CoSke: An Exploration in Collaborative Sketching

While digital collaborative sketching programs are available, they are unsophisticated and lack serious development. We are looking to create a program that enhances current features of collaborative sketching programs and provide a natural interface for digital, isolated interaction that is similar to pencil and paper.

**How CoSke Works**

CoSke is a collaborative sketching program consisting of a client and server that exchange information in the form of strings. For example, when a stroke is completed, a string containing the stroke information is sent from the client to the server, and the server propagates that message to all clients which parse the string and draw the stroke.

```plaintext
nPoints = 36
Point coordinates: x1,y1;x2,y2;...x36,y36

<line strokeID="." author="." color=" " brushSize=" ">
  <polyLine>nPoints;x1,y1;x2,y2;...x17,y17</polyLine>
</line>
```

**Experiment**

Users were asked to sketch in a group on paper, on CoSke in the same room, and on CoSke while isolated. They were asked to draw a different image for each setup and comment on their experiences. Proctors observed their actions and commented on points of communication such as hand gestures, emotions, etc.

**Example images:**

- **Pencil and paper**
- **Digital, isolated**
- **Digital, same room**

**Results**

Overall, users preferred drawing on CoSke in the same room over other methods. While pencil and paper felt more intuitive, most users thought digital drawing was more useful and powerful. Users thought having communication made drawing easier, even if they still effectively collaborated from a distance.

**Summary**

Future development of CoSke will be based off of the results of the user studies. For example, when drawing together, the users tended to use more hand gestures and eye contact, as well as speak out loud and delegate tasks. Therefore, future versions would include features to extend these intuitive, face-to-face interactions to an isolated environment by changing a user’s cursor color to match their drawing color, identifying an author by hovering over a stroke, and voice chat.

http://srl.cse.tamu.edu