Computer-assisted language learning in old adulthood: How *Duolingo* can or cannot complement classroom-based learning

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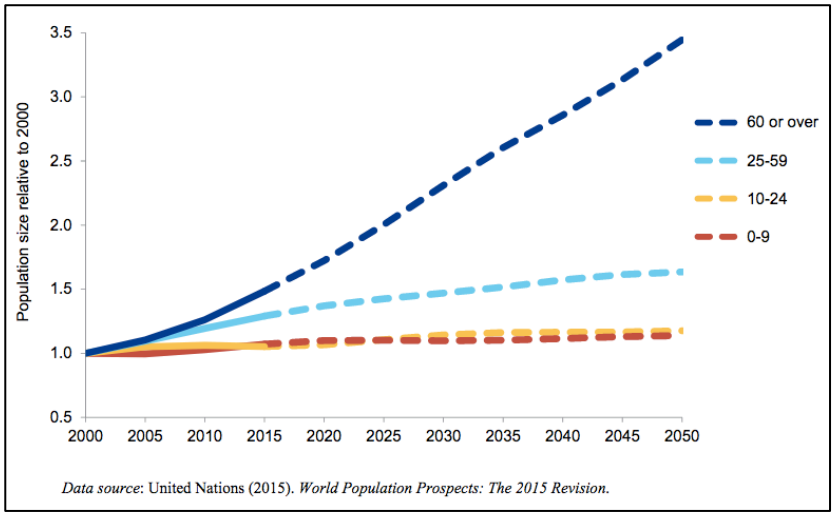
Third Age L2 Learners

- Aging societies: in fewer than 13 years the number of people in the worldwide population aged 60 or over will grow by 56%, reaching 1.4 billion people (United Nations, 2015)



3 main older adult multilingual profiles:

(1) Newly arrived migrants
(2) Migrants aging in place
(3) Retirees undertaking new challenges

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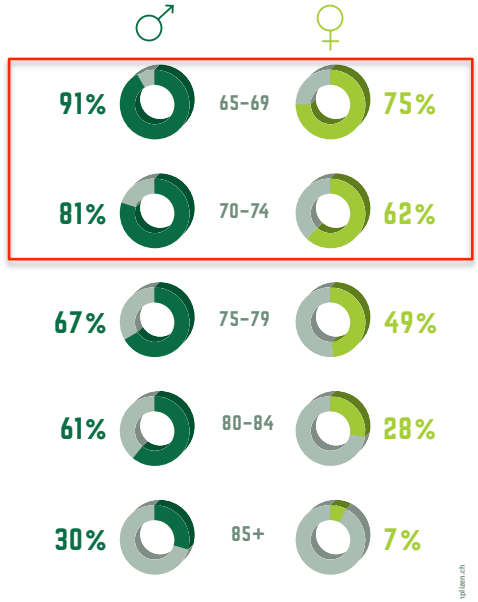
SMARTPHONE & TABLET

Die jüngeren Senioren besitzen Smartpone und Tablet häufiger. Ab 75 findet das Tablet aufgrund der Benutzerfreundlichkeit mehr Anklang.

65–69	49%	39%
70–74	38%	34%
75–79	23%	25%
80–84	13%	18%
85+	9%	7%

ONLINER NACH ALTER UND GESCHLECHT

¾ der Männer sind online. Der Online-Anteil der Frauen beträgt nur 53%.



Source: Seifert, 2015

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Computerised L2 Learning in Third Age

- On children and younger adults: hundreds already in 2013
  (Sung, Chang & Yan, 2015; Burston, 2013)
- On older adults (as subjects): 1
  (Ware et al., 2017)
- No apps or software targeted at older adults
- Implementation of technology for old adults one of EU's top priorities
  (https://ec.europa.eu/research/sam/index.cfm?pg=ageing,
  https://ec.europa.eu/growth/industry/policy/digital-transformation_en)

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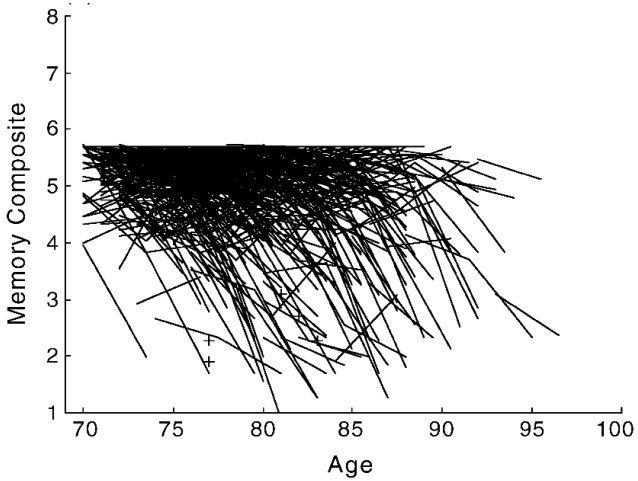
Why CALL/MALL?



Individual trajectories
of memory (Christensen, 2001)

L2 aptitude →

"umbrella-term for a number of cognitive factors creating a composite gauge regarded as the general capacity to master a foreign language"
(Biedron, 2015)

Experiential factors

Developmental factors

Affective reactions stored in memory

→ Personal and learner-centered learning opportunity with ubiquitously accessible and flexible practices

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The Present Study

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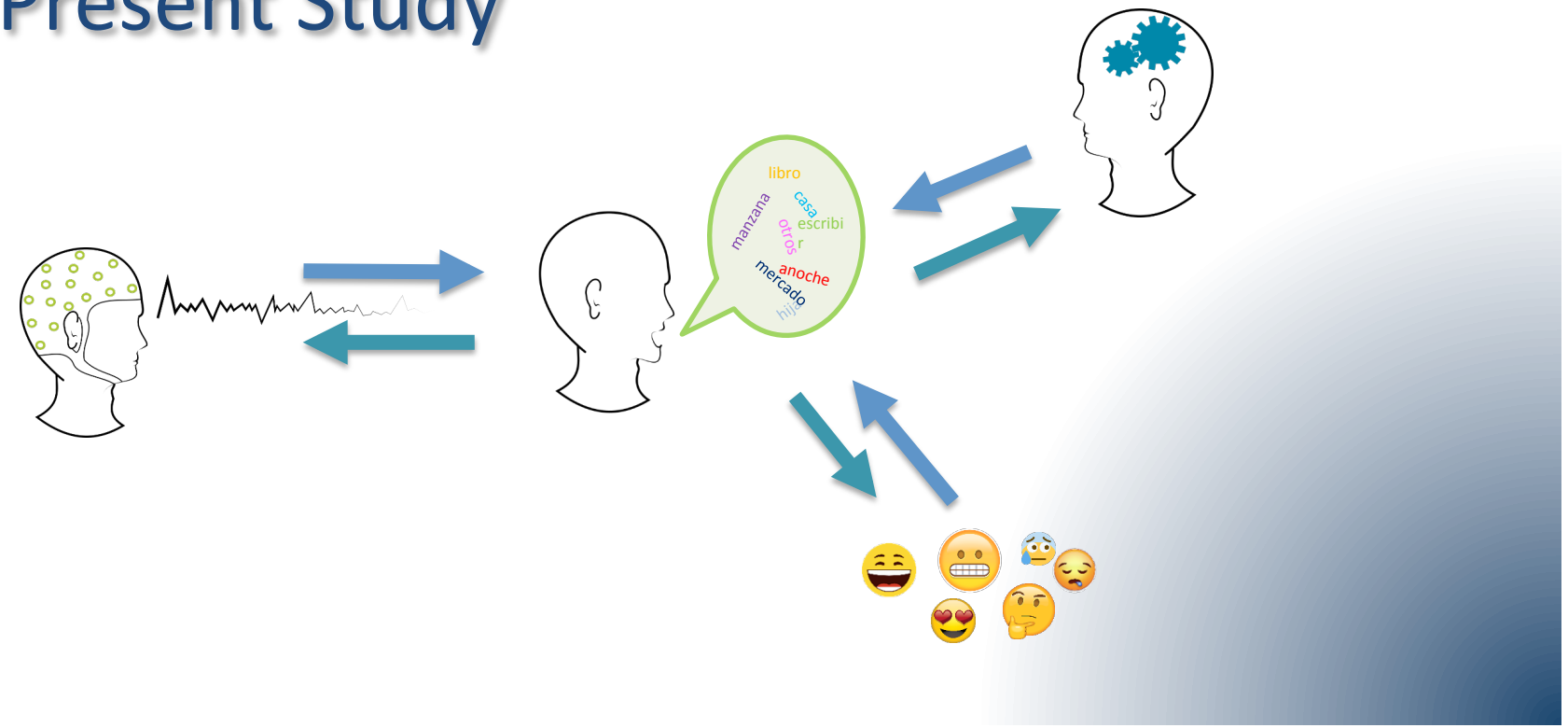
The Present Study



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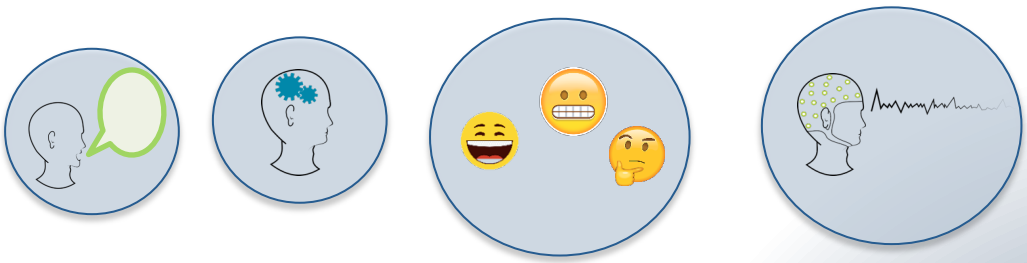
Study Design

duolingo

- N = 30
- Ages 64-74
- 2h/week classroom-based L2 instruction in small groups
- ~ 3h *Duolingo* at home



Week 1

Week 30

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Why *Duolingo*?

- Free
- Multimodal, broad and ecologically valid
- Available for PC, Mac, Tablets & Smartphones → flexible learning
- Gamification
- *Duolingo Schools* → monitoring and homework assignment
- *"The study estimated that a person with no knowledge of Spanish would need between 26 and 49 hours (or 34 hours on average) to cover the material for the first college semester of Spanish."* (Vesselinov, 2012)

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Training with *Duolingo*: Weekly Investment

- According to *Duolingo*: 10 XP = 5 minutes
- In reality: 10 XP = 2-3 minutes
- Homework: 450 weekly XP ~ 2-3 hours per week
- Disadvantage: Not possible to actually measure time invested

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Training with *Duolingo*

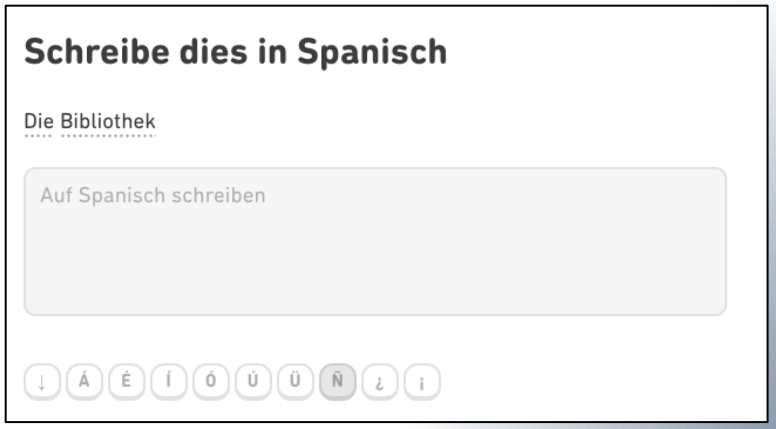
New lesson

At least 3 crowns,
i.e. repetitions

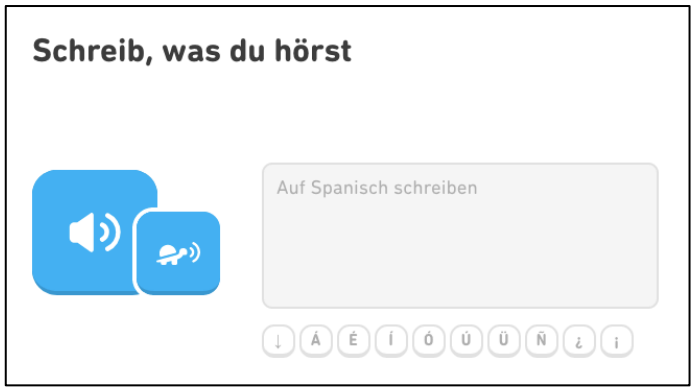
Overall practice

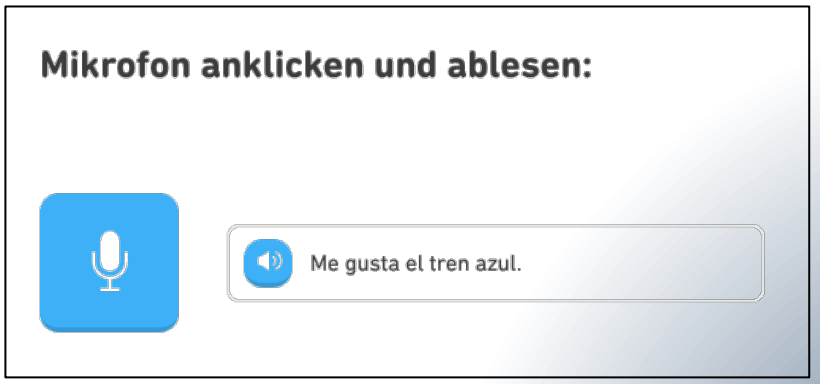
Training with *Duolingo*: Task Types

Training with *Duolingo*: Task Types



Training with *Duolingo*: Task Types





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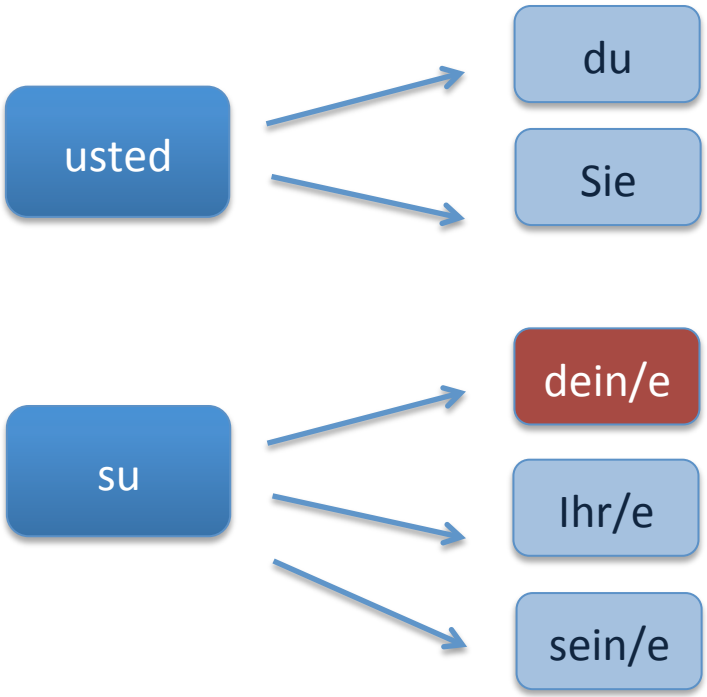
Peninsular vs. Latin-American varieties → both treated as equal, but inconsistently



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Measures of L2 Proficiency

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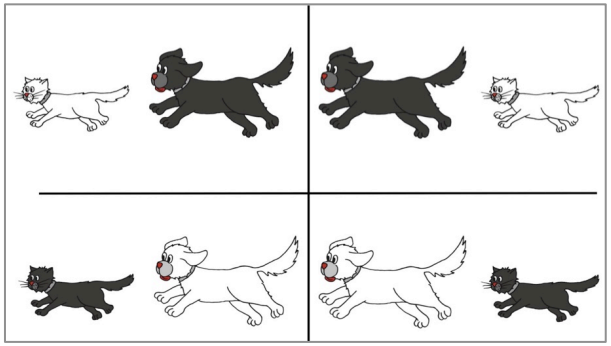
Measures of L2 Proficiency

Lexical receptive

venir (to come)
entrar (to enter)
imaginar (to imagine)
ir (to go)
volver (to return)

Grammatical receptive

El perro que sigue al gato es negro.
(The dog that chases the cat is black.)



Written production (integrative)

Po___ a po___ el
esp____ se es____
posicionando
fuert_____ en e___
país m__ poblado d___
planeta co___ la
seg_____ lengua
extra_____ más
hab_____.

Oral production

What were your highlights from last week?

Tell me something about a neighbour of yours.

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Preliminary Results

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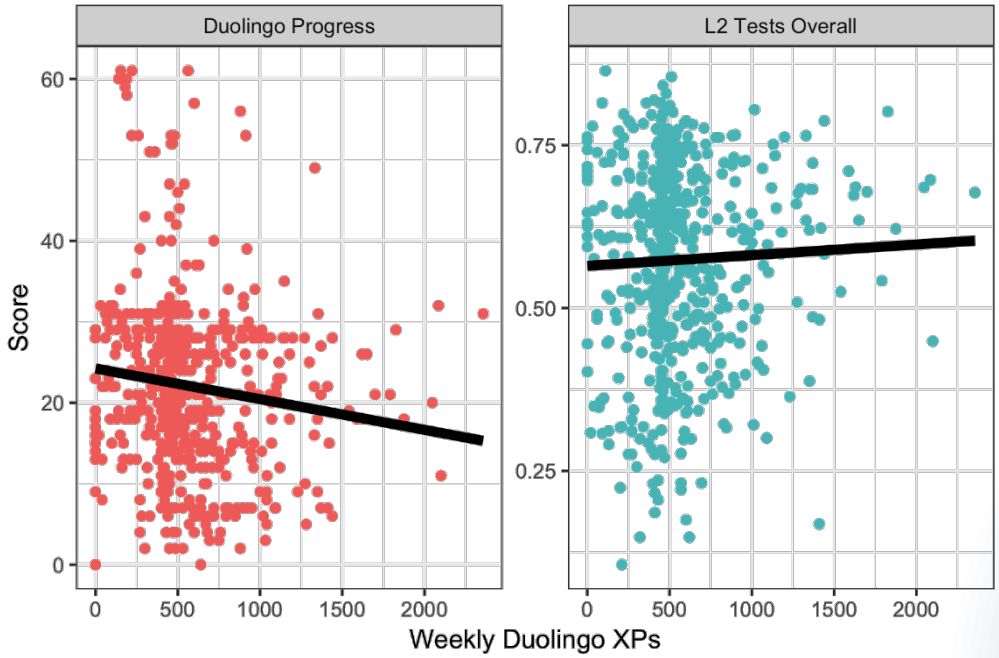
Weekly Investment



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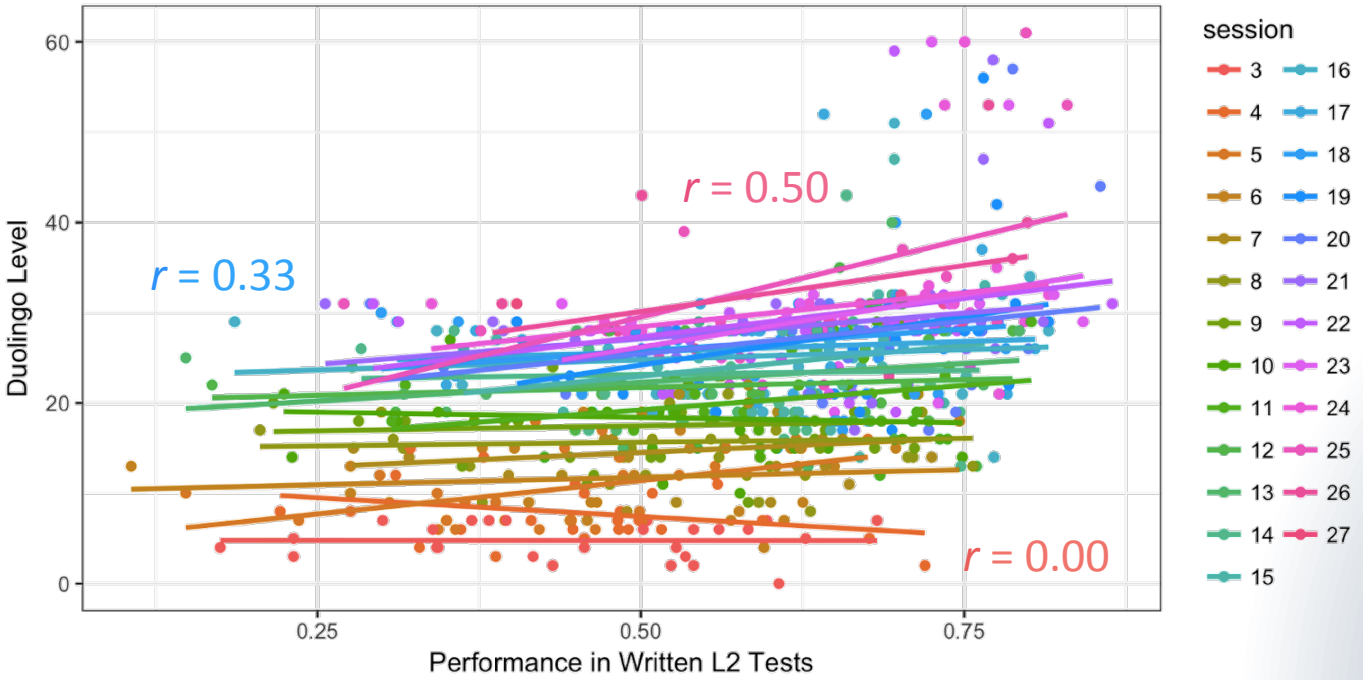
Correlation with L2 Tests



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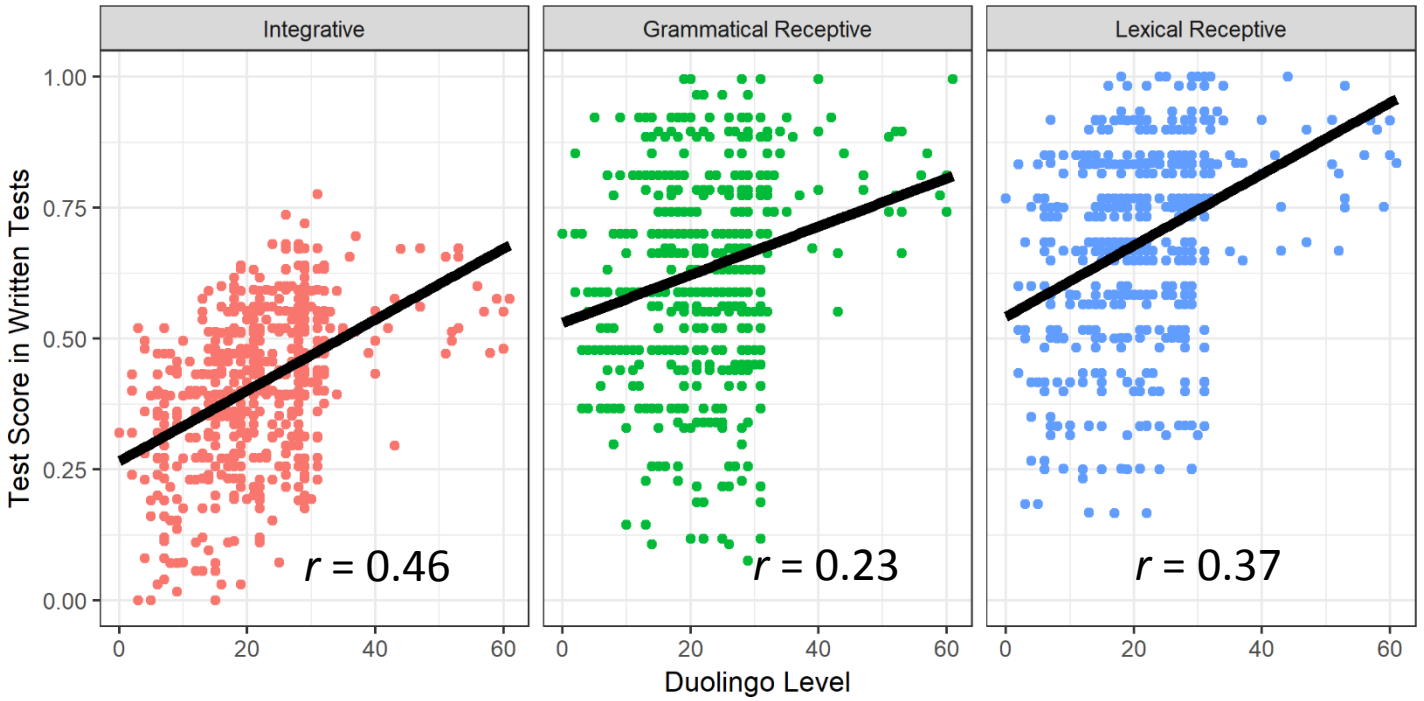
Correlation per Test Type



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Teacher Feedback

Advantages	Disadvantages

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Conclusions

- CALL is perfectly feasible with older learners
- Individual progress due to CALL
- Individual advantages of CALL increase with increasing L2 level
- *Duolingo* is motivating and facilitates multimodal learning
- Curriculum does not match that of typical classroom-based curricula
- Mix of varieties is commendable but confusing
- Appears to tap more into lexical skills than grammar

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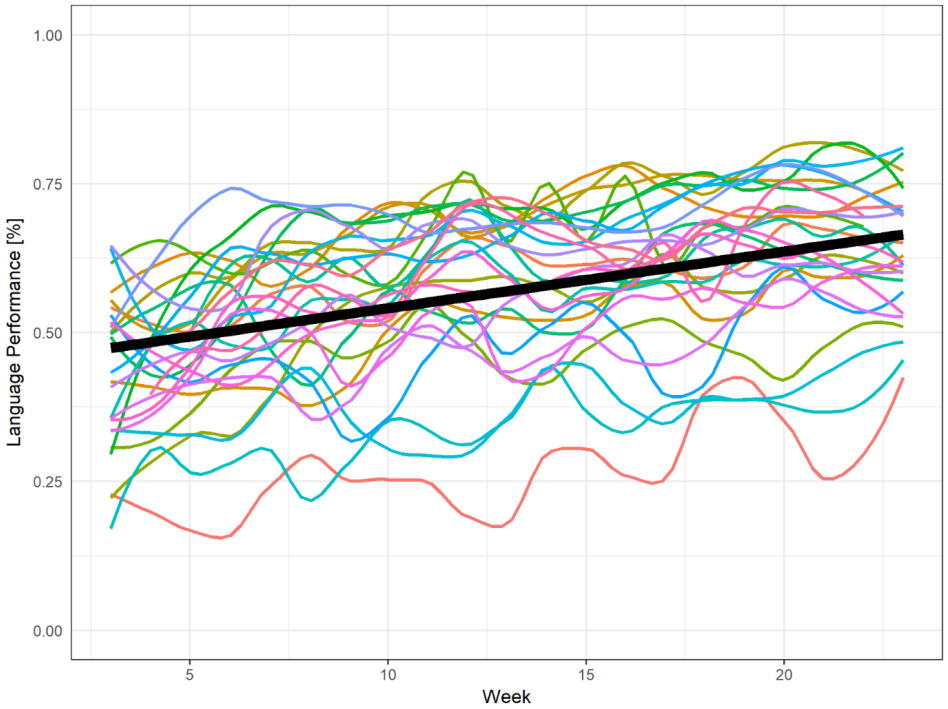
Linear L2 Development?