

**Neuro-Ophthalmology Virtual Education Library (NOVEL):  
G08 LM007919 Final Report –03/01/07  
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The specific aims of the Neuro-Ophthalmology Virtual Education Library (NOVEL) project were accomplished. Because it was not a research project, there are no studies or results to report. The project web site is: <http://library.med.utah.edu/NOVEL/>

The overall goals of the NOVEL project have been met. The collaboration between the Eccles Health Sciences Library (EHSL) and the North American Neuro-Ophthalmology Society (NANOS) continues to be very successful and a formal relationship between the library and the society is being established. A Memorandum of Understanding will be drawn up between the two organizations to guide the project going forward. NANOS has agreed to provide funding for one full time staff member to continue the project during periods where no other external funding is secured.

The digital library has proven very useful to the NANOS members, as well as to the international neuro-ophthalmology community, including health care providers, educators, students and patients. The expanded collections have increased their level of confidence in the functionality of a digital repository and in the enthusiasm for its use. NANOS members have provided valuable feedback, contributions, and have a multitude of suggestions for expanding and enhancing the project.

Specifically, the unpaid extension allowed us to make progress on a number of projects and the project expended all NLM funds for the project. The projects completed include:

- 1) Continued expansion of the Wray Neuro-visual Disorders collection
  - 2) Metadata completed for Walsh Society Meeting abstracts from 1986 to the present
  - 3) Kardon Pupil Collection started.
  - 4) Added contributions to the Moran Eye Center Collection
  - 5) Increased the Loewenfeld Pupil references
  - 6) Completed skew deviation animation with Dr. Newman-Toker
  - 7) Moved Cogan Collection to University of Utah, Moran Eye Center
  - 8) Promoted NOVEL through at AAO, INOS, NANOS annual meetings
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- 1) Wray Collection: Excellent progress has been made on this valuable collection. Dr. Wray to Utah was able to make two additional working visits to complete the work on the extremely detailed metadata she is preparing for each case video. Additionally, Dr. Wray prepared and added PowerPoint presentations on more than a dozen diseases to supplement the case video and extensive metadata, creating comprehensive teaching units with extensive learning objects for each disease.
  - 2) Walsh Collection: There are now 645 learning objects with complete metadata in the Walsh collection. The Q & A abstracts from 1989 to the present have complete descriptive records in the database at this time with standardized subject headings based on the NANOS curriculum outline, as well as the identified pathology and diagnosis information. The added descriptors will make

materials in the collection vastly more findable by our users.

- 3) The Randy Kardon Pupil Collection has been established and is growing: The Web site has been developed and the first PPT series has been added to the database and linked appropriately to the other materials. Dr. Kardon was able to visit Utah in September to work on expanding this valuable addition to our collections.
- 4) The Moran Eye Center collection now has contributions from all four faculty in that division. The Moran Collection in NOVEL was highlighted at the grand opening of the new Moran Eye Center building on the campus of the University of Utah.
- 5) The Irene E. Loewenfeld pupil references collection prototype has been established and is awaiting feedback from the NANOS community. In July of 2005, Irene Loewenfeld, PhD, author of the definitive textbook, *The Pupil*, donated to NOVEL her handwritten annotations on the thousands of references she used in writing the textbook. The collection contains scanned images of the reference cards, with scanned copies the reference articles when copyright permission was obtained for this use.
- 6) We have completed the animation on the normal process of Skew Deviation in collaboration with David Newman-Toker. Dr. Newman-Toker was able to visit one more time to finalize this animation. The intent is to continue working with Dr. Newman-Toker. We plan to begin development of pathologic states relating to skew deviation, as well as to develop a second animation and to add a collection of his teaching materials.
- 7) The David G. Cogan collection of video, slides and documents were transferred to the University of Utah from the temporary storage site near Johns Hopkins Medical Institutions, under the supervision of Neil R. Miller, Professor, Ophthalmology, Neurology, Neurosurgery. NOVEL now owns this collection, and other physical collections, and will store them in the new Moran Eye Center building on the campus of the University of Utah.
- 8) NOVEL was promoted via a presentation at the annual meeting of the American Academy of Ophthalmology in the Technology Pavilion in Las Vegas, NV on November 12, 2006. NOVEL was promoted via two separate posters and a presentation at the International Neuro-Ophthalmology Society (NANOS) meeting in Tokyo, Japan on November 29 and 30, 2006. A paper will be published in an upcoming issue of the international Neuro-Ophthalmology journal as a result of this INOS presentation. NOVEL was promoted at the annual meeting of the North American Neuro-Ophthalmology Society at Snowbird, UT on February 10, 12 and 14, 2007.

### **Journal of Neuro-Ophthalmology Archives**

The editor of the Journal of Neuro-Ophthalmology (JNO) has agreed to present to the NANOS Board the idea of hosting the entire archive of the JNO in a NOVEL collection, Thanks to open access and copyrights education from the NOVEL team, the JNO

editorial board has negotiated the return of all copyrights for JNO content to NANOS 18 months after publication. As a result, the content will be available and can be archived as a collection in NOVEL. This is expected to be approved in April of 2007 and the NOVEL team will process this content as a permanent archive. This will greatly increase the value of NOVEL as the discipline specific repository for the neuro-ophthalmology community.

### NOVEL Web and Video Usage Statistics

It is notable that there is significant growth in all areas, with more than 2 million hits and an average of more than 9,000 individual visitors each month. The international use of these open access collections is clear from the ever changing list of top 99 countries using the Web site:

NOVEL 2005-06	2006 Totals	2005-06 Totals	2004-05 Totals
Hits	2,072,613	1,946,200	1,308,052
Page Views	731,571	623,869	287,274
Visits	341,537	303,667	324,796
Visitors Avg / Month	9,014	7,767	5,888

### Visits by top 99 countries in December of 2006

99 Countries	December 2006		Total: 23,389
United States 20,554	Hong Kong 37	Malaysia 6	Latvia 1
Australia 292	Belgium 37	Colombia 6	Bangladesh 1
Canada 258	Niue 37	Brunei Darussalam 6	Kazakhstan 1
Saudi Arabia 211	Mexico 35	Chile 5	Guinea-Bissau 1
Europe 182	Arab Emirates, United 31	Russian Federation 5	Antigua and Barbuda 1
United Kingdom 168	Jordan 28	Slovenia 5	Tanzania 1
Japan 102	Brazil 28	Barbados 4	Georgia 1
Italy 84	France 27	Viet Nam 4	Macedonia 1
Spain 84	Czech Republic 23	New Zealand (Aotearoa) 4	Oman 1
Netherlands 81	Poland 20	Iceland 4	Dominica 1
Korea (South) 73	Iran 20	Croatia (Hrvatska) 4	Guyana 1
United Kingdom 67	Norway 17	Dominican Republic 4	Mauritius 1
Germany 63	Indonesia 17	Peru 4	Bosnia and Herzegovina 1
Turkey 61	Ireland 15	Nepal 3	Belize 1
Switzerland 58	Hungary 14	Austria 3	Guatemala 1
India 56	Denmark 13	Slovak Republic 2	Bahamas 1
Taiwan 55	Kuwait 13	Zimbabwe 2	Bermuda 1
Sweden 50	Argentina 12	Estonia 2	Ethiopia 1
China 48	Bahrain 9	South Africa 2	Morocco 1
Singapore 46	Finland 8	Libya 2	Algeria 1
Portugal 46	Pakistan 8	Malta 2	Samoa 1
Israel 45	Lithuania 8	Sri Lanka 2	Cyprus 1
Greece 39	Romania 8	Bulgaria 2	Puerto Rico 1
Thailand 38	Yugoslavia 7	Nicaragua 2	Cayman Islands 1
Egypt 38	Philippines 7	Kenya 2	

### NOVEL Video Usage Statistics for 2004-2006

As many of the NOVEL collections are based on patient video, the statistical analysis of usage from the NOVEL video collections is also very interesting and shows tremendous growth in usage. As with the larger collections, the international appeal is apparent.

NOVEL	Clips	Visitors	Internat'l	Countries
2006	29,205	12,836	7,831	90
2005	8,785	5,574	2,972	72
2004	3,562	1,637	978	61

#### NOVEL Video Usage by Collection in 2006

Collections 2006	Clips	Percentage	Visitors
Moran	22,721	73+%	10,540
Wray	6,479	26+%	2,296
Cogan	3	<1%	2
TOTAL	29,203	100%	12,838

#### NOVEL Video Usage by Country in 2006

90 Countries	24,275 Video	11,491 Visits	
US/ 10,585	Saudi Arabia/ 113	Peru/ 22	Cayman Isl/ 8
UK/ 5,343	Malaysia/ 101	Venezuela/ 21	Tunisia/ 8
Canada/ 1,521	Portugal/ 100	Hungary/ 19	Kuwait/ 7
Australia/ 955	China/ 74	Romania/ 18	Vietnam/ 6
Brazil/ 757	Singapore/ 72	South Africa/ 18	Colombia/ 6
Italy/ 518	United Arab Emirates/ 70	Dominican Rep/ 18	Neth Antilles/ 6
Korea 413	Morocco/ 68	Yugoslavia/ 17	Paraguay/ 4
Chile/ 243	Switzerland/ 65	Nepal/ 17	Palestinian Territory 4
Netherlands/ 226	Finland/ 51	Poland/ 17	Bahamas/ 4
India/ 212	Argentina/ 46	Syrian Arab Rep/ 16	Malta/ 4
Egypt/ 187	Philippines/ 46	Austria/ 16	Lithuania/ 4
Israel/ 186	Norway/ 44	Indonesia/ 14	Oman/ 4
Germany/ 175	Sweden/ 43	Russian Fed/ 14	Barbados/ 4
Japan/ 167	Denmark/ 42	Croatia/ 14	Maldives/ 4
Taiwan/ 163	Ireland/ 42	Dominica/ 12	Bulgaria/ 4
Hong Kong/ 158	New Zealand/ 38	Cyprus/ 12	Qatar/ 4
France/ 132	Iran, Islamic Rep/ 37	Sudan/ 11	Bahrain/ 2
Jordan/ 127	Puerto Rico/ 36	Ecuador/ 10	Panama/ 2
Turkey/ 121	Uzbekistan/ 34	Costa Rica/ 10	Uruguay/ 2
Spain/ 119	Greece/ 30	Pakistan/ 10	Nigeria/ 2
Mexico/ 117	Slovenia/ 30	Libyan Arab	Honduras/ 2
Thailand/ 115	Czech Rep/ 23	Jamahiriya/ 8	Iceland/ 2
Belgium/ 114		El Salvador/ 8	Lebanon/ 1

The NLM funded account has been officially closed by the University of Utah's Research Accounting Office. The University of Utah Office of Sponsored Projects is aware that the project has ended and will receive a copy of this report. We appreciate the opportunity provided by this grant award to prove the value of a discipline specific digital repository for a medical specialty. We have made a great deal of progress toward informing this biomedical community of new scholarly publishing models and have caused the members to see health sciences libraries and librarians in an entirely new light.