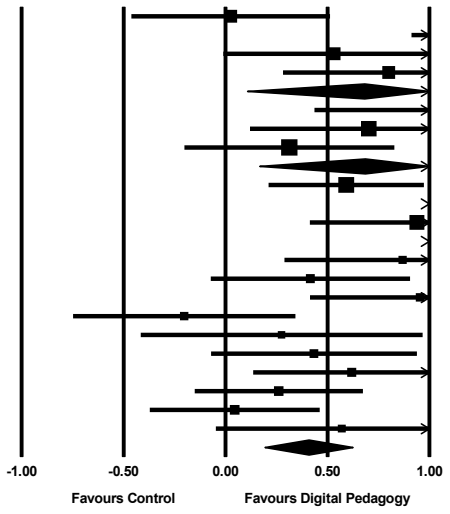
Group by ICT Tools Categories	Study name	Std diff in means	Standard error	Variance	Lower limit	Upper limit	Z-Value	p-Value
Communicative	Goda et al. (2014)	0.026	0.247	0.061	-0.458	0.510	0.105	0.916
Communicative	Mohammadi et al. (2022)	1.342	0.218	0.047	0.916	1.769	6.168	0.000
Communicative	Jiang et al. (2024)_b	0.533	0.276	0.076	-0.007	1.074	1.935	0.053
Communicative	Yin et al. (2024)	0.801	0.263	0.069	0.286	1.316	3.049	0.002
Communicative		0.683	0.294	0.086	0.108	1.259	2.327	0.020
Constructive	Ebadi & Rahimi (2018)	1.346	0.462	0.213	0.440	2.251	2.913	0.004
Constructive	Darmawansah et al. (2022)	0.704	0.296	0.087	0.124	1.283	2.379	0.017
Constructive	Jiang et al. (2024)_a	0.314	0.261	0.068	-0.198	0.826	1.203	0.229
Constructive		0.686	0.264	0.070	0.168	1.204	2.596	0.009
Informative	Yang & Wu (2012)	0.593	0.193	0.037	0.215	0.971	3.078	0.002
Informative	Etemadfar et al. (2020)	1.702	0.357	0.128	1.002	2.402	4.763	0.000
Informative	Algouzi et al. (2023)	0.940	0.266	0.071	0.417	1.462	3.527	0.000
Informative		1.017	0.298	0.089	0.432	1.602	3.408	0.001
Mixed ICT Tools	Hsu & Liang (2021)	0.870	0.294	0.086	0.293	1.446	2.957	0.003
Mixed ICT Tools	Liu et al. (2023)	0.417	0.248	0.061	-0.069	0.903	1.682	0.093
Mixed ICT Tools	Jiang et al. (2024)_c	0.955	0.274	0.075	0.418	1.492	3.488	0.000
Mixed ICT Tools	Chang et al. (2024)	-0.202	0.277	0.077	-0.744	0.340	-0.729	0.466
Mixed ICT Tools	Alpat & Gorgulu (2024)	0.276	0.351	0.123	-0.412	0.964	0.786	0.432
Mixed ICT Tools	Sendag et al. (2024)	0.435	0.256	0.065	-0.067	0.936	1.699	0.089
Mixed ICT Tools	Darmawansah et al. (2025)	0.620	0.245	0.060	0.139	1.101	2.527	0.012
Mixed ICT Tools	Liu & Wang (2024)	0.262	0.209	0.044	-0.147	0.671	1.255	0.210
Mixed ICT Tools	Shang et al. (2025)	0.046	0.211	0.045	-0.368	0.460	0.218	0.827
Mixed ICT Tools	Zhang et al. (2025)	0.571	0.314	0.098	-0.044	1.186	1.820	0.069
Mixed ICT Tools		0.410	0.110	0.012	0.194	0.625	3.723	0.000



Meta Analysis