Task Progressive Curriculum Learning for Robust Visual Question Answering

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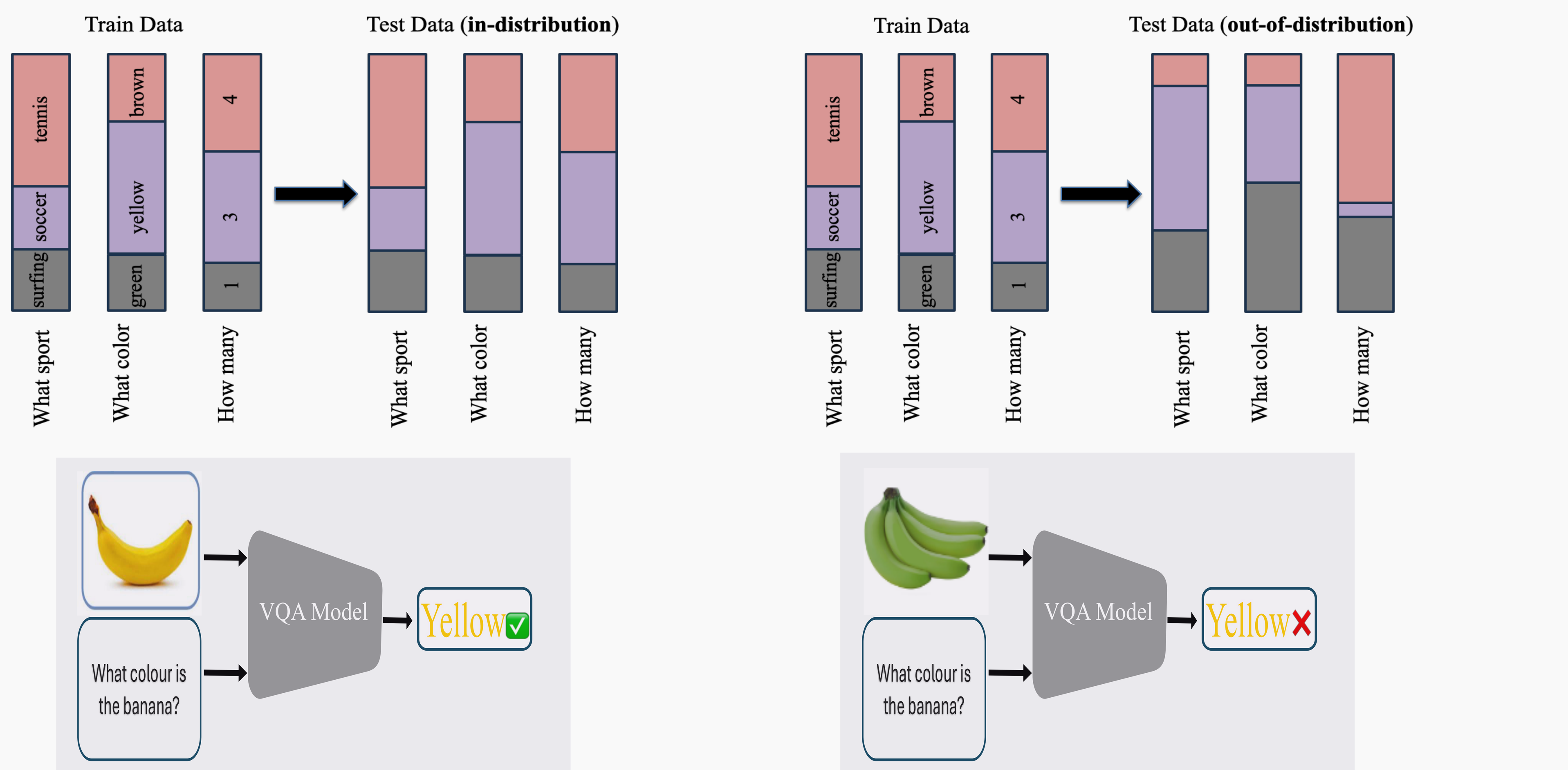
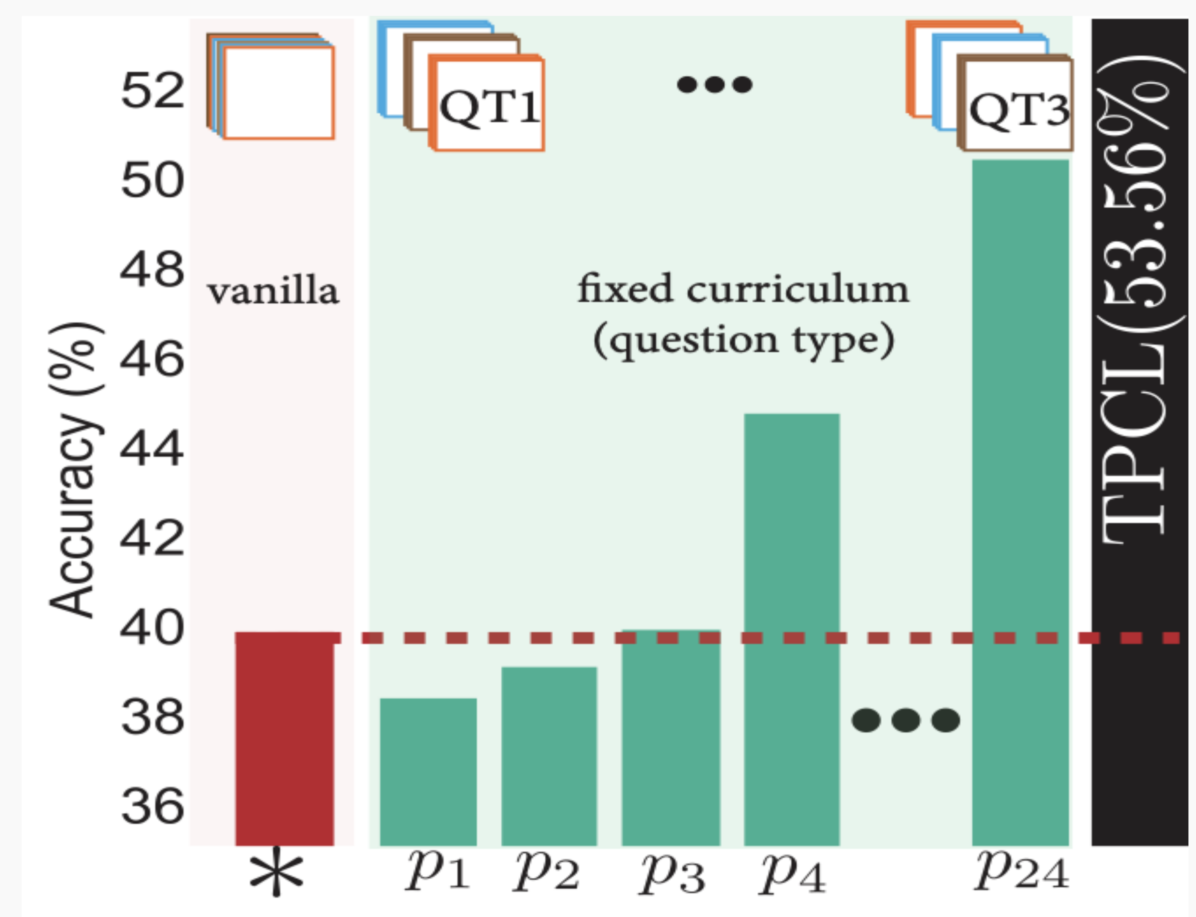
Problem Definition

Visual Question Answering are notorious for their poor performance in out of distribution.



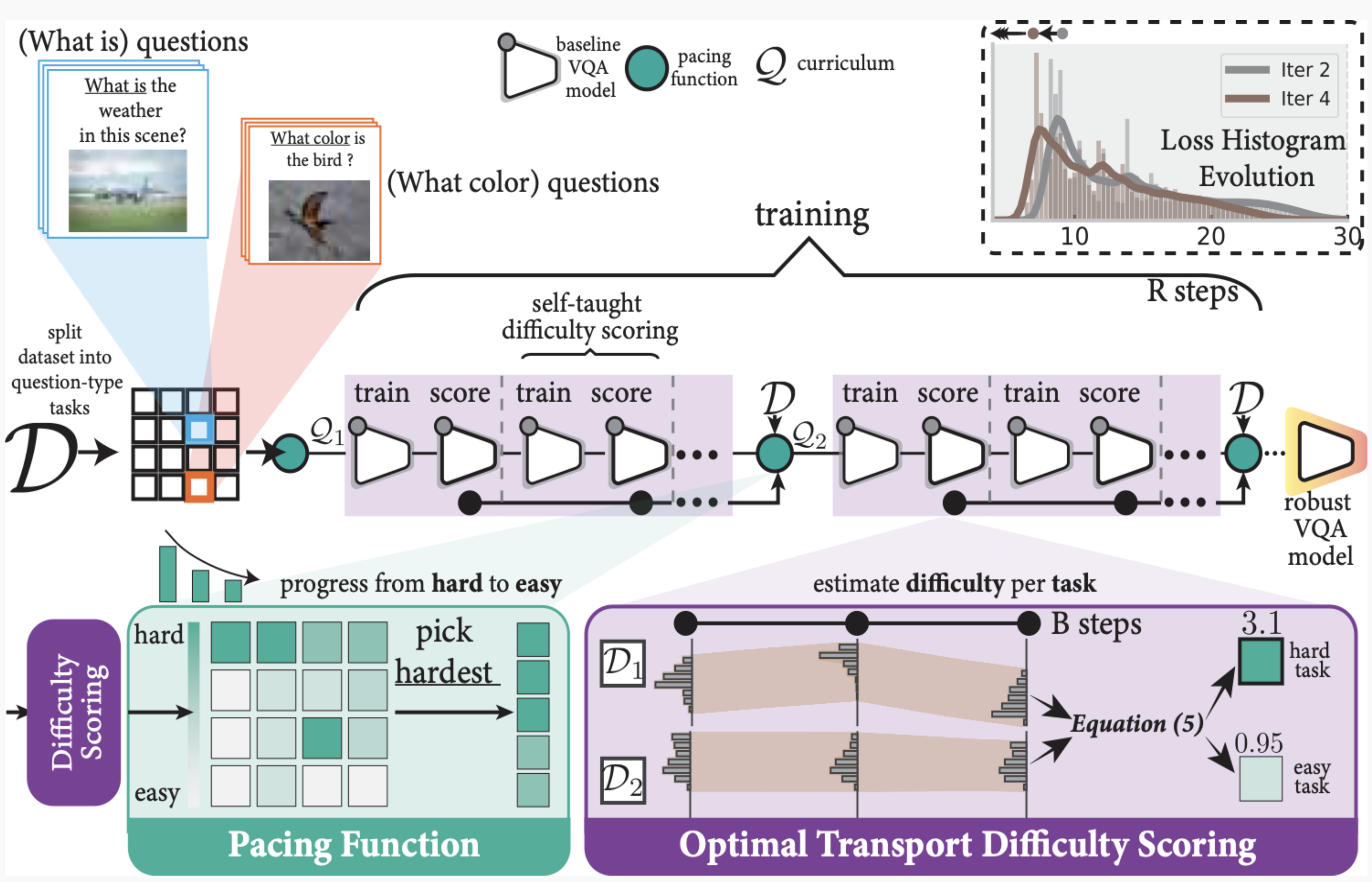
Motivation

Inspired by Psycholinguistics, we design a training strategy that enhance the VQA model performance in OOD.



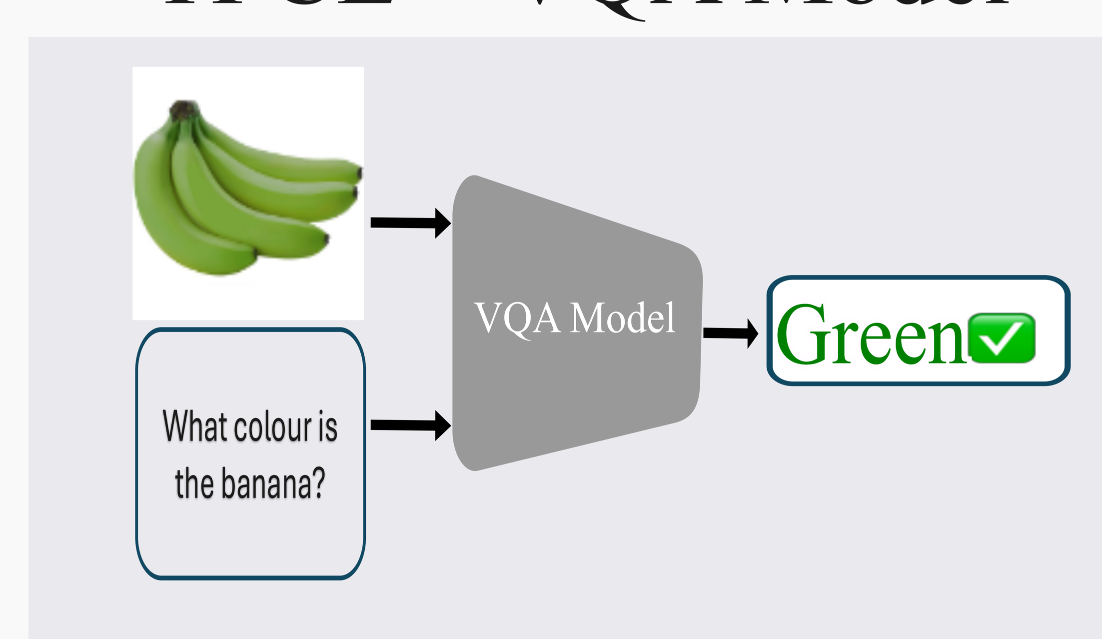
Proposed Method

Our approach builds a robust VQA model, we design a task-based curriculum that can be used to train a baseline back-bone and enable out-of-distribution generalisation.



Robust VQA Model

TPCL + VQA Model

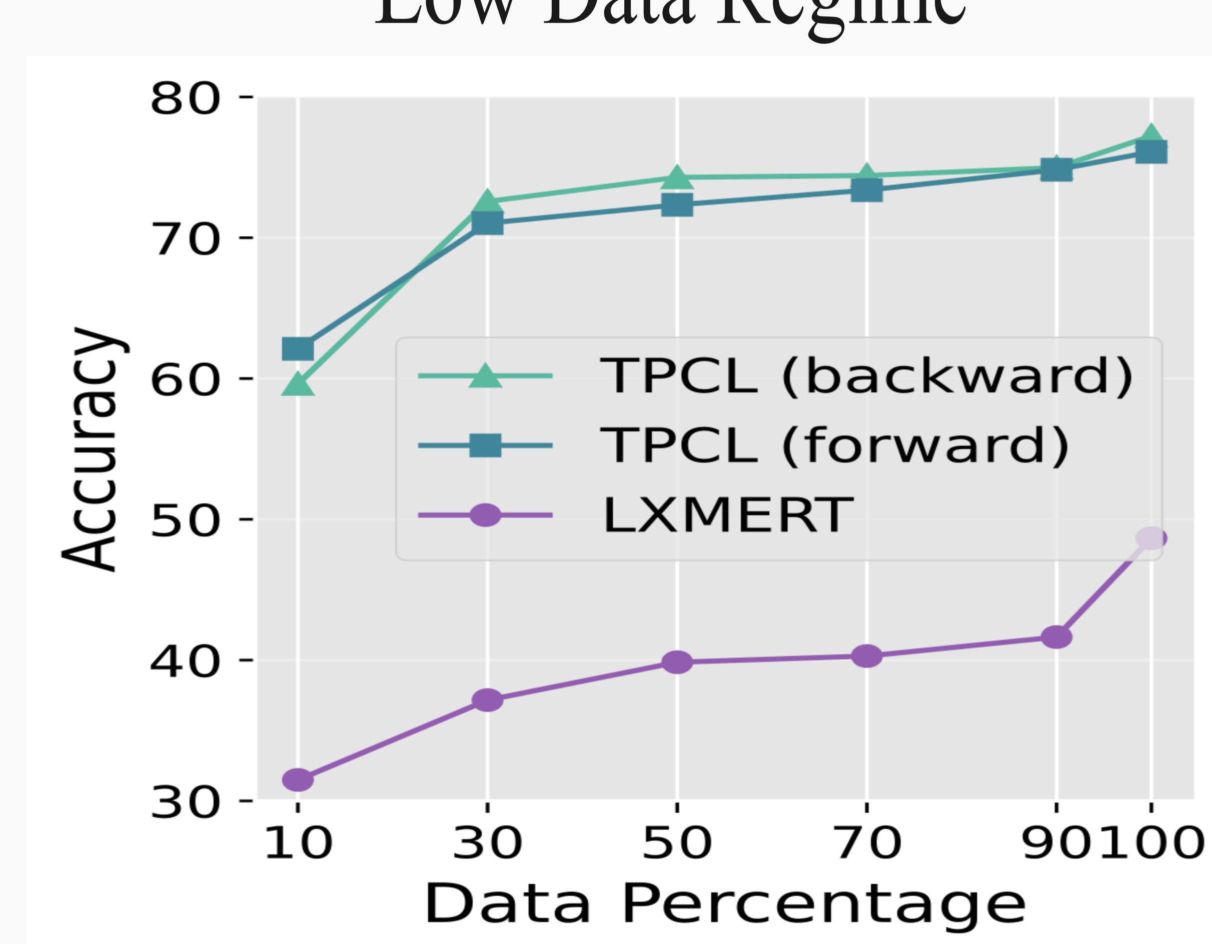


Results

OOD and ID datasets

Methods	VQA-CP v2				VQA v2
	Overall	Y/N	Num	Others	Overall
LXMERT	48.66	47.49	22.24	56.52	73.06
D-VQA	69.75	80.43	58.57	67.23	-
SIMPLEAUG	62.24	69.72	53.63	60.69	<u>74.98</u>
BILI	71.18	<u>92.18</u>	64.90	61.90	-
FAN-VQA	<u>72.18</u>	84.76	<u>65.98</u>	<u>67.29</u>	-
TPCL$_{Fix\uparrow}$	**75.83**	91.55	**68.49**	**69.61**	**78.42**
TPCL$_{Dyn\uparrow}$	**77.23**	**93.10**	**72.00**	**70.34**	**78.03**

Low Data Regime



Baseline Agnostic Approach