Making ML Training Fun and Fast

Ben Watson
bwatson@ncsu.edu
$12B spend in 2017
 qualitative coding
Concrete experience: data, transcripts and notes

Active experimentation - look for patterns, test for fit

Familiarization with data; time on reflection; reordering of data

Extraction of key concepts
<table>
<thead>
<tr>
<th>Participant</th>
<th>Observation Summary</th>
<th>Primary Codes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Geniene</td>
<td>Gentle spirit with her class, maintains an atmosphere conducive to arts learning. Participates with children in activities. University minor in dance. Welcoming of arts experiences, supportive of artists-in-residence.</td>
<td>EMBRACES ART ARTIST’S SENSIBILITY PARTICIPATES WELCOMING</td>
</tr>
<tr>
<td>Andrea</td>
<td>Perceives some value to the classroom activities, but wants more arts integration with &quot;traditional&quot; curriculum (math, language arts, etc.). Concerned about children’s ability to focus on arts activities. Has a collegial quality about her and the artists-in-residence.</td>
<td>CURRICULUM-BASED &quot;TRADITIONAL&quot; COOPERATIVE</td>
</tr>
<tr>
<td>Martha</td>
<td>Concerned about arts experiences taking up class time. Intervenes a lot when artists-in-residence have management issues with children. Visitors inherit Martha’s classroom dynamics and culture. Lots of cliques among the children.</td>
<td>MISMANAGED CLASS FRACTURED COMMUNITY CONTROLLING</td>
</tr>
<tr>
<td>Anne</td>
<td>Strict disciplinarian in classroom, does not want daily routine disrupted. Speaks sternly to children. Limits amount of time artists-in-residence can spend in classroom. Withdrew from program four weeks into the study.</td>
<td>DISCIPLINARIAN RESISTANT WITHDREW</td>
</tr>
</tbody>
</table>
its sub- and sub-subcategories

FRIENDSHIPS+4

SOCIAL
INTERACTION WITH PEOPLE
CONNECTING WITH PEOPLE
FAMILY RELATIONSHIPS
NETWORKING (WITH OTHER GAY PEOPLE)
RECREATE COMMUNITY
TALKATIVE

HUMAN AWARENESS
OPEN-MINDEDNESS / TOLERANCE
CULTURAL AWARENESS
TRUSTING OTHERS
LISTENING
BELONGING
ACCEPTANCE

IDENTITY
DISCOVERY OF TALENTS / STRENGTHS
ENTERTAINING

SENSE OF PURPOSE / FOCUS
WISH FULFILLMENT
WHAT MATTERS
BELIEF SYSTEMS

EMPATHY
EMOTIONAL INTELLIGENCE / GROUNDING
HAPPINESS
PASSION
JOY
HAVE FUN
SENSE OF HUMOR
PRIDE
LOVABLE
- **short description** – the name of the code itself
- **detailed description** – a 1–3 sentence description of the coded datum’s qualities or properties
- **inclusion criteria** – conditions of the datum or phenomenon that merit the code
- **exclusion criteria** – exceptions or particular instances of the datum or phenomenon that do not merit the code
- **typical exemplars** – a few examples of data that best represent the code
- **atypical exemplars** – extreme or special examples of data that still represent the code
- **“close, but no”** – data examples that could mistakenly be assigned this particular code
“Memos are sites of conversations with ourselves about data”

“Roughly equivalent to a lab notebook in experimental research”
Intercoder agreement

Cohen’s kappa

Pearson’s r
QC data

ML data
QC

data
codes

ML

data
labels
QC

data
codes
coders
codebooks

ML

data
labels
SMEs
?
<table>
<thead>
<tr>
<th>QC</th>
<th>ML</th>
</tr>
</thead>
<tbody>
<tr>
<td>data</td>
<td>data</td>
</tr>
<tr>
<td>codes</td>
<td>labels</td>
</tr>
<tr>
<td>coders</td>
<td>SMEs</td>
</tr>
<tr>
<td>codebooks</td>
<td></td>
</tr>
<tr>
<td>memos</td>
<td>?</td>
</tr>
<tr>
<td></td>
<td>?</td>
</tr>
</tbody>
</table>
QC

- data
- codes
- coders
- codebooks
- memos
- intercoder agreement

ML

- data
- labels
- SMEs
- ?
- ?
- ?
<table>
<thead>
<tr>
<th>QC</th>
<th>ML</th>
</tr>
</thead>
<tbody>
<tr>
<td>data</td>
<td>data</td>
</tr>
<tr>
<td>codes</td>
<td>labels</td>
</tr>
<tr>
<td>coders</td>
<td>SMEs</td>
</tr>
<tr>
<td>codebooks</td>
<td></td>
</tr>
<tr>
<td>memos</td>
<td></td>
</tr>
<tr>
<td>intercoder agreement</td>
<td>?</td>
</tr>
<tr>
<td>data displays</td>
<td>?</td>
</tr>
</tbody>
</table>
hypothesis

ML training + QC ➔ faster & more fun
I bought this and the 2012 a the same time, only to realise half the book has the same info. It's more a catalog than a book of ideas. It does have some picture but it is basically the same as the 2012 year. It has a couple of recipes, but the are the same on both the yearbooks. I bought it because I wanted to learn how to make things with a step-by-step guide. It is not that.
I bought this and the 2012 a the same time, only to realise half the book has the same info. It's more a catalog than a book of ideas. It does have some picture but it is basically the same as the 2012 year. It has a couple of recipes, but the are the same on both the yearbooks. I bought it because I wanted to learn how to make things with a step-by-step guide. It is not that.
I bought this and the 2012 a the same time, only to realise half the book has the same info. It's more a catalog than a book of ideas. It does have some picture but it is basically the same as the 2012 year. It has a couple of recipes, but the are the same on both the yearbooks. I bought it because I wanted to learn how to make things with a step-by-step guide. It is not that.
Can you show me negative reviews?

I bought this and the 2012 a the same time, only to realise half the book has the same info. It's more a catalog than a book of ideas. It does have some picture but it is basically the same as the 2012 year. It has a couple of recipes, but the are the same on both the yearbooks. I bought it because I wanted to learn how to make things with a step-by-step guide. It is not that.

collaborative meetings
Hello, world!

This is a simple hero unit, a simple Jumbotron-style component for calling extra attention to featured content or information.


Learn More
futures

light vr version
an environment for design scrums
(full-fledged ar presentation)
(watson for experience measurement)