Analysis of Peer Reviews in Music Production

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Audio engineering vs. literally anything else

**ENGINEERING**
- Precise
- Low distortion
- Digital
- No defects
- Clean
- Transparent

**AUDIO ENGINEERING**
- Imperfections
- Saturation, distortion, overdrive
- Analogue
- Defects
- Coloration
- Did I mention imperfections?
Audio engineering

I know what these knobs do.
Mixing
Mixing
Mixing
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Mixing
Mixing
Mixing
1965 vs now
It looks like you are applying a LOT of reverb on this snare drum. Are you aware it isn’t 1982?
Experiment setup

Mix 4 songs

Assess 4 songs
Experiment setup

Mix 4 songs

Assess 4 songs

A

Assess 4 songs

Mix 4 songs

B
8 students and 1 professional assess 4 songs mixed by 8 other students and 1 other professional

... and vice versa
Experiment setup

8 students and 1 professional assess 4 songs mixed by 8 other students and 1 other professional

... and vice versa
Perceptual evaluation

Example

• Mix A

• Mix B
• **Mix A**

this sounds good. all the parts shine through and have their own place in mix; tasty reverb. cymbals could be brighter and closer; tubby bass; accordion is as important as vocal? nuh uh

Wide panning. Can hear Rhodes very well. clear vocals. big bass. Big space. strumming guitar apparent.

Depth in the vocal, clear drum sound in the center, overall balance and image are good.

Bass a bit too heavy and muddy. Nice balance, otherwise.

Best balance. Nice low end. All instruments present. Great vocal sound. Nice verb choice and placed well with the boack up vox. My favourite by far.

Vocals might need a little more presence cant hear kick. a bit bass heavy ...

• **Mix B**

less snaps and accordion

Drums way too set back. weird reverb. Vocals / snaps way too forward comparatively. NO KICK DRUM?

vocal stands out in the mix and instruments are far behind the vocal in the mix

Too much reverb: distracting; Good level and placement on vocal, though too harsh; Lack of stereo width; ensemble (minus vocal) competes for same space; phasey and swimmy; no low end

Most reverb on the vocals thus far, but I like it. Drums too roomy though, and buried. Can't hear the keys at all.

vocal is double? phasing issues; Vocals too loud no bass or kick. not sure about the reverb on the accordion.

too much compression ...

...
Previous analysis

- Analysis of extracted audio features from tracks and complete mix
- Comparison across engineers, songs and instruments

“Drums a little distant. Vox a little hot. Lower midrange feels a little hollow, otherwise pretty good.”
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“Drums a little distant.”

“Vox a little hot.”

“Lower midrange feels a little hollow, otherwise pretty good.”
Now

“Drums a little distant. Vox a little hot. Lower midrange feels a little hollow, otherwise pretty good.”

“Drums a little distant.”
“Vox a little hot.”
“Lower midrange feels a little hollow,”
“otherwise pretty good.”
Now

“Drums a little distant. Vox a little hot. Lower midrange feels a little hollow, otherwise pretty good.”

x 1397

(3633 statements)
Quantitative analysis

- Vocal: 31%
- Drums and percussion: 19%
- General: 33%
- Keyboard: 4%
- Bass: 6%
- Guitar: 7%
Quantitative analysis

- General: 33%
- Vocal: 31%
- Drums and percussion: 19%
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- Guitar: 7%

- Space: 29%
- Level: 35%
- Dynamic processing: 11%
- Spectral: 25%
Quantitative analysis

- Vocal: 31%
- Drums and percussion: 29%
- Space: 25%
- Spectral: 11%
- Dynamic processing: 6%
- Bass: 7%
- Keyboard: 4%
- General: 33%

Negative: 75%
Positive: 24%
Neutral: 1%
Why comments?

- Understand what is liked/disliked in mixes
  Ratings of mixes provide limited insight
- Disregard ‘bad’ mixes when analysing music production ‘best practices’
  Remove noise/bias from findings
- Obtain lower and upper bounds for certain parameters
  e.g. vocal level perceived too high for mix A, too low for mix B
  → desired level somewhere in between
- Acquire insight into semantic sonic descriptors
- Facilitate the assessment of as many as 10 different mixes, with very subtle differences
  Taking notes helps to remember why mix 1 was poor/excellent
Challenges

1. Which processor, device, feature, aspect?
   - Multidimensional
   - Esoteric terms

“Drums are flat and lifeless, no punch at all.”
“Snare is clear, but kick is lugubrious...”
“Too much ‘poof’ in kick. Not enough ‘crack’ in snare.”
“Thinking if it had a bit more ‘ooomf’ in the lows it would be great.”
“I need some more meat from that snare.”
Challenges

2. The good, the bad, and the neutral

“Pretty dry.”
“Lots of space.”
“Round mix.”
“Wide imaging.”
“Big vocals.”
“This mix kind of sounds like Steely Dan.”

“A lot of reverb but kind of pulling it off.”
“Horns a bit hot, but I kind of like it except in the swells.”
“Hated the vocal effect but in the end got used to it, nice one.”
“Most reverb on the vocals thus far, but I like it.”

Look at ratings

‘Good’ outliers
Challenges

3. Cryptic

“Vocals.”
“Get the music.”
Challenges

Automated transcription

“Why is the singer in the bathroom?”

“Where are the drums? 1 800 drums? Long distance please come home in time for dinner…”

“Is this a drum solo album instead of a lead female group?”

“Do you hate high frequencies?”

“Lead vocal, bass, and drum room does not a mix make.”

“No bass. No kick. No like.”

“If that was not made by a robot, that person has no soul.”
Future

- Subjective descriptions vs. objective features
Future

- Comparing various backgrounds
  - Different countries
  - Different schools of thought
  - Different skill levels
Conclusion

• Limited amount of data
  – Use subjective evaluation to zone in on interesting aspects

• Learn from bad examples
  – We have to
  – We want to
  – We can
Figures

- https://www.flickr.com/photos/siodoni/6537481161
- Kraftwerk ‘The Robots’
- Microsoft Office ‘Clippy’
- Microsoft MSN Messenger emoticons: :) and :(  
- https://pixabay.com/p-31362/?no_redirect