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*A systematic review of the impact
of Cooperative Learning on inter-
ethnic relations in schools*

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Presentation



1. Cooperative Learning and interethnic relations
2. Systematic reviews
3. The current review
4. Some preliminary results

1. Cooperative Learning and inter-ethnic relations



- Small group teaching and learning strategies that seek to promote inter-dependence among group members.
- Widely used in US, particularly in elementary schools. Linked to improvements in academic performance and self-esteem.
- Promoted as a tool to enhance inter-group relations from the 1970's to the present.
- Strong theoretical foundation.

2. Systematic reviews



- Aim to overcome biases while collecting all available research on a given topic.
- Common biases: Publication; Multiple publication; Reporting; Database; Availability; Familiarity; Language; Confirmation; Citation.
- Exhaustive search following detailed criteria set out beforehand in a **protocol**.
- Usually (not necessarily) involves a meta-analysis of results of search.



3. The current review

- Aims to synthesize all existing empirical evidence on the effects of Cooperative Learning on inter-ethnic relations in school settings.
- Existing reviews:
 - Not systematic (Narrative reviews)
 - Country specific and out of date
 - Broader focus
 - Do not present moderator analysis

Criteria for inclusion:



- One of 11 defined Cooperative Learning strategies.
- Regular school-time studies.
- At least one outcome measuring behavior/attitude to an ethnic out-group.
- Randomised field experiments and quasi-experiments.
- Since 1965.

The Search



Two independent reviewers completed:

- Hand search key journals (8)
- Electronic databases (16).
- Reference lists searches.
- Internet search (5 major engines).
- Grey literature search as per Campbell guidelines (2010) plus some dedicated sites.
- Enquires to relevant researchers.

Example of search terms



cooperat*	TGT	interdependen*
collaborat*	TAI	inter-dependen*
jigsaw*	small-group-learning	Cohen*
Learning Together	student-team-achievement	Slavin*
Constructive Controversy	team-games-tournament	Cooper*
Team-Accelerated Instruction	team-assisted-individuation	Sharan*
Cooperative Learning Structures	group-investigation	Johnson*
Cooperative Integrated Reading & Composition	group-instruction	Aronson*
CIRC	complex-instruction	Wiegel*
STAD	team learning	Ziegler*

Current status



- 40 reports identified / 44 independent samples.
- 10 samples with insufficient data to calculate effect size.
- 34 independent samples.
- In the final stages of search – expect a small number of studies to be added.

Meta-Analysis



- Used to summarize impact of treatment across studies.
- Focuses on the magnitude of effects rather than statistical significance.
- Avoids problems with ‘counting’ significant versus non-significant results.
- Can explore variables associated with differences between studies (moderator analysis).

Options used for our analysis



- Random effects models.
- Mean standardized difference, d , with Hedge's adjustment.
- When possible, post-test ES adjusted by subtraction of pre-test ES.
- One extreme value Winsorized at 3 standard deviations. One value imputed at average non-significant effect size (reported as 'not-significant' without data).

4. Some preliminary results



Preliminary?

- Small number of studies to be added.
- Second coder to calculate effect sizes.
- ICC adjustments still to be made.

Outcome measures related to inter-ethnic relations in 44 Cooperative Learning study samples

(*single samples can involve more than one measure)



Cross-ethnic friendship	
Cross-ethnic socio-metric friendship nomination	25
Close or strong friendship measures	5
Social schema measures	4
Attitudes to named ethnic class-mates	3
Positive cross-ethnic interaction	
Academic interaction during class time	16
Interaction at free-time / recess	7
Social interaction during class time	5
Interaction outside of school time	3
Broad attitudes	
General attitudes to cultural diversity	8
Attitudes to specific minority groups	4
Attitudes to children of different ethnic origin	4
Psychological constructs	
Empathy for children of different ethnic origin	2
Common in-group identity	1
Other	8

Analyzing outcomes



- Studies seem to be based on different expectations of what CL will achieve.
- For meta-analysis it is ideal to take one measure per study.
- Some studies have only one class of outcome, some have multiple. Opted for analyzing different classes of outcome separately (initially at least).
- Two outcomes examined to date...

Outcome 1: Cross-ethnic friendship



- 19 studies with complete data.
 - 10 in books / journals
 - 8 dissertations
 - 1 conference paper
- Combined sample size of 2,891.
- Taken at first post-test (within two weeks).



Year of Publication

1970 to 1979	5	Jigsaw	2
1980 to 1989	8	STAD	6
1990 to 1999	4	TGT	4
2000 to 2010	2	Johnson and Johnson	2
		Other	5

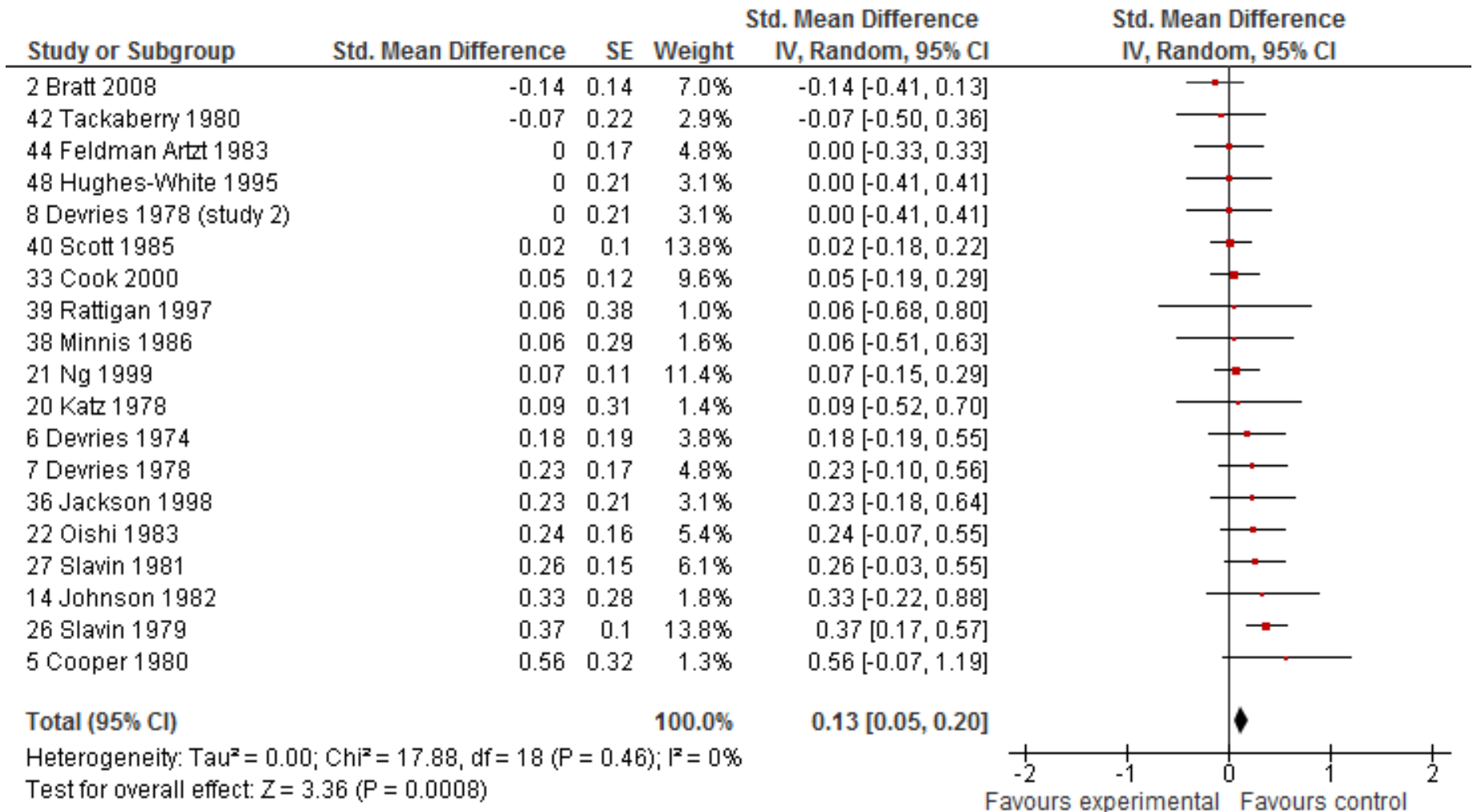
Classes

2 nd to 6 th grade	9	Pre-test	
7 th to 12 th grade	10	Pre-test	14
		Post test only	5

Country

USA	16	Assignment	
EU	1	Random (individual)	2
Other	2	Random (class)	8
		Non-random	9

Cross-ethnic friendship





- Very low heterogeneity.
- Overall a weak positive effect but heavily dependent on one study.
- One large study in 1979 with a comparatively strong effect, since then many studies with weak or no effect – many of them unpublished.
- Cooperative Learning appears to have little reliable impact on cross-ethnic friendship.

Outcome 2: Free-time interaction



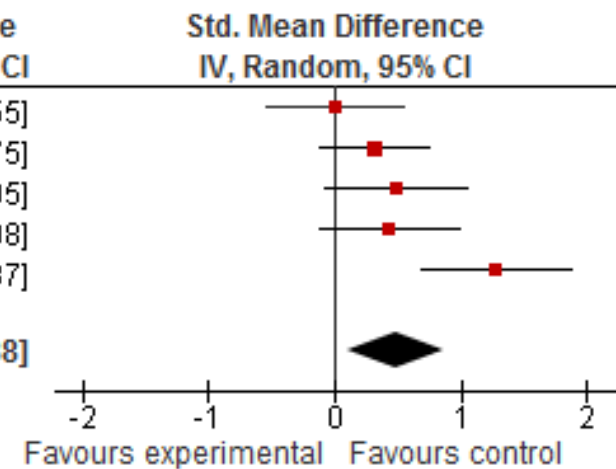
- 7 studies, 2 with sufficient data to calculate ES.
- Results based on 5 studies with a combined total sample size of 280.
- 4 studies used observational measures, 1 self-report.
- 4 journal articles, 1 dissertation.
- All studies in the USA, in the 1980's and in 2nd to 6th grade.

Free-time interaction



Study or Subgroup	Std. Mean Difference	SE	Weight	Std. Mean Difference IV, Random, 95% CI
Warring Johnson etc 1985	0	0.28	19.6%	0.00 [-0.55, 0.55]
Tackaberry 1980	0.32	0.22	23.1%	0.32 [-0.11, 0.75]
Johnson et al. 1983	0.48	0.29	19.1%	0.48 [-0.09, 1.05]
Johnson and Johnson 1982	0.43	0.28	19.6%	0.43 [-0.12, 0.98]
Johnson and Johnson 1981	1.28	0.3	18.6%	1.28 [0.69, 1.87]
Total (95% CI)			100.0%	0.49 [0.10, 0.88]

Heterogeneity: $\tau^2 = 0.12$; $\chi^2 = 10.59$, $df = 4$ ($P = 0.03$); $I^2 = 62\%$
 Test for overall effect: $Z = 2.46$ ($P = 0.01$)





- Studies individually under-powered but as a group suggest an impressive effect.
- However:
 - Small number of studies
 - All but one study by same group of researchers
 - Little variation in context or age range

Conclusions



- Cooperative learning appears to have little short-term impact on cross-ethnic friendship.
- Cooperative learning may have a worthwhile impact on levels of cross-ethnic interaction during free-time at school.
- Get a good unbiased overview of available evidence before choosing independent variables.
- Report means, SD and N for all groups for all outcomes!

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