

Implementing and evaluating a research based school model – design considerations and outcomes

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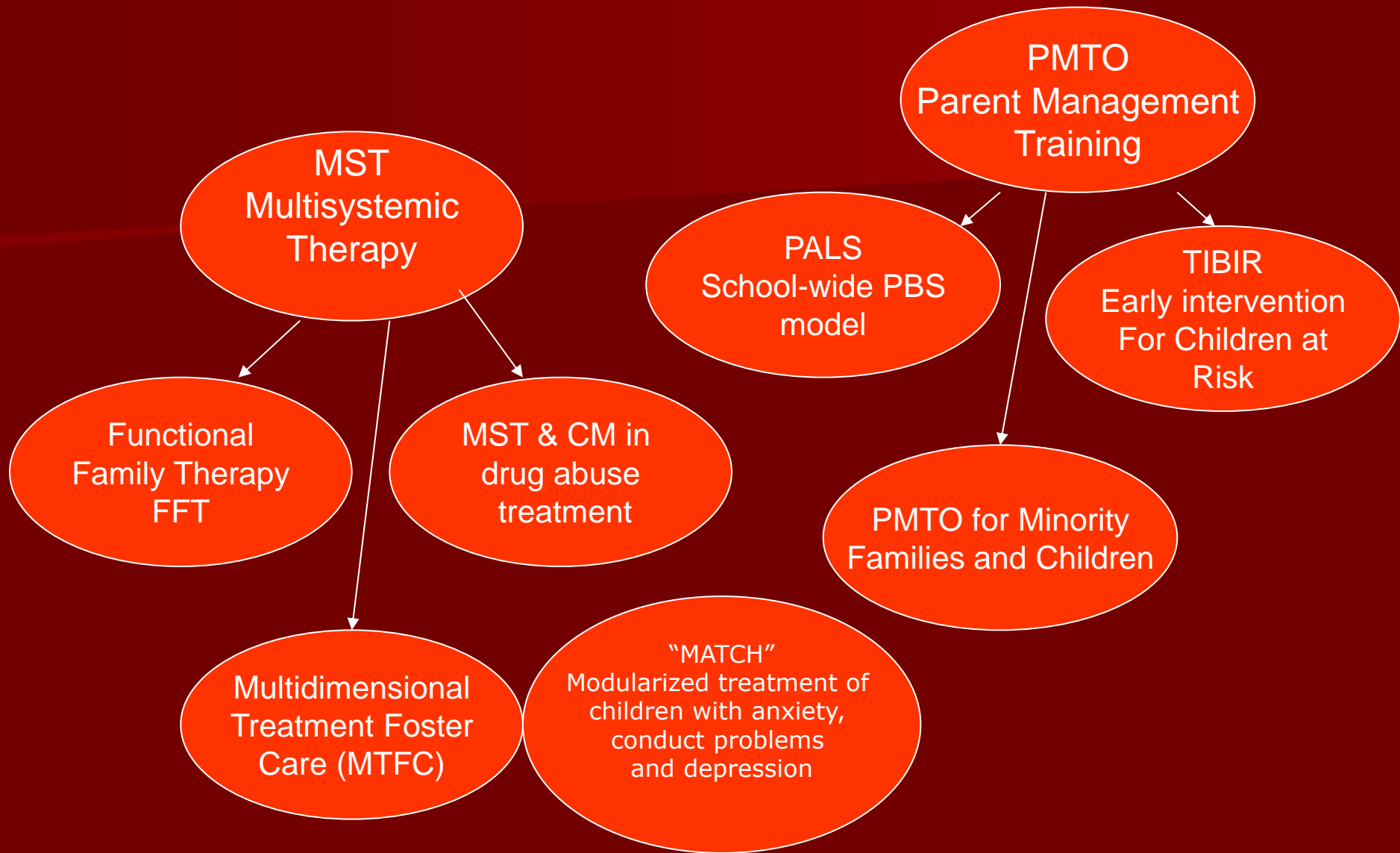
A model for school improvement

- How to change school and staff practices in order to prevent and reduce problem behavior and increase social competence and academic achievements in students?
- **A multi-component model (rather than program):**
 - School-wide (whole school),
 - Evidence based intervention components,
 - Skills based,
 - Positive behavior support,
 - Implementation quality and intervention fidelity,
 - Team based approach with leadership commitment,
 - Differentiated interventions (universal, selected and indicated).



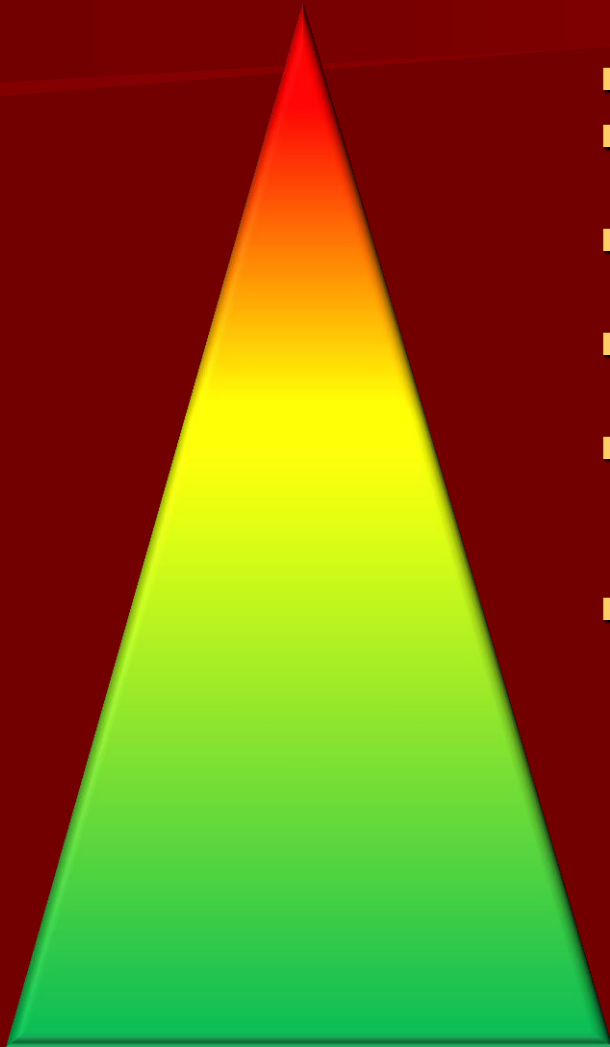
Randomized controlled trials

- No alternative method to RCT has so far proven to be able to give an equally credible answers to the question about causality,
- Researchers at the Norwegian Center for Child Behavioral Development have conducted a string of randomized trials of evidence-based family and school interventions targeting children and youth with conduct problems,
- The programs have almosts exclusively been implemented and evaluated in the Child Welfare Services and in Child and Adolescent Psychiatric services.



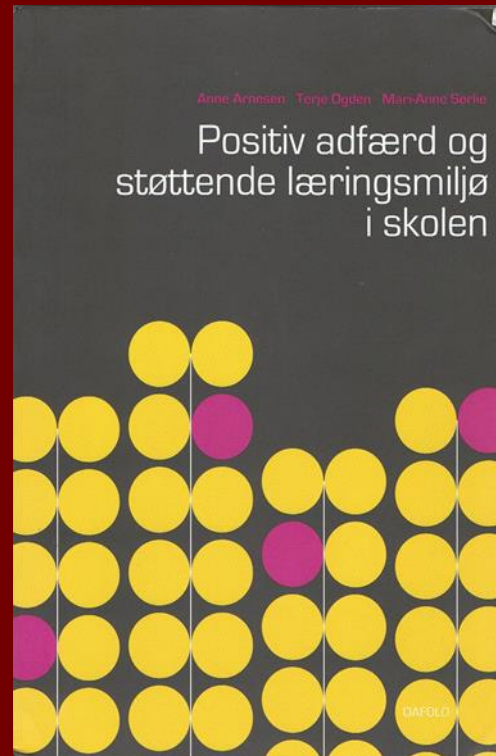
Family, school and community based interventions

The adapted school-wide positive behavior support and intervention model in Norway: PALS



- In order to:
- adapt ordinary education to fit all students (inclusion)
- to reduce the level of student problem behavior (prevention)
- to increase the school outcomes for all students (school climate)
- and to increase the use of evidence-based practices in schools,
- the School-Wide Positive Behavior Support model (SWPBS), (named PALS in Norway) has been implemented in 215 schools across Norway since 2002 (Ogden, 2014).

A handbook describing the model



Implementation strategy

- It takes three to five years to implement the PALS model
- Every school establishes a school team (principal, teachers, staff, school psychologist, and parent representatives) with the responsibility of planning, informing, training, implementing, monitoring and reporting on school interventions and outcomes.
- The teams are being trained locally, and is supervised by a certified PALS trainer,
- Schools use different internet based feedback system based on nationally standardized assessment instruments in order to secure data based decisions, and in order to sustain intervention integrity.

Monitoring implementation quality

- Implementation quality was measured by SAS (Self-Assessment-Survey) related to the school, classroom, and individual level over three years,
- After three years, 75% of the PALS schools (N=18) had implemented the model with quality (minimum 80% on the EBS-SAS survey),
- Universal interventions were satisfactorily implemented in most of the schools (86% - 96%).
- Implementation of more intensive and comprehensive interventions for children at risk (small group and individual interventions) was only successful in 8 of the 28 schools after three years (reaching the 80% threshold).

Evaluation: RCTs and alternative designs

- Randomized Controlled Trials are the best way of drawing conclusions about the consequences of planned change interventions, that is causal conclusions,
- Whenever feasible, the RCT design should be given priority over most other designs,
- But when randomization is impossible, initiatives to eliminate threats to validity introduced by nonrandomized approaches should be taken into consideration in the design phase of the study (Cook & Steiner, 2010; Shadish et al., 2002; Shadish, 2011).

Design considerations

- The RCT design was our design of choice, but only 12 of the 91 schools first invited to the study accepted randomization.
- A nonequivalent comparison group design (NEC) was then applied with the following design elements added:
 - a) Relevant, reliable outcome, context, and process measures
 - b) Multiple assessment points (6 time points)
 - c) Strategies to minimize program contamination, attrition, & low response rates
 - d) Multiple informant groups (students, teachers, parents, principals and school staff)

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ARTICLES

Reducing Threats to Validity by Design in a Nonrandomized Experiment of a School-Wide Prevention Model

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This paper reviews literature on the rationale, challenges, and recommendations for choosing a nonequivalent comparison (NEC) group design when evaluating intervention effects. After reviewing frequently addressed threats to validity, the paper describes recommendations for strengthening the research design and how the recommendations were implemented in a current study. Next, tests were performed in order to investigate whether the added design components had contributed to increased internal validity by creating comparable cluster groups at baseline. In order to estimate the external validity or the potential generalizability of results, the statistical power of the study was calculated up front and representativeness of the participating schools in relation to other schools in Norway was examined. Baseline comparisons indicated that the addition of several design elements, such as the random invitation of multiple, stratified, and active comparison groups, may have reduced significant

Participants (multiple informant groups)



- **65 primary schools** (grades 1-7)
 - 28 N-PALS
 - 20 PAU
 - 18 PPBS



- **12.050 students** (grades 4-7)



- **3.695 staff members** (teachers, assistants, spes.ed.teachers, after-school personell, principals)



- **2.750 parents** (30% randomly selected)

6 measurement points across 4 school years

T1

- Baseline (pre1, *staff only*) - 6 months prior to the intervention.

T2

- (pre2) - beginning of a new school year and at the initiation of the intervention model.

T3

- – end of year 1 with PALS.

T4

- – end of year 2 with PALS (*students & class teachers only*)

T5

- (post) - end of year 3 when the PALS model was expected to be fully implemented.

T6

- – end of year 4 with PALS (1 year follow-up)

School-Wide Positive Behavior Support–Norway: Impacts on Problem Behavior and Classroom Climate

Mari-Anne Sorlie and Terje Ogden

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Preventing Problem Behavior in School through School-Wide Staff Empowerment: Intervention Outcomes

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Examining Teacher Outcomes of the School-Wide Positive Behavior Support Model in Norway: Perceived Efficacy and Behavior Management

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Preliminary outcomes

- Even if multi-informant groups were used in the study, only the staff and student assessments of psychosocial and behavioral outcomes have been analyzed and published, so far,
- These are the primary outcome variables, and have therefore been prioritized,
- Parent evaluations and students' academic achievements remain to be analyzed and published.

Main effects – staff assessments

	Change within group				Difference in change				
	PALS		Control		T1-T3	p	T1-T4	p	<i>d</i>
	T1-T3	T1-T4	T1-T3	T1-T4					
Problem behavior – common areas	-1.22	-2.70	-0.39	-1.19	-0.83	.043	-1.51	.001	0.25
Problem behavior in class	-1.24	-3.13	-1.74	-1.99	0.50	.374	-1.14	.092	0.13
Learning climate in class	0.41	1.77	0.30	0.83	0.12	.737	0.93	.017	0.17
Collective efficacy	1.08	3.13	0.51	0.84	0.57	.165	2.28	.000	0.34
Self-efficacy	2.15	6.54	0.87	4.01	1.28	.176	2.53	.014	0.14
Positive behavior support	-0.17	6.72	-0.88	0.16	0.71	.133	6.56	.000	0.91
Behavior corrections	-0.75	-0.93	-0.67	-0.92	-0.09	.642	-0.02	.943	0.01

Main effects: Student ratings

	PALS		Control		/Change between groups				d
	Pre-Y1	Pre-post	Pre-Y1	Pre-post	Pre-Y1	p	Pre-post	p	
Classroom climate	-0.92	-2.28	-0.74	-1.27	0.09	.74	0.10	.76	0.01
Positive behavior support	1.71	0.34	2.16	0.24	-0.46	.10	0.10	.70	0.01
Behavioral correction	0.21	0.05	0.24	-0.09	-0.03	.76	0.13	.16	0.05

According to students (4-7. grade) in the PALS and control schools, no significant changes in the classroom climate or in teachers behavior management occurred.

Why was there no positive student rated outcomes ?

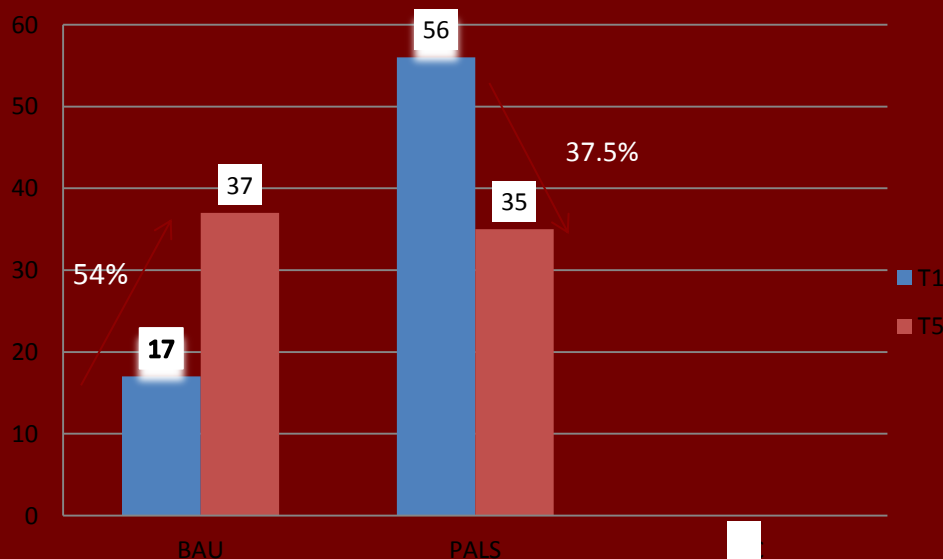
- Modest between-rater agreement is a familiar phenomenon across studies (Rescorla et al., 2013) – also in intervention trials (De Los Reyes, 2011).

* **Possible explanations:**

- Positive teacher response bias
- More uniform school rules and consequent disciplinary practice may not have been experienced by students as unconditionally positive? (particularly for girls),
- Measurement problems (e.g. how many times have you been praised during the last 30 days?).

Does PALS increase inclusion?

- The number of students that were fully or partly placed in segregated settings due to problem behavior declined from 56 to 35 from baseline to post-test in the PALS schools, while the number increased from 17 to 37 in the control schools.



What characterized schools with high vs low implementation quality?

- **School Size:** implementation was most successful in smaller as compared to larger schools,
- **Percentage of trained staff:** schools with the highest percentage of trained staff had the highest implementation scores,
- **Percentage of immigrant students:** Among schools with the highest proportion of immigrant students, only 33% had high implementation,
- **Percentage of problem students:** Implementation was more difficult in schools with a high proportion of students with special educational needs, who were fully or partially segregated, or who were expelled from school.

The importance of implementation quality

- The single most important factor in translating research to practice is to maintain the purity of the original idea throughout the entire implementation process,
- Many competing forces will dilute, defocus and devalue the original model unless someone maintains "iron control" over the process from beginning to end,
- Not only do you have to know when to be **rigid** but you also have to learn where to be **flexible**

Arguments in favor of evidence-based practices in school

- *“It is a paradox that schools as society's primary educational institutions, does not build its practice on research knowledge”,*
- To turn teaching into a research based profession, and strengthen the teachers' professional role and reputation,
- Both researchers and practitioners should be interested in knowledge of “what works”, merging research and experience,
- Limits autonomy and freedom of method choice in order choose among methods that have a documented impact.