**ABSTRACT**

We extract the co-author network from a data set of papers written by scientists engaged in design for development research from 2004 - 2015, focusing on those who apply Human-Centered Design (HCD) methods in their experiments. In this network, authors represent nodes, and nodes are connected by an edge if the two authors have co-authored a research paper. Analysis of this network shows that most authors publish few papers in well connected communities, though the entire network is sparse and consists of many disconnected smaller communities. Based on these results, we believe that the landscape of development/design could benefit from \_\_\_\_ . *Keywords: Collaboration, network analysis, human centered design, development engineering*

**INTRODUCTION**

**Human centered design**

**Designing for development**

**Objective**

Who is publishing together, who is publishing the most? Who’s working with people in different countries from their own?

How does the network change over time, year to year from 2004 to 2015?

Built a co-authorship network to analyze this, gain insight into patterns

**Why is it important to do what we are doing?**

**What is already known about the topic?**

**What is your hypothesis?**

**Prior research findings**

**PHYSICAL PROBLEM**

**Social network analysis – why?**

Reveals relationships and collaboration patterns between researchers

Reveals how structure of the network influences individuals’ behaviors

**Represent the co-authorship network as a graph**

Undirected graph in adjacency matrix form

**Network Analysis Terminology**

Graph

Node

Edge

Degree

**METHOD AND APPROACH**

**Data collection and preprocessing**

Searched Google scholar and scraped

Collect a dataset of research papers, books, articles from Google scholar search

Began with 1441 papers and cut down to 83 based on criteria of \_\_\_\_

**Coding**

Python, standard packages, algorithms

**RESULTS AND DISCUSSION**

**Visuals**

D3 graph ☺

Table with total number of authors, total number of papers, average papers per author, average authors per paper, degree, density, component sizes, diameter, clustering

Table with countries of first authors, rest of authors

**Individual metrics (a table)**

Papers per author

Authors per paper

Average number of collaborators per author

**Global metrics**

Density

Path length, diameter

Clustering coefficient

Average component size (largest component size)

**Influential Authors**

Cut points – authors that connect >2 authors from one community to another

Betweenness Centrality – author that controls flow of information

Closeness Centrality

**Variance of measures per year**

Sorted papers year by year

Table per each year with all the metrics? **Is this too much data?**

What conclusions can I draw from this data?

**OPTIONAL** **Correlation between parameters**

**Correlate positively? Negatively? Suggests what?**

**CONCLUSION**

**Implications**

After discussing conclusions about every bit of data, what do those conclusions imply for the entire field of HCD?

**Future work**

**ACKNOWLEDGMENTS**

**REFERENCES**

**SEKE paper**

**A First Course in Network Theory textbook**

Human-centered design is \_\_\_\_\_\_\_ (a set of principles).  a new and emerging field. Recently, HCD methods have been adopted by researchers engaging in design for development and social innovation. Designing for development is a highly interdisciplinary field that integrates new technological advancements with economic and social contexts, often straddling fields like sociology and psychology, along with engineering. There is sustained interest in human-centered design and development, and since the nature of the field requires much sharing of knowledge, it is important for researchers to understand the structure and social landscape of this field. (ASK JULIA)

In this paper, we apply social network analysis to survey the community of researchers working in human-centered design and development. Social network analysis (SNA) is a useful strategy to investigate the social context within a network. In recent years this analysis technique has grown and been refined due to the emergence of technology where networks play a central role--the Internet, transportation, and artificial intelligence.

SNA can also reveal insight into how structural characteristics of the network can influence the behavior of an individual [Otte paper]. In our paper, we ask and answer questions such as who is publishing the most, who are collaborating together, and how the community has changed over time