helped us to see images we were not capable of seeing with the hand lens. Seeing is believing! Believing is learning.
- It helped students to develop independence and confidence.
- Students were more likely to remember the subject matter because the magnified image was so surprising in many cases (high correlation between emotions and memory).
- Developed stronger interest in science and inquiry.
- Enhancing and developing the skills of observation, predicting, classifying, comparing and contrasting
- It motivated the students to take a closer look.
- Any time students become excited or enthusiastic about science is valuable to instruction!

Challenges of Using the ProScope in the Classroom

Summary:

Some of the challenges encountered while using the ProScope included having access to only one ProScope; needing more time to plan for its use; viewing live organisms; using the video and time lapse features; and experiencing technical problems such as cleaning the lens. Some students' were challenged in focusing an object, holding the microscope steady while capturing images, and making videos.

Final Survey Responses:

- The two largest problems I encountered were not really with the ProScope. One problem was that I only had one ProScope. Often if some students were using it, the other students would have to be occupied with something else. The other issue was with time to use the ProScope in science. Time management has become extremely difficult in my district due to certain math and reading initiatives that take up most of each day.
- None other than wanting more than one to use at a time.
- Planning for its use. In other words, if I had known during the summer months that I would be using the ProScope, I would have planned for its use week-to-week. It would have been a bigger part of the curriculum/classroom.
- Having only one made it difficult for my students to all have a fair amount of time with the microscope. Although it started out as a center, we did a lot as a whole class with me using the microscope and sharing observations on the digital projector screen.
- I missed the original introduction (training), so I would like to thank (teacher) for taking the time to quickly catch me up on a ""crash course"" review.

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- I did not receive all the different lenses supplied to the rest of the participants. I only received the 50x lens, so I feel like I would have liked to have a chance to work with the other lenses.
- I did not like the struggle I had to keep something alive still in a smaller area so that it would fit in the viewing area for us.
- I did not get enough time to perfect the video option on the ProScope like I would have wanted to.
- I did not get a chance to explore the time-lapse option at all and I wish I could have!
- It was hard for me to use the ProScope with my whole class. I used it mostly for taking still images. If I have more scopes I would have set up a rotating observation center for students.
- Students fought over its use.
- Dirt build up occasionally was easily resolved with 1 part alcohol, 1 part water"
- Finding adequate time to use it and develop lessons. Having the time for each student to complete a task since we only had one in the classroom.

Participants explained some of the students' challenges of using the ProScope:

- The only challenge I witnessed was when some students did not see what they expected as quickly as they expected to see it. Some of them seemed to think that you just point the ProScope at what you are experimenting with and it will do everything for you. Once they got over that everything was fine.
- Learning to move the scope slowly and hold it still to take pictures. Fine motor skills of a kindergartener are less developed and required more patience.
- Holding it steady to capture an image.
- Some children had trouble getting their objects in focus - but my solution was to pair students together so they can work together to help each other.
- Getting close enough on living subjects to get a picture that wasn't blurred or out of focus.
- Making videos and sharing them to the best of our abilities.
- Very little because I was always there with them.
- None

Impact of February 6 2012 Initial Training

Summary:

The three-hour February 6 2012 training included presentations by the project director, station activities, Skype conferencing with Peter White and use of *Adventures with a Digital Microscope* guide and workshop handouts. Participants believed they were inspired, informed and prepared to use the ProScope. They enjoyed the fun hands on station activities and believed the printed materials were helpful.

Final Survey Responses:

- It gave me a solid foundation for using the ProScope. I had to deal with my laptop not working well with the ProScope, so I was already practiced at troubleshooting with it. Peter was very knowledgeable in the use of the ProScope when it comes to teachers.
- Wasn't able to attend but the handouts were helpful
- I found the meeting to be informative. I was able to use the ProScope immediately.
- I felt prepared to use the microscope after that meeting.

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- The guide handouts were very useful. Since I received the ProScope late, I am still holding on to the product for further use in my class.
- I liked being able to play around with the ProScope. The centers were fun and helpful. Good ideas in the handouts.
- I found them helpful. Thank you!
- It was very inspirational, and got me excited to use the ProScope in my classroom. I left feeling very confident on how to operate and use it.

Other Comments

Overall, participants were pleased with the opportunity to participate in the case study project. They look forward to using ProScope in the future. A few were concerned about the ability to purchase a ProScope and having several to use in the classroom at one time.

Here are other suggestions, questions, and concerns about using the ProScope, training, and participation in the project:

- The ProScope was great. The issues I have as a teacher relate more indirectly to the ProScope. The cost, the issue of time in class and the amount of ProScope for use (one) compared to students (25). I would love to see our school purchase 3 or 4 for use in any classrooms that could use them when needed, but that goes back to the money issue. It was a pleasure to participate in this project. Thanks for the opportunity!
- None
- Train teachers in the spring for the following year. A training in the spring would allow teachers to think over the summer of creative ways they could incorporate the ProScope into their classrooms.
- Comment: I may be wrong, but I thought someone mentioned an iPad accessible ProScope and I think that may have been slightly easier to use in the classroom. Especially if it is wireless. The set up and put away would have taken a lot less time.
- I enjoyed getting to use the microscope and hope to have the chance to use one again in the fall when my students study organisms. It will really help teach my students more about the plants and animals that we study.
- Thank you to Peter, Dr. Kniseley and (teacher) for getting me in! I am glad I was able to have even the short time I did with the ProScope.
- No
- Thank you for bringing ProScope to our school.
- I just want to say how glad I am that I participated in this study. My students loved the microscope, and I think it enhanced our science investigations. It was a great experience for me with implementing technology into instruction.