

Spoken voice in undergraduate statistics education

Spoken assessment in education

- Oral assessment is often used in higher education
- Note the difference between presentation/seminar in which the student is in control
- [Interview?]
- PhD *viva voce* something of a hybrid
- Here, “spoken assessment” means that the educator controls the situation
- This is standard practice for undergraduates in the former Soviet Union [Kachapova 2021, pers. Comm]
- By far the most common use of this form of assessment is for medical students
- Also occurs throughout HE in academic integrity cases

Oral communication skills are often cited by Western universities as attributes that graduates should possess. These skills are recognized as important because they underpin a student's development of social networks, they are positively linked to academic achievement, and they enhance the ability of the student to think on their feet, express themselves meaningfully, and relate to others, thus improving their future work opportunities and life chances . . . [however] many universities were sporadic and unsystematic in their approach to the developmental curriculum of undergraduate oral communication skills as students progress through their degree.

Outline of talk

- Pre-outline material (first few slides)
- Outline itself per se (this slide)
- Post-outline presentation (remainder of slides)

Portfolio concept

- (written component was discussed last year)
- Cue: “procure a small dataset from your everyday life and analyse it using the methods of this course”
 - Emphasis on statistical methods, not the data
 - In particular the data should be quotidian and easily grokked
- Students responded well with examples from sports teams, bus times, shoe collections, phone bills, coffee shops etc etc etc
- One difficulty is establishing authorship of work

Portfolio concept: establishing authorship

- Pairs of similar portfolios are easy to detect . . .
 - . . . but the specimens were a problem (they were used as a template, and discouraged original thought, in particular thoughtless reproduction of my work)
 - Students had the weirdest ideas about statistics
- Students generally managed to produce work with good structure
- Needed to be told repeatedly that the marker (me) is possibly not familiar with their topic (cosplay anyone?)
 - but this is good practice for academic writing

Portfolio concept: spoken exam

- Gloss is “five-minute conversation” [summative assessment @15% course credit]
- See video
- Protocol:
 1. Mark written portfolio and make written comments, hidden from student
 2. Refer to comments while speaking with student
 3. Generally mark conversation same as written work
 4. Add brief comment on spoken exam to written comments (usually along the lines of “conversation good, questions answered well, clear understanding of statistical tests displayed”)
 5. Make comments available to student

Portfolio concept: spoken exam

- Several *intended* positive outcomes for students:
 - Students work harder in the knowledge that I will be asking politely skeptical questions
 - Dissuades students from plagiarism (also Turnitin)

Portfolio concept: spoken exam

- Several *unintended* positive outcomes for students:
 - Students have a chance to show off their work to an academic
 - Students feel that this is the highlight of the course
 - Students are reassured that the [written] comments are fair
- Several *negative* outcomes for students
 - Stress in the weeks leading up to the conversation
 - maybe 80% of student queries were about the conversation
 - ?over-reliance on specimen portfolios

Portfolio concept: spoken exam

- Several *negative* outcomes for me:
 - A lot of work! 60 students, five minutes each
 - Somewhat dispiriting to see the same mistakes over and over again
 - Conversation amplified my opinion on a piece of work: usually, written comments justified although sometimes I would ask why a particular method had not been used and the student pointed out that it was in the portfolio, but in a different place (e.g. In the appendix)
 - Difficult to justify my repeated assurances that this was “no biggie, it’s just a chance for you to show me what you have done, it is a positive thing, no heavy stats questions, it’s just a conversation, honest” [especially for poor work]

Portfolio concept: spoken exam

- Several *unintended* positive outcomes for me:
 - Opportunity to ask students if they enjoyed the course and to give feedback
 - Suggestions to the very best students that their work might be the basis for a dissertation
 - Observation of common themes in student misunderstanding, e.g:
 - Misuse of Pearson's chi-squared goodness-of-fit tests by applying it to data with units
 - Inappropriate nulls tested (probability of holding a mobile phone = 0.5)
 - Poisson distribution applied to lengths or speeds
 - Student t-test performed between datasets of different units [e.g. $t.test(a,b)$ where a is time in minutes (for a jog) and b temperature of day]
 - Linear regression used for categorical analysis
 - Little reasoned comparison between observation and expectation
 - Will teach these differently next time

Portfolio concept: spoken exam

- Lessons learned:
 - Broadly worthwhile
 - Five minutes not really enough time
 - Successfully mitigated plagiarism
 - Students loved it in general
 - Specimen portfolios will be used differently next time (or not at all)
 - Main issue was the fact that I drove the conversation, not the student and I felt a bit of a control freak
 - Conversation did not feel like the encouraging of the nascent “student voice” I had anticipated.
 - Many aspects of student (mis)understanding identified that a written exam would not be able to find