# **Evaluating Data Visualization** developing a method to facilitate data analysis and decision making in the College of Veterinary Medicine

# Objective

At present, information used by the Iowa State College of Veterinary Medicine to design and implement changes in curricula is scattered throughout several documents across years and departments.

### to take information

Table 13: Ratings for clinical courses (prior to 4 <sup>th</sup> year) 2009				
Rating	Course	Mean (SD)	Desired but unavailable (%)	NA # (%)
4 (Good) ≤ Mean <5 (Excellent)	Clinical Pathology	4.55 (0.74)	1 (1.3)	0 (0)
	Small Animal Surgery	4.40 (0.68)	0 (0)	0 (0)
	Small Animal Medicine	4.33 (0.62)	0 (0)	0 (0)
	Special Pathology	4.33 (0.62)	2 (2.7)	0 (0)
	Dermatology	4.32 (0.68)	1 (1.4)	0 (0)
	Large Animal Infectious Diseases	4.10 (0.73)	2 (2.7)	0 (0)
	Neurology	3.93 (0.71)	1 (1.3)	1 (1.3)
	Small Animal Infectious Diseases	3.89 (0.77)	2 (2.7)	0 (0)

an example of current data distribution, in which patterns and trends are difficult to discern

#### from this...

Our goal was to create an information visualization dashboard to simplify the decision-making process, resulting in more accurate administrative and teaching decisions and less time spent attempting to analyze information.



We then tested our dashboard with inexperienced users to examine its ability to clearly convey information in an accurate and easy to digest format.

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# Methods

Participants were undergraduate research internship students from programs hosted by Iowa State University, recruited by email.

Exactly half of the participants were female; all were between 18 and 25 years of age.

Participants were presented with a prototype of the dashboard system and asked to complete a list of ten benchmark tasks such as identifying subcategories and data trends.



screenshot of the prototype interface with categories fully expanded

Think-aloud procedure and tracking software were used to monitor the participants. The time and number of clicks used to complete each task were measured.

A follow-up survey was administered after the tasks were completed. 13 short response questions and 7 Lickert scales adressed the participant's feelings about the usefulness and appearance of the dashboard interface.



one of the questions in the exit survey

# Results

Finding Data

The success rate for each task went up after the initial identification tasks were completed. This indicates that after the users became proficient with the system, they became comfortable with it and were more capable of using it to research and compare information.



According to survey responses, the annotated timeline was the most preferred method of information distribution and the sparkline and bar charts were favored the least.

Should the dashboard prove helpful once it is deployed, we plan to adapt the interface so that it may be used by those working in other colleges.

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(results, cont.)



#### Future Work

Changes have already been made to reflect our users' feedback: the annotated timeline has gained a more prominent position and the other graphs have been changed in a way that we hope will make them more clear.



We plan to conduct further usability testing using this revised model and expect to begin using the faculty and staff of the College of Veterinary Medicine as our participants soon, since they are the end users of this project.

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