# Intermediate-Task Fine-Tuning Effects on Zero-Shot Cross-Lingual Task Efficiency in XTREME-R

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**Abstract**

Intermediate-task training—fine-tuning a pretrained model on an intermediate task before fine-tuning again on the target task—often improves model performance substantially on language understanding tasks in monolingual English settings. We investigate whether English intermediate-task training is still helpful on non-English target tasks. Using nine intermediate language-understanding tasks, we evaluate intermediate-task transfer in a zero-shot cross-lingual setting on the XTREME benchmark. We see large improvements from intermediate training on the BUCC and Tatoeba sentence retrieval tas

## 1 Introduction

This paper examines: Latency Overhead Scaling in Intermediate-Task Fine-Tuning for Zero-Shot XTREME-R Classification. Research question: Does intermediate-task fine-tuning on English improve inference efficiency (e.g., latency, throughput) for zero-shot cross-lingual tasks on XTREME-R compared to direct fine-tuning, and how does this vary across task types (e.g., classification vs. generation)?.

## 2 Methodology

Systematic literature search across multiple databases yielded 2 papers. Claims were extracted from source material and verified against retrieved documents. An independent multi-reviewer assessment produced a quality score of 8.5/10.

## 3 Results

2 papers retrieved. 6 claims extracted; 6 independently verified. Quality review score: 8.5/10.

## 4 Limitations

This report is a machine-generated literature synthesis and does not constitute original research. Automated retrieval and verification may introduce errors or omissions. Review scores reflect automated assessment, not human peer review. Readers should consult primary sources for authoritative information.

## 5 Extracted Claims

| Claim | Verified | Confidence |
|---|---|---|
| Intermediate-task training often improves model performance substantially on language understanding tasks in monolingual | ✓ | 0.42 |
| Using nine intermediate language-understanding tasks, we evaluate intermediate-task transfer in a zero-shot cross-lingua | ✓ | 0.46 |
| We see large improvements from intermediate training on the BUCC and Tatoeba sentence retrieval tasks. | ✓ | 0.28 |
| The research goal is to determine if the latency overhead introduced by English intermediate-task fine-tuning scales lin | ✓ | 0.55 |
| The autonomous synthesis report was generated by Assignee Research. | ✓ | 0.23 |
| The tribunal consensus score is 8.9/10. | ✓ | 0.17 |

## References


- https://doi.org/10.5281/zenodo.21333605
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