

# TEACHING TEACHERS PHONETICS

THE DESIGN AND IMPLEMENTATION OF AN ASYNCHRONOUS ONLINE ENGLISH  
PHONETICS COURSE

STEVEN WEINBERGER – HUSSAIN ALMALKI – LARISA OLESOVA

GEORGE MASON UNIVERSITY

# OUR GOALS

To demonstrate that an academic discipline with sparse online presence can indeed be distance-taught

To describe such an endeavor with a focus on collaborative peer-to-peer learning

To report on the incorporation of specific fully-accessible asynchronous online tools to enhance student academic success

# OUR CHALLENGE

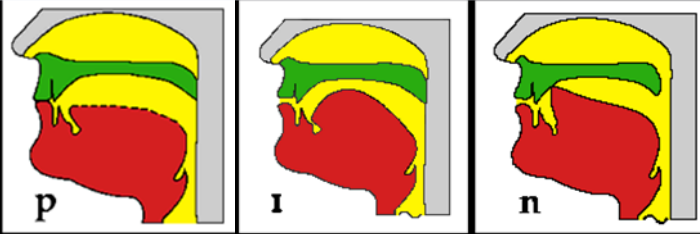

A phonetics course in an applied program needs to focus on pedagogical aspects and methodology of teaching pronunciation while staying true to the necessary theoretical and descriptive knowledge

*How to do this?*

*And how to do this online?*

# WHAT WE DO IN PHONETICS (LING 523)

English word “pin”

ARTICULATORY	ACOUSTIC	PHONETIC TRANSCRIPTION
		<p>[p<sup>h</sup>ĩn]</p>

# TEACHING AN *APPLIED* PHONETICS

Since English language teachers must impart the knowledge of English into the minds of second language learners, and since phonetic knowledge is part of English, then teachers need to explicitly train these learners.

## THEORETICAL KNOWLEDGE

Description and analysis of native (English) sounds

Description and analysis of sounds from other languages

Exploring the sources of pronunciation problems in the second language

## *APPLIED* KNOWLEDGE

Learning to phonetically transcribe speech

Learning to compare and contrast language sound systems

Analysis of non-native English speakers (analyze, diagnose, intervene)

Best practices in the teaching and learning of these sounds for non-natives

# THE INTERNATIONAL PHONETIC ALPHABET (revised to 2015)

CONSONANTS (PULMONIC)

	Bilabial	Labiodental	Dental	Alveolar	Postalveolar	Retroflex	Palatal	Velar	Uvular	Pharyngeal	Glottal
Plosive	p b			t d		ʈ ɖ	c ɟ	k ɡ	q ɢ		ʔ
Nasal	m	ɱ		n		ɳ	ɲ	ŋ	ɴ		
Trill				r					ʀ		
Tap or Flap			ɹ̥	ɾ		ɽ					
Fricative	ɸ β	f v	θ ð	s z	ʃ ʒ	ʂ ʐ	ç ʝ	x ɣ	χ ʁ	ħ ʕ	h ɦ
Lateral fricative				ɬ ɮ							
Approximant		ʋ		ɹ		ɻ	j	ɰ			
Lateral approximant				l		ɭ	ʎ	ʟ			

Symbols to the right in a cell are voiced, to the left are voiceless. Shaded areas denote articulations judged impossible.

CONSONANTS (NON-PULMONIC)

Clicks	Voiced implosives	Ejectives
◌ ɓ Bilabial	ɓ Bilabial	◌ ʼ Examples:
◌ ɗ Dental	ɗ Dental/alveolar	◌ ɓʼ Bilabial
◌ ɗ̥ (Post)alveolar	ɗ̥ Palatal	◌ ɗʼ Dental/alveolar
◌ ɗ̥ Palatoalveolar	ɗ̥ Velar	◌ ɗʼ Velar
◌ ɗ̥ Alveolar lateral	ɗ̥ Uvular	◌ ɗʼ Alveolar fricative

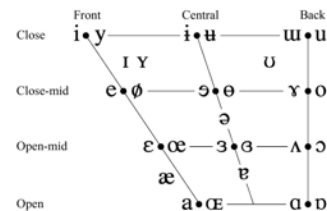
OTHER SYMBOLS

◌ ɱ Voiceless labial-velar fricative	◌ ɰ Alveolo-palatal fricatives
◌ ʋ Voiced labial-velar approximant	◌ ɭ Voiced alveolar lateral flap
◌ ɰ Voiced labial-palatal approximant	◌ ɰ Simultaneous ɰ and ɰ
◌ ɦ Voiceless epiglottal fricative	
◌ ʕ Voiced epiglottal fricative	Affricates and double articulations can be represented by two symbols joined by a tie bar if necessary.
◌ ʕ Epiglottal plosive	

DIACRITICS Some diacritics may be placed above a symbol with a descender, e.g. ɲ̥.

◌ ɲ̥ Voiceless	◌ ɲ̥ Breathy voiced	◌ ɲ̥ Dental	◌ ɲ̥
◌ ɲ̥ Voiced	◌ ɲ̥ Creaky voiced	◌ ɲ̥ Apical	◌ ɲ̥
◌ ɲ̥ Aspirated	◌ ɲ̥ Linguolabial	◌ ɲ̥ Laminar	◌ ɲ̥
◌ ɲ̥ More rounded	◌ ɲ̥ Labialized	◌ ɲ̥ Nasalized	◌ ɲ̥
◌ ɲ̥ Less rounded	◌ ɲ̥ Palatalized	◌ ɲ̥ Nasal release	◌ ɲ̥
◌ ɲ̥ Advanced	◌ ɲ̥ Velarized	◌ ɲ̥ Lateral release	◌ ɲ̥
◌ ɲ̥ Retracted	◌ ɲ̥ Pharyngealized	◌ ɲ̥ No audible release	◌ ɲ̥
◌ ɲ̥ Centralized	◌ ɲ̥ Velarized or pharyngealized		◌ ɲ̥
◌ ɲ̥ Mid-centralized	◌ ɲ̥ Raised	◌ ɲ̥ (ɲ̥ = voiced alveolar fricative)	
◌ ɲ̥ Syllabic	◌ ɲ̥ Lowered	◌ ɲ̥ (ɲ̥ = voiced bilabial approximant)	
◌ ɲ̥ Non-syllabic	◌ ɲ̥ Advanced Tongue Root		◌ ɲ̥
◌ ɲ̥ Rhoticity	◌ ɲ̥ Retracted Tongue Root		◌ ɲ̥

VOWELS



Where symbols appear in pairs, the one to the right represents a rounded vowel.

SUPRASEGMENTALS

◌ ˈ Primary stress	ˈfəʊnəˈtɪʃən
◌ ˌ Secondary stress	
◌ : Long	eː
◌ ː Half-long	eː
◌ ˑ Extra-short	ɛ̋
◌   Minor (foot) group	
◌    Major (intonation) group	
◌ . Syllable break	ˌi.ækt
◌ ~ Linking (absence of a break)	

TONES AND WORD ACCENTS

LEVEL	CONTOUR
◌ ˥ Extra high	◌ ˨ Rising
◌ ˦ High	◌ ˩ Falling
◌ ˧ Mid	◌ ˪ High rising
◌ ˨ Low	◌ ˫ Low rising
◌ ˩ Extra low	◌ ˬ Rising-falling
◌ ˩ Downstep	◌ ˭ Global rise
◌ ˩ Upstep	◌ ˮ Global fall

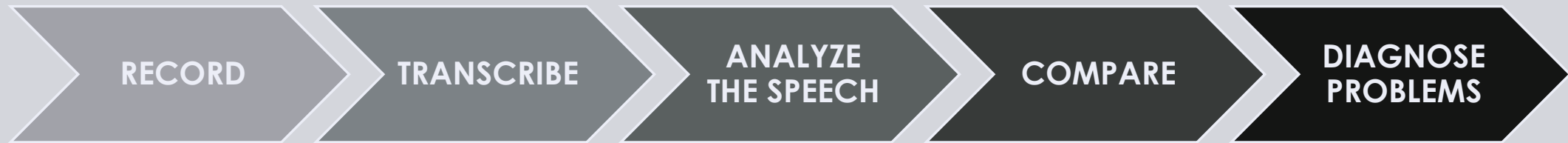
## Teaching phonetics through narrow transcription

1. Train students to be close listeners through exposure to a variety of accented English speech
2. Use IPA with speech transcription (Ball et al., 2009)
3. Ensure a collaborative and introspective enterprise (Shriberg et al., 1987)

# THE SPEECH ACCENT ARCHIVE

1. An open annotated collection of diverse accent contributions:
  1. 2,937 samples of accented English – both native and nonnative
  2. 265 native languages
  3. 1,523 cities
  4. 181 countries
2. Students in the class participate in a semester-long project by utilizing and contributing to the archive
3. <http://accent.gmu.edu>

# THE SEMESTER-LONG PROJECT



- Record a non-native speaker

- Transcribe the non-native speech sample

- Transcription
- Generalization

- Compare it to a native speaker

- Diagnose and intervene



## A NON-NATIVE SPEECH SAMPLE: MANDARIN28

Please call Stella. Ask her to bring these things with her from the store.



# THE UTILITY OF PHONETIC TRANSCRIPTION – TRANSCRIBE AND REACH CONSENSUS



A PHONETIC  
TRANSCRIPTION IS AN  
ANALYSIS OF SPEECH



IT DRAWS UPON A  
LISTENER'S  
PERCEPTUAL AND  
LINGUISTIC  
KNOWLEDGE



IT IS MORE OF AN ART, THAN A  
SCIENCE



TYPICALLY UTILIZES  
MULTIPLE HUMAN  
LISTENERS

# HOW TO REACH CONSENSUS ONLINE?



wiki

+



discussion board

## THE WIKI – WEEK 6

your name	transcription: <i>please call stella. ask her to bring these things with her from the store.</i>
student 1	pʌi:s kal stɛlə æsk hə tu brɪŋ dʒi:z θɪŋz wɪθ hɜ: fʌlm dðə stɔ:ə
student 2	pʰli:z kol stɛlə askʰ ɜ tu brɪŋ di:z θɪŋz wɪθ hɜ fʌɔm ðə stɔ:ɹ
student 3	[pʌi:s kalv 'stɛ:lə-æskə hə θu brɪŋ dʒi: θɪŋs wɪθ hə fʌɔm dðə stɔ:ɹ]
student 4	[pʰə'li:s kou 'stɛ:lə 'æskə hə θu brɪ:n di:s θɪns wɪθ hə fʌɔm ðə stɔ:ɹ]
student 5	[pʰli:s kolv stɛlə-æsk hə-θu brɪn dʒi: θɪŋz wɪθ hə fʌɔm ðə stɔ:ɹ]
student 6	[pʰə'li:s ka-'stɛ:lə 'asgə hə θu brɪ:n di:s θɪns wɪθ hə fʌɔm ðə stɔ:ɹ]
Consensus:	pʰəlis kʰə stɛlə æskə hə tu brɪn di: fɪns wɪθ hə fʌlm də stɔ:ɹ

## THE WIKI – WEEK 9

your name	transcription: <i>she can scoop these things into three red bags, and we will go meet her Wednesday at the train station.</i>
student 3	[ʃi kɑn skop dis θɪŋs 'ɪntu θɹi ɹɛb bæks æn wi wiw go mi: hɜ 'wɛnsdeɪ ət dɛ tʃɹeɪn steɪʃn]
student 4	[ʃi kɛn skouph ðis θɪns ɪntu θri ɹæ bæks æm wi gou mi həɹ wɛnsdeɪ æf ðə tʃɹeɪn steɪʃn]
student 1	[ʃi kɑns kop dis θɪ:ns ɪntu θri ɹəb bæks ənwiwɪl go mi həɹ wɛnsdɛ at tʃɹeɪn steɪʃn]
student 6	[ʃi kœn skouph ðis θɪns ɪntu θri ɹæ bæks æm wu wi gou mi həɹ wɛnsdeɪ æf də tʃɹeɪn steɪʃn]
student 2	[ʃi kɑ:n skouph dɜs θɪns ɪntu tʃi ɹæ bæks ən wi wiw go mi hɜ wɛnsdeɪ æt də tʃɹeɪn steɪʃn].
student 5	[ʃi Kœn skop dis θɪns ɪntu θɹi ɹæ bæks æn wi wi gou mi hɜ wɛnsdeɪ æt də tʃɹeɪn steɪʃn]
Consensus:	ʃi kɑn skouph dis θɪns ɪntu tʃi ɹɛ: bæks ɛn wi wiɪ go mi həɹ wɛnsdeɪ æf də tʃɹeɪn steɪʃn

## DISCUSSION AREA EXCERPTS

“D: This week **I really struggled with the coronal consonants** of this speaker. It is a d, t, θ, or ð? **I really did not think that I hear a true interdental fricative at all. So I tended to transcribe a dentalized [t̪].** No one else did this (at the time I posted) so I have yet to see anyone agreeing with this interpretation.”

“A: According to the last week transcription, **I feel very pleased that our transcriptions have been improved.** In overall, **there is a kind of disagreement that is noticeable in our transcriptions.** That is, no one got the glottal stop in “need”. In addition, no one got the transcription of [a] as a corresponding sound in “a small”. The /k/ and /g/, /s/ and /z/ in final positions were very confusing for most of us. Moreover, I think I heard /l/ in “small” and it was completely unexpected no to find it in consensus.”

“B: **I think that slowly but surely we are learning more and more about transcribing a native mandarin speaker, and that each week our transcriptions do improve due to that incremental knowledge.** I think the ‘aha’ moments where we **become aware of a devoiced segment**, or are shocked by a glottal stop, are what help push us forward. We don’t know what to pay attention to yet, what we’re looking for, and because of that we see what we expect to see. **I still find this a near-maddening process, but I’m beginning to appreciate it much more.**”



## FINAL TRANSCRIPTION – MANDARIN28

[p<sup>h</sup>əlɪs k<sup>h</sup>al<sup>v</sup> stɛlə æskə hə t<sup>w</sup>u  
bɿn dɪs tɿŋs wɪθ hə fɪəm dɛ stə:ɹ  
sɪks pūns əf fɪɛf snou bɪs faɪf θɪk<sup>7</sup>  
slæps əfu bru tʃi:s æm mebi ʌ  
snæk fɔɹ hə bɪɹdə bap wɪ? as<sup>ʰ</sup>ʊ  
ni? ɛ smal<sup>v</sup> p<sup>h</sup>læstɪk snek ɛŋə bɪk<sup>7</sup>  
tɔɹ fɪak fɔ dɛ k<sup>h</sup>ɪts ʃɪ kæn skoup  
dɪs tɿns ɪntu θri: ɹɛ: bæks ɔm  
wʊ wɪ go mi hə wɛnstɛ ɛt<sup>7</sup> dɛ  
tʃɹɛɪn stɛɪʃən]



# THE TECHNOLOGY



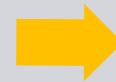
Blackboard (Wiki,  
discussion board,  
ask professor,  
homework  
collaboration,  
group projects)



Microphones



Crowdsourcing  
application  
<http://www.phonetictranscriber.org/>



Praat, Audacity



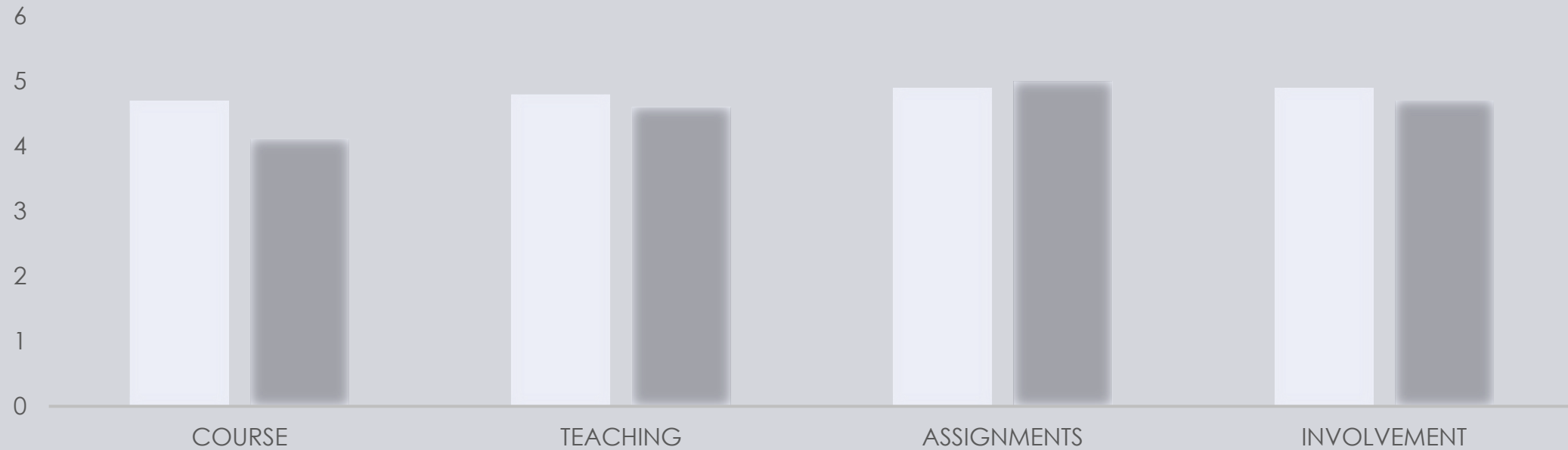
Smart phones



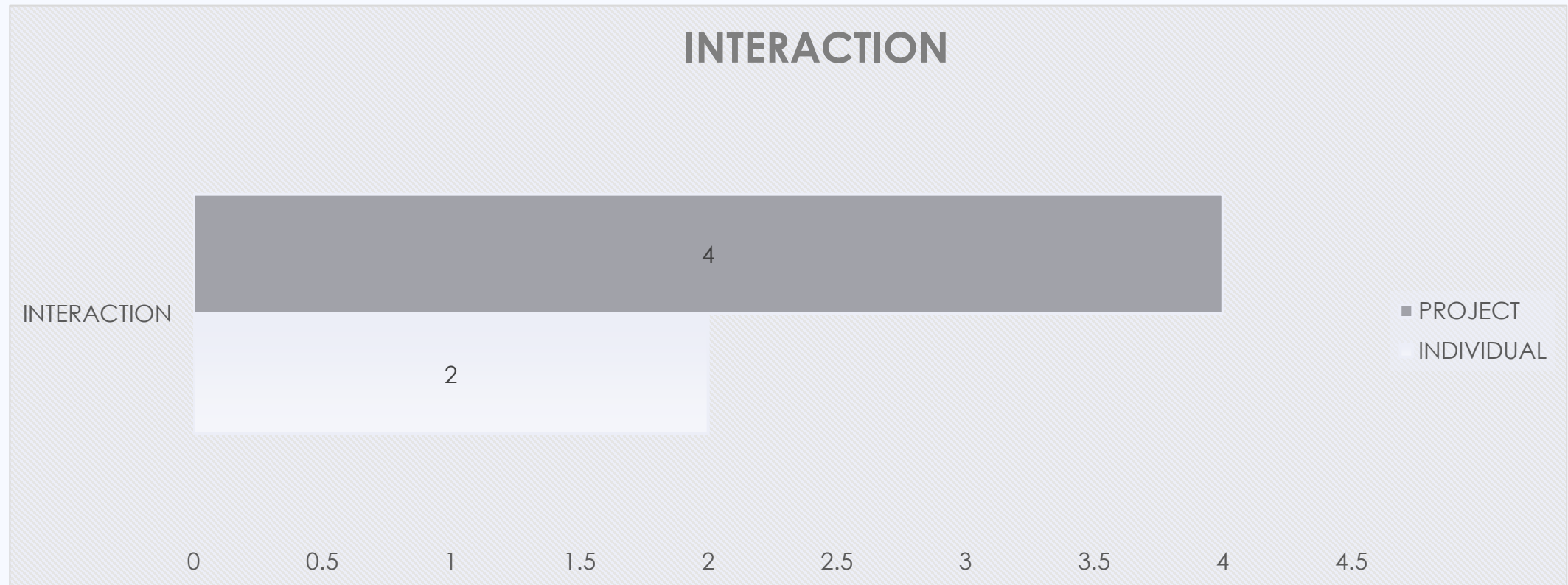
# STUDENT FEEDBACK

## COURSE QUALITY

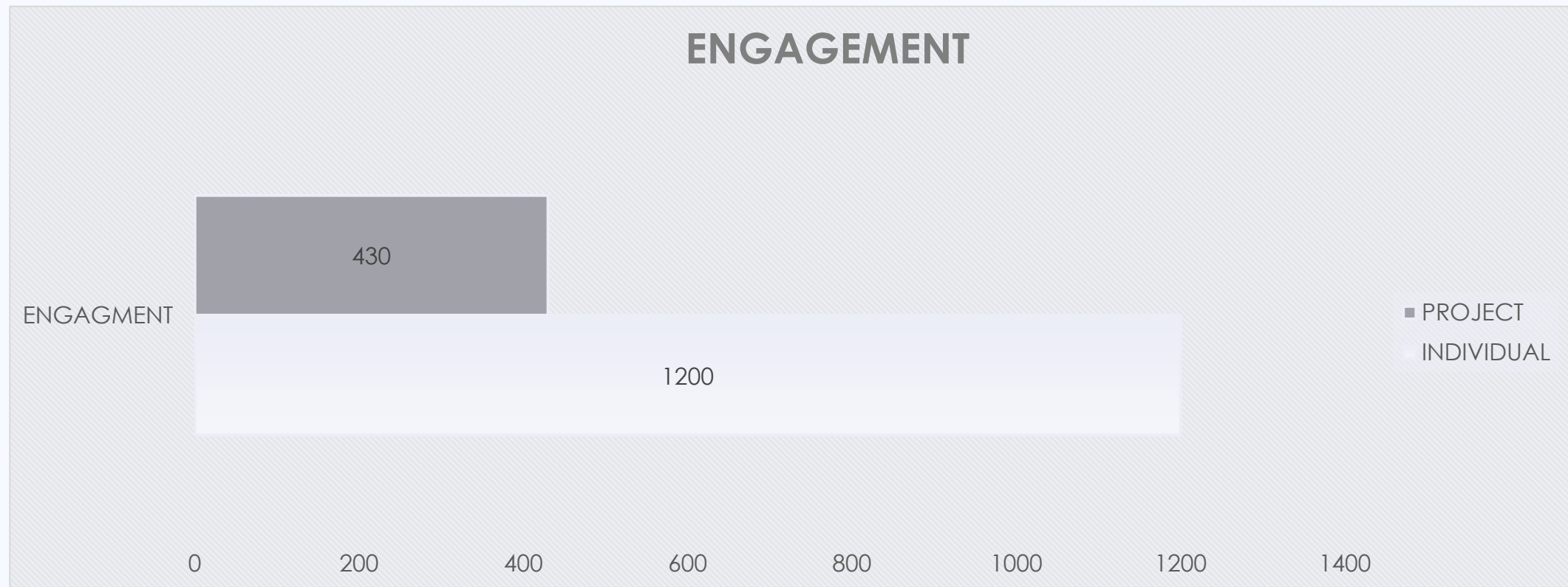
■ F2F ■ ONLINE



# OUTCOMES: INTERACTION



# OUTCOMES: ENGAGEMENT



# RESIDUAL PROBLEMS

1. Bb wiki must be made more specialized
  - Users should not have to leave page for audio and discussion – piazza, voicethread or harmonize
2. Need to develop a no-contact method of recording informants
3. Need to expand the crowdsourcing transcription tutorial

# CONCLUSION

1. The structure of the online class and NNS project have indeed provided three types of interaction:
  - Learner-content
  - Learner-instructor
  - Learner-learner
- 2 diverse
- 3 sustainability
- 4 scalable
- 5 generalizable

# PRESENTERS



STEVEN WEINBERGER  
WEINBERG@GMU.EDU



HUSSAIN ALMALKI  
HALMALK2@MASONLIVE.GMU.EDU



LARISA OLESOVA  
LOLESOVA@GMU.EDU