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Podcasts in a language classroom:

using localised digital teaching materials

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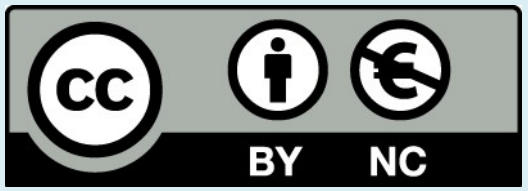

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PLAN

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1. INTRODUCTION

Digital technology has brought both new challenges and opportunities for humanising language teaching materials.

One of its advantages is allowing teachers to develop **digital materials which promote students' engagement** for language acquisition (Tomlinson & Masuhara, 2018), namely for being **localised and more meaningful** to actual students.

1. INTRODUCTION

Podcasts, defined as 'episodic digital audio files made available on the Internet for downloading to a computer or mobile device and in education' (Stefancik & Stradiotová, 2020: 47), have been shown to enhance **L2 learners' motivation and listening skills**. This technological tool provides learners with **access to authentic and contextualized input**, fostering their language acquisition.

1. INTRODUCTION

Research in **bimodal input** has explored the benefits of **captions in enhancing L2 learners' comprehension**.

However, some studies suggest that reading **full captions** may not be ideal for developing listening skills. As a potential solution, **keyword captions** offer a pedagogical approach to addressing this issue (Perez et al., 2013).

1. INTRODUCTION

Goal of this exploratory study:

To analyse the effects of using podcasts following a meaningful, humanised language learning approach in a task of oral comprehension.

Research question:

Do keyword captions enhance podcast comprehension for Chinese university students learning Portuguese as a foreign language (PFL)?

2. THEORETICAL BACKGROUND

Cognitive Load Theory / Cognitive Load Theory for Multimedia Learning

(Kalyuga & Sweller, 2014; Pass & Sweller, 2014; Sweller, 2005; Sweller et al., 1998)

Cognitive load refers to the amount of information our working memory can handle at any given moment. In education, cognitive load theory helps prevent overwhelming learners with more information than they can effectively process.

2. THEORETICAL BACKGROUND

Cognitive Load Theory (CLT) categorizes cognitive load into three types:

Intrinsic cognitive load is the cognitive load due to the natural complexity of the information that must be processed. It is determined by levels of element interactivity.

Extraneous cognitive load is caused by unnecessary complexity introduced by poor instructional design, such as confusing layouts or irrelevant information.

Germane cognitive load is “effective” cognitive load. It is the cognitive effort required to build meaningful connections and integrate new knowledge into long-term memory.

2. THEORETICAL BACKGROUND

Educators use CLT to design teaching materials, ensuring they are clear, structured, and supportive of cognitive processing. Techniques such as breaking content into smaller chunks, using visuals strategically, and minimizing distractions can enhance learning outcomes.

Effective learning happens when intrinsic load is managed appropriately, extraneous load is minimized, and germane load is optimized. This ensures that learners are not overwhelmed and can focus their cognitive resources on understanding and retaining information.

3. LITERATURE REVIEW

Previous studies on **reading-while-listening (RWL)** in English as a second language have yielded **mixed results**.

- Diao and Sweller (2007) questioned the effectiveness of combining written and spoken text containing identical information, citing the redundancy effect. Their findings indicated that RWL resulted in **lower text comprehension** compared to reading alone.
- In contrast, other studies (Chang, 2009; Webb & Chang, 2015, 2022) reported **improvements in comprehension through RWL interventions** compared to reading or listening alone.

3. LITERATURE REVIEW

In the **literature on PFL**, only one study (Xu, 2025) was found examining the **impact of full video captioning on the listening comprehension** of Chinese learners. The results indicated improvements in the captioned condition.

Given that **podcasts** provide valuable aural input and no studies have examined the effects of combining these digital tools with **keyword captions** for the development of PFL listening comprehension, this study seeks to fill that gap. Keyword captioning is expected to enhance comprehension by reducing cognitive effort and promoting deeper processing.

4. METHODS

Participants

- 2 groups of Chinese learners of Portuguese as a foreign language (PFL) in Year 2 of the BA in Portuguese (*N*=41)

		Control Group (*n* = 16)	Experimental Group (*n* = 25)
Gender	Masculine	6	5
	Feminine	**10**	**19**
Age (mean)		**20,4**	**20,1**
Homeland	Macau	2	9
	Mainland China	**12**	**13**
	Other	0	1
L1	Cantonese (+ English)	2 (+2)	7
	Mandarin	**10**	**12**
	Cantonese & Mandarin (+English)	2	5 (+1)
L2	English	**9**	**11**
	Portuguese	7	12
	Mandarin	0	1
No. of years learning Portuguese (mean)		**2,5**	**2,3**
LextPT (mean score)		**12,9**	**13,3**

4. METHODS

Data collection [and analysis]

1. Participants' consent – online/Qualtrics, Chinese

2. Listening task – paper, Portuguese

- 13 questions about an audio interview on a Portuguese radio (6 min. 40 seg.) [total score, from 0 to 13; binary score in each question; qualitative analysis to check the influence of different factors]
- Meaningful, humanised topic: languages and culture in Macau and mainland China; learning a language; Portuguese people

3. LextPT (Zhou & Li, 2022) – online/Qualtrics, Portuguese; measure the proficiency level in PFL [total score, from -60 to 60]

4. Sociolinguistic questionnaire – online/Qualtrics, Chinese/Portuguese

4. METHODS

Collection instrument | 2. Listening task

A. Meaningful, humanised topic: languages and culture in Macau and mainland China; learning a language; Portuguese people

B. Questions' scope: general / specific

- General comprehension – 8 questions
- Specific passages/details – 5 questions

C. Modality input: audio-only / audio-written

- Listening-only condition (CoG) – no written input, black background
- Partial reading-while-listening condition (ExG) – keywords in white on a black background

D. Direct written input: Yes / No (for ExG only)

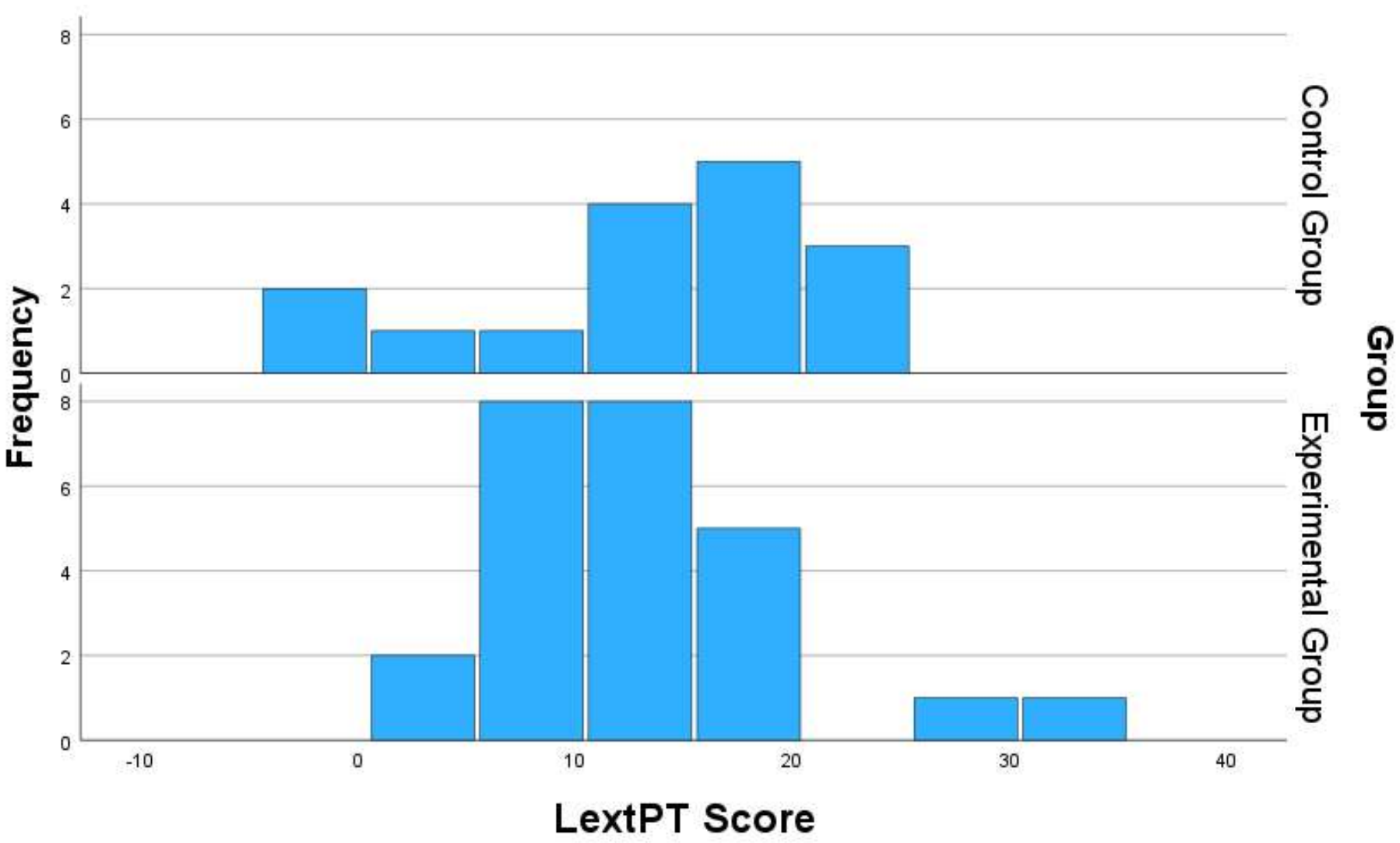
- Yes – answer presented in the written keywords / 5 questions
- No – answer partially presented in the written keywords / 8 questions

E. Localised written input: Yes / No (for ExG only)

- Yes – 41 keywords related to the topic / 10 questions
- No – 40 keywords (general, unrelated) / 3 questions

5. RESULTS

AC1



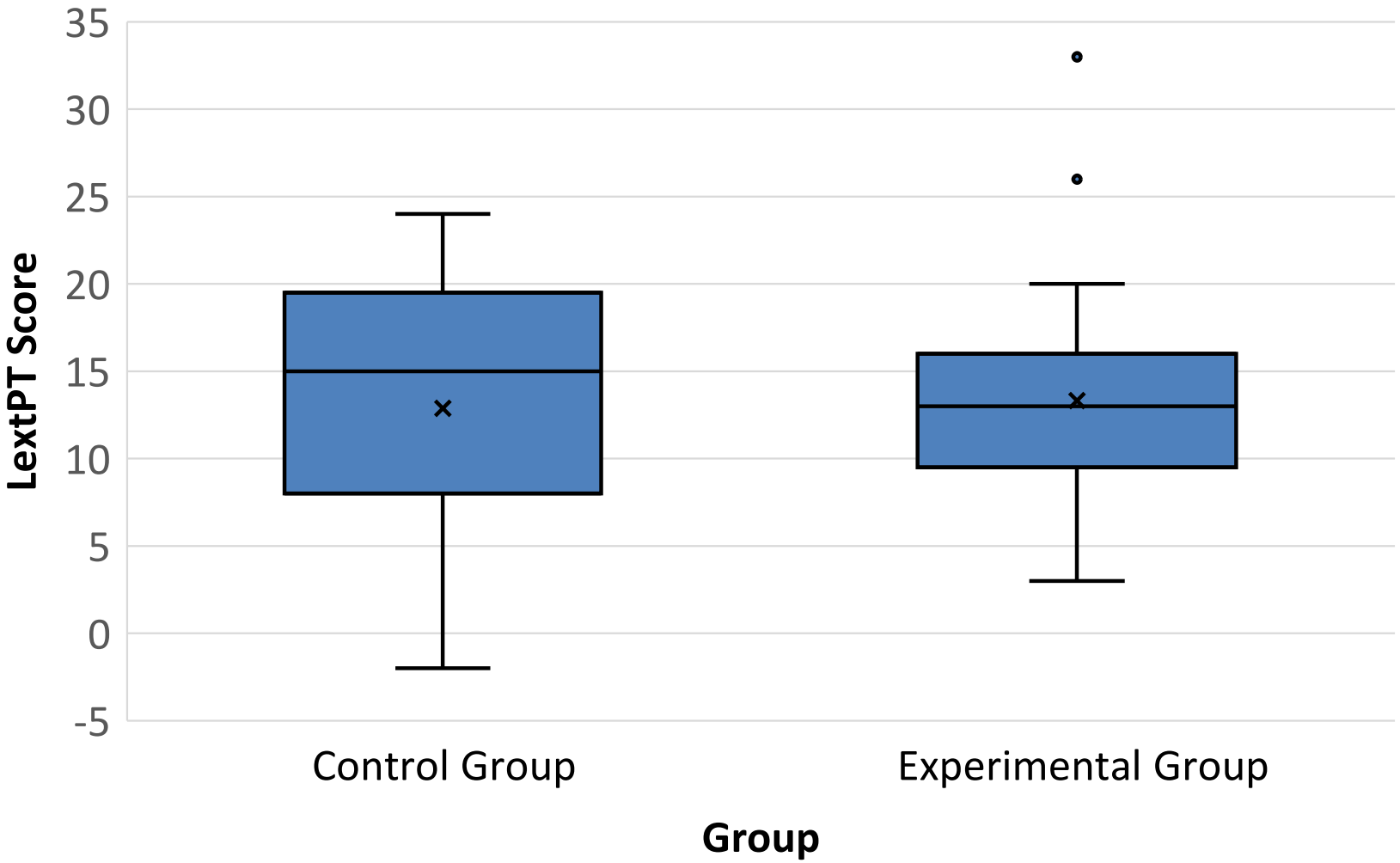
→ Except for 2 outliers in the ExG, the results are better in the CoG, which means that the proficiency in Portuguese is a bit higher in the CoG.

Diapositivo 15

AC1 Como já temos muitos slides, talvez se possa retirar este slide por indicar a mesma informação do slide seguinte.
Adelina Castelo; 2025-06-01T10:20:53.769

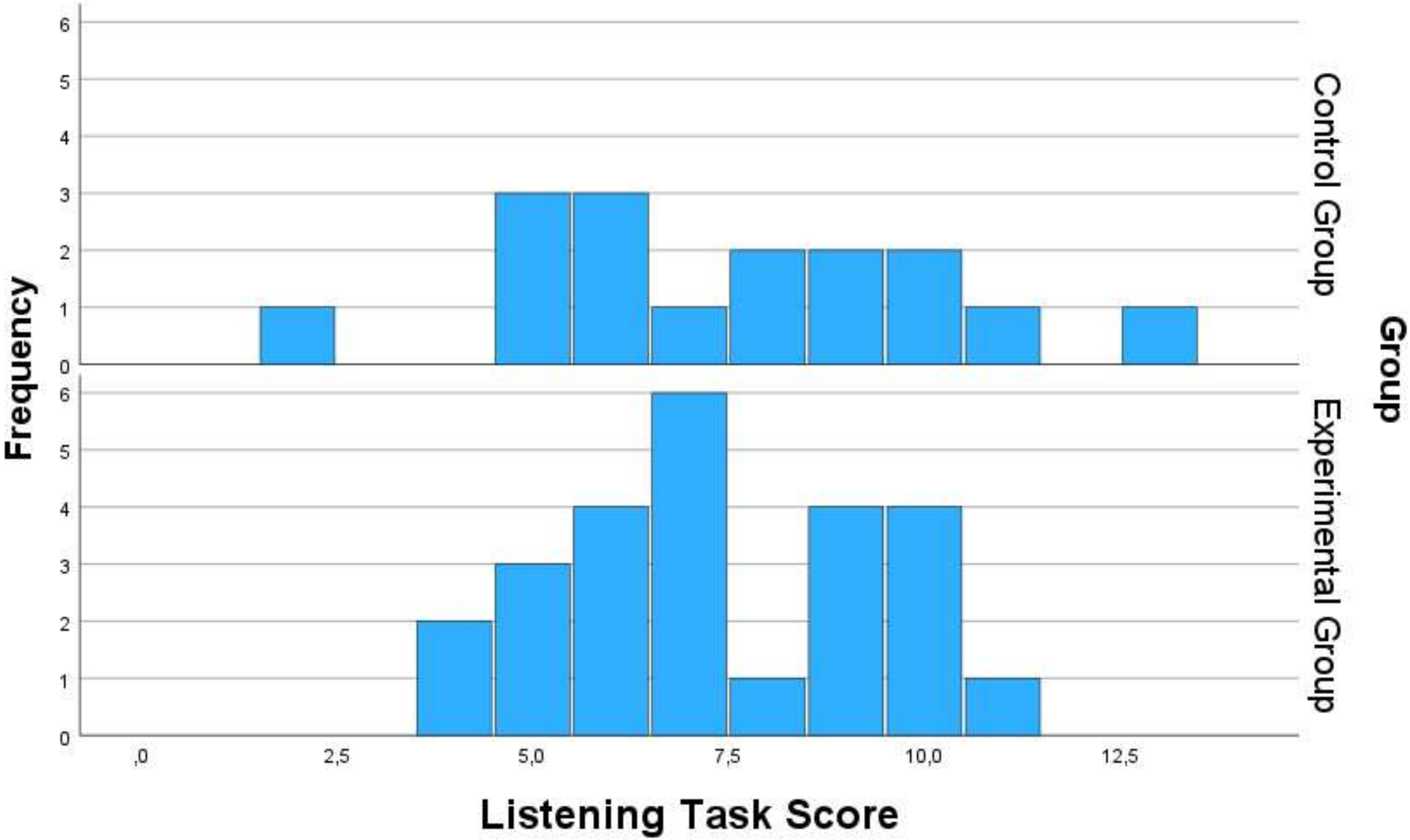
AC1 0 Ou então até se podem retirar os 3 slides com gráficos, já que as médias e medianas aparecem no slide 18.
Adelina Castelo; 2025-06-01T10:35:05.959

5. RESULTS



→ We can see the 2 outliers in the ExG. There is more variation in the CoG, but the Portuguese proficiency level is generally higher in this group.

5. RESULTS



→ Again, we can see a bit more variation in the CoG, but the amount of total scores between 5 and 10 seems similar in the two groups.

5. RESULTS

		Control Group	Experimental Group	*p-value*
Listening Task Score	Mean	**7,5 (58%)**	**7,4 (57%)**	**0.926**
	Median	7,5	7,0	
	Standard Deviation	2,78	2,04	
LextPT Score	Mean	12,9	13,3	0.588
	Median	15,0	13,0	
	Standard Deviation	7,93	6,50	

Mann-Whitney U Test for Independent Samples (nonparametric)

Nonparametric correlation, Spearman's rho (LextPT * Listening Task) = .047, *p*=.770

→ The performance in the Listening Task is 57% to 58% correct.
→ There are no statistically significant differences between the 2 groups in the performance of both Listening Task and LextPT.
→ There is no significant correlation between the results in Listening Task and LextPT.

5. RESULTS

		Local	Direct	CoG (mean)	ExG (mean)
Specific questions	Q1	L	D	0,8	0,8
	Q2		D	0,8	0,8
	Q3	**L**		**0,4**	**0,4**
	Q4	**L**		**0,6**	**0,5**
	Q5		D	0,7	0,7
	Q6	L		0,8	0,8
	Q7	L	D	0,8	0,8
	Q8	**L**		**0,2**	**0,2**
	Specific			**0,62**	**0,63**
General questions	Q9			**0,5**	**0,6**
	Q10	L		0,8	0,4
	Q11	**L**		**0,1**	**0,2**
	Q12	**L**	**D**	**0,4**	**0,5**
	Q13	L		0,9	0,6
	General			**0,54**	**0,46**

- → In most questions, the performance is similar in the 2 groups.
- → The performance in the specific questions is better than in the general ones.
- → Often the difficult questions are the ones with no direct written input (the answer is only partially present in the written keywords for the ExG).
- → The more 'localised' questions (whose written keywords were related to the topic) are not associated with better results.

6. DISCUSSION AND FINAL CONSIDERATIONS

Goal: to analyse the effects of using podcasts following a meaningful, humanised language learning approach in a task of oral comprehension

A.

- The success rate was approximately 57%–58% in a task based on an authentic podcast featuring a fast-paced conversation between two native speakers. This result was achieved despite the participants' relatively low proficiency level, with only two years of study and an average score of around 13/60 on the LexPT test.

- Even the group with no access to written input had a similar success rate.

→ Although we do not have a comparison term, it seems that the use of a **meaningful, humanised approach had a positive impact on the listening comprehension.**

6. DISCUSSION AND FINAL CONSIDERATIONS

B.

❖ Questions on specific details yielded better results than those on general comprehension, possibly due to the information being presented within a single passage.

→ **Comprehension of specific passages was easier** (compared to general, more global comprehension).

6. DISCUSSION AND FINAL CONSIDERATIONS

C.

❖ The listening-only condition and partial reading-while-listening condition yielded similar results, despite expectations that incorporating two modalities—including a visual component—would positively impact task performance.

❖ Previous research on the use of videos by Chinese students learning Portuguese suggests that full captions have a positive impact on oral comprehension (Xu, 20205).

→ Possibly, **partial captions act more as an extraneous distraction** than as a facilitator of oral comprehension, in line with the **redundancy principle** (Sweller, 2005). This principle suggests that duplicating the same information can increase extraneous cognitive load, as learners must process redundant content (Diao & Sweller, 2007; Kalyuga & Sweller, 2014).

6. DISCUSSION AND FINAL CONSIDERATIONS

D.

- Slightly better performance in questions with answers totally related to the keywords provided to the ExG (direct written input vs. indirect written input). However, there was no difference in ExG (partial reading-while-listening) vs. CoG (listening only).

→ **Presence of direct written input had little to no impact** on the performance.

E.

- No better performance in questions whose written input was “local”, related to the localised topic, in the ExG.

→ **Presence of “local” written input had no impact** on the performance.

REFERENCES

Chang, A.C.-S. (2009). Gains to L2 listeners from reading while listening vs. listening only in comprehending short stories. *System, 37*, 652-663.

Diao, Y. & Sweller, J. (2007). Redundancy in foreign language reading comprehension instruction: Concurrent written and spoken presentations. *Learning and Instruction*, 17, 78-88.

Gass, S., Winke, P., Isbell, D., & Ahn, J. (2019). How captions help people learn languages: A working memory, eye-tracking study. *Language Learning & Technology, 23*(2), 84-104. https://doi.org/10125/44684

Kalyuga, S. & Sweller, J. (2014). The redundancy principle in multimedia learning. In R. E. Mayer (Ed.), *The Cambridge handbook of multimedia learning* (2nd ed.) (pp. 247-262). Cambridge University Press.

Paas, F. & Sweller, J. (2014). Implications of cognitive load theory for multimedia learning. In R. E. Mayer (Ed.), *The Cambridge handbook of multimedia learning* (2nd ed.) (pp. 27-42). Cambridge University Press.

Perez, M. M., Peters, E. & Desmet, P. (2013). Is less more? Effectiveness and perceived usefulness of keyword and full captioned video for L2 listening comprehension. *ReCALL, 26*(1), 21-43. https://doi.org/10.1017/S0958344013000256

Sweller, J. (2005). Implications of cognitive load theory for multimedia learning. In R. E. Mayer (Ed.), *The Cambridge handbook of multimedia learning* (pp. 19-30). Cambridge University Press.

Sweller, J., van Merrienboer, J. J. G. & Paas, F.G.W.C. (1998). Cognitive architecture and instructional design. *Educational Psychology Review, 10*(3), 251–296.

REFERENCES

Stefancik, R. & Stradiotová, E. (2020). Using web 2.0 tool podcast in teaching foreign languages. *Advanced Education, 14*, 46-55. https://doi.org/10.20535/2410-8286.198209

Tomlinson, B. & Masuhara, H. (2018). *Materials Development for Language Learning*. Wiley Blackwell.

Webb, S. & Chang, A. C.-S. (2015). Second Language vocabulary learning through extensive reading with audio support: How do frequency and distribution of occurrence affect learning*? Language Teaching Research, 19*(6), 667-686.

Webb, S. & Chang, A. C.-S. (2022). How does mode of input affect the incidental learning of collocations*? Studies in Second Language Acquisition, 44*, 35-56.

Xu, L. (2025). *O Efeito da Legendagem de Vídeos na Compreensão Oral de Aprendentes Chineses de Português Como Língua Estrangeira*. [Dissertação de Mestrado, Universidade de Macau].

Zhou, C., & Li, X. (2022). LextPT: A reliable and efficient vocabulary size test for L2 Portuguese proficiency. *Behavior Research Methods, 54*, 2625–2639. https://doi.org/10.3758/s13428-021-01731-1