The Relationship of Electronic Reference & the Development of Distance Education Programs

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current research question:
were electronic reference services provided in response to distance education needs?

research questions still in-progress:
did distance education evolve in response to the presence of electronic reference?
are distance learning and/or electronic reference best predicted by technological progress (as indicated by the passage of time), or by other factors?
is the presence or absence of electronic reference affected by:
   library budget
   size of library staff
NCES (National Center for Education Statistics)
- http://nces.ed.gov/
- U.S. government agency
- measures education statistics at all levels
  - K – 12 (primary, secondary)
  - higher education
NCES IPEDS

- IPEDS = Integrated Postsecondary Education Data System
- survey of higher education institutions
- administered annually
- consistently tracked distance learning from 2002 - 2008
NCES ALS

ALS = Academic Libraries Survey

survey of academic libraries

administered every 2 years

available from 1998 - 2008
combining the datasets

- selection of institutional data downloaded:
  - eligibility for federal financial aid (Title IV)
  - 50 U.S. states
  - open to the public
  - primary focus is post-secondary education
  - resulting download = 1,733 institutions

- after downloading, combined the two datasets:
  - sorted by UNIT-ID
    - UNIT-ID = unique identifier assigned by NCES
    - used this identifier to manually combine data for each institution that appeared both in IPEDS and ALS
    - institutions that appeared in only one of the surveys were deleted
refining the sample

refined the data by limiting:

- by sector:
  - 4-year public institutions
  - 4-year private non-profit institutions
  - (excluded for-profits)
- degrees granted: at least Bachelor’s
- institution has a library or is affiliated with a library
- institution listed as “active” during all surveyed years
- degree-granting institutions
- 50 U.S. states
- nationally or regionally accredited
resulting dataset

- after data clean-up, 1,256 institutions in sample
  - (reduced from 1,733 in the original IPEDS download)
- downloaded 55 variables
  - used 17 variables in this analyses
  - the remaining variables will be used in future analyses
    - annual library budget
    - number of librarians
    - total library staff size
    - (and others)
key variables

- electronic reference:
  - measured by ALS
  - variable in dataset = LIBREFYN

- distance learning
  - measured by IPEDS
  - special learning opportunities:
    - “distance learning opportunities (e-learning)”
  - variable in dataset = ic_[year]_slo3
correlation matrix (Pearson r’s)

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multiple regression

dependent variable: 2008 distance learning opportunities

- **predictors** (independent variables):
  - **model 1:**
    - (3 predictors)
  - **model 2:**
    - model 1 + presence of e-reference services for each year
    - (7 predictors)
  - **model 3:**
    - model 2 + Carnegie classification, Land Grant institution, institutional control (public, private), highest degree offered, level of highest degree, FT enrollment, total enrollment, institutional size, sector
    - (16 predictors)
For the dependent variable: distance learning opportunities in 2008...

- best predictor = previous offering of the same opportunities
  - (presence or absence of distance learning opportunities in previous years)
- in the 2\textsuperscript{nd} model, electronic reference adds to the model’s predictive strength, but not much
- the 3\textsuperscript{rd} model of 16 variables adds more predictive strength, but distance learning appears to be the strongest predictor
discussion

what does this mean? how is it useful?

- electronic reference is weakly correlated with distance learning
  - in response to research question #1:
    - no, it does not appear that electronic reference services (email, online chat) were provided in response to distance education needs
    - it seems likely that e-reference developed as a technological modification of a traditional service for traditional library users
  - therefore, we should not expect that e-reference necessarily fulfills the needs of distance learners
    - e-reference is a passive service (users must actively seek help)
    - do distance learners need a more active service?
further planned statistical analyses

- additional research questions
  - did distance education evolve in response to the presence of electronic reference?
  - are distance learning and/or electronic reference best predicted by technological progress (as indicated by the passage of time)?
  - is the presence or absence of electronic reference affected by the library budget or by the size of the library staff?

- code data to reveal time-to-event as an additional variable

- expand years of study to 1998 – 2008
  - survey questions varied
  - may require more data manipulation to match variables robustly across years

- increase # of variables considered, to seek better predictors
any questions?

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