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Effectiveness Of an Integrated Anti-Bullying And Sex Education Workshop On Elementary School Teacher's Understanding: a Pre-Experimental Study

Anastasia Arta Uli[1]*, Feri Dwi Jayanti[2], Neddyana Pahlawaty[3], Maisa Hurul Aeni[4], and Rizki Achmad Husaeni[5]

[1,2,4,5]Elementary School Teacher Education Study Program, Faculty of Education,

Universitas Negeri Jakarta, Jakarta, Indonesia

[3]Special Education Study Program, Faculty of Education,

Universitas Negeri Jakarta, Jakarta, Indonesia

Abstract. Child sexual abuse and bullying remain pressing threats to children's safety in primary schools, yet teachers, who are uniquely positioned to prevent and detect these risks, often receive fragmented, single-issue training. This study examined the effectiveness of an integrated anti-bullying and sex education workshop on primary school teachers' understanding, using a one-group pre test- post test pre-experimental design. Participants were 16 teachers (from 17 workshop attendees) at a public primary school in Bekasi City, Indonesia, recruited through total sampling. A five-item multiple-choice instrument assessed understanding before and after a single-session workshop combining interactive lecture, group discussion, and case study methods. Results showed a significant increase in mean understanding scores from 76.25 to 87.50 (0–100 scale), with a medium normalized gain (N-Gain = 0.55) and a statistically significant difference confirmed by the Wilcoxon signed-rank test ($p = 0.014$). Findings support integrating multiple child-protection topics within a single professional development session and extend Kirkpatrick's Level 2 training-evaluation framework to a child-protection context within an ecological-systems perspective on the school as a protective microsystem. Limitations include the absence of a control group and short-term measurement; future research should employ quasi-experimental designs with follow-up assessment.

Keywords: *Elementary School Teacher, Educational Psychology, Bullying, Sex Education*

Email: anastasiauli@unj.ac.id

1. Introduction

The World Health Organization defines child sexual abuse as involving a child in sexual activities that they do not fully understand, cannot consent to, or are not developmentally ready for, and that violate legal or societal norms; globally, an estimated 7–37% of women and 5–10% of men have experienced some form of child sexual abuse during childhood, with markedly higher rates reported across Southeast Asia. Bullying poses a parallel and equally serious threat to children's safety and psychological wellbeing in schools, and the two problems, though distinct, share a common root: the failure of the school environment to function as a protective space for children.

Bronfenbrenner's ecological systems theory conceptualizes the school as a microsystem, the setting with the most direct and immediate influence on a child's development. Within this framework, teachers are key agents who shape the microsystem's protective quality; strengthening teachers' understanding of both bullying prevention and sex education is therefore a plausible lever for making the school microsystem safer as a whole, rather than addressing each threat to children's safety in isolation.

Despite this, teacher training in many primary schools continues to treat bullying prevention and sex education as separate, single-issue programs, if they are addressed at all. In Bekasi City, Indonesia, official data reported an increase in child sexual violence cases from 165 in 2024 to 174 in 2025 (Kementerian Pemberdayaan Perempuan dan Perlindungan Anak Republik Indonesia, 2025), yet teachers in the area had not previously received an integrated, single-session program covering both bullying and sex education, nor had such a program been evaluated using a structured pre- and post-training assessment. Elsewhere, integrated school-based prevention curricula, teacher training combining bullying and sexual-violence prevention (Sukarno Putri et al., 2025), and single-issue programs evaluated with rigorous quasi-experimental designs, have shown that teacher- or classroom-delivered interventions can meaningfully increase knowledge related to child protection (Celik, 2024; Mat Pa et al., 2025); a comparable single-session, integrated program aimed specifically at teachers, evaluated with a structured pre-post design, has not been widely reported.

Beyond the specific problem of bullying and sex education, evaluating whether a training program produces measurable learning gains is a general challenge in professional development research. Kirkpatrick's four-level training evaluation model offers a widely used framework for this purpose, in which Level 2 (Learning) specifically concerns the extent to which participants' knowledge changes as a result of training, typically assessed through pre- and post-training testing. Although the Kirkpatrick model has been extensively applied in corporate and medical education settings (Gupta et al., 2025), its application to teacher training for child-protection topics remains limited.

This study therefore aimed to (1) examine whether an integrated single-session anti-bullying and sex education workshop produced a significant change in primary school teachers' understanding, operationalized as a Kirkpatrick Level 2 learning outcome; and (2) discuss the findings within an ecological-systems perspective on the school as a protective microsystem. It was hypothesized that teachers' posttest understanding scores would be significantly higher than their pretest scores following the workshop (Ha), against the null hypothesis of no difference (H0).

2. Methods

2.1 Research design

This study used a pre-experimental one-group pretest-posttest design, notated O1 X O2 (pretest – treatment – posttest). This design does not include a control or comparison group and therefore cannot rule out alternative explanations for observed change, such as testing effects; its use here reflects the exploratory, single-cohort nature of the workshop rather than a claim of strong causal inference, and is explicitly acknowledged as a limitation in Section 6.

2.2 Participants

Participants were teachers at a public elementary school in Bekasi City, West Java, Indonesia. Of the 17 teachers who attended the workshop, 16 completed the pretest; 14 completed both pretest and posttest, and the remaining 2 completed the pretest only. To retain the full pretest-responding sample, a last observation carried forward (LOCF) imputation was applied to the 2 missing posttest scores, under the conservative assumption of no change; the final analytic sample was therefore N = 16. Participants were recruited through total sampling (all teachers present at the workshop who consented to participate), rather than random or stratified sampling.

2.3 Instrument

Teachers' understanding was measured with a five-item multiple-choice test, administered and automatically scored online. The test is a *maximum performance* measure: participants were asked to answer as accurately as possible, and each item had one keyed correct answer (1 = correct, 0 = incorrect), so the score reflects what teachers know rather than what they typically do or prefer. Items covered the definition and impact of bullying, recognition of forms of sexual violence, age-appropriate sexuality-education content for children aged 9–12, and initial psychological support for victims of violence (Table 3 in the appendix). Raw scores (0–5) were converted to a 0–100 scale.

Content validity was established through expert judgment by two educational psychologists, who reviewed the items against the test blueprint (Table 3) for relevance to the workshop objectives and clarity of wording; the expert judgment indicated that the instrument was 96% feasible to use as pre and post test**.** No formal statistical analysis of validity was conducted.

The reliability of the instrument was not estimated, as no pilot administration was carried out. To limit measurement error, the items were developed from a test blueprint aligned with the workshop objectives, reviewed by an educational psychologist, and administered and scored automatically online under identical conditions at pre test and post test. Nevertheless, the absence of a reliability coefficient, together with the brevity of the test (five items) and the small sample (N = 16), limits the precision of the scores and the generalizability of the findings (see Section 6).

2.4 Procedure

The workshop followed five stages: (a) program briefing with the school; (b) an online pretest completed by participants; (c) a single-session workshop combining interactive lecture, group discussion, and case-study methods, covering bullying prevention and developmentally sequenced sex-education content; (d) an online posttest identical to the pretest; and (e) provision of a digital resource guide and initiation of a school-based teacher learning community for follow-up.

2.5 Data analysis

Pretest and posttest scores were compared descriptively (mean, SD), and individual gains were summarized using the normalized gain (N-Gain) index, categorized as high ($g \geq 0.7$), medium ($0.3 \leq g < 0.7$), or low ($g < 0.3$) (Hake, 1998). A Shapiro-Wilk test indicated that the distribution of score differences departed from normality ($W = 0.738$, $p < .001$); accordingly, the Wilcoxon signed-rank test was used to test the hypothesis of a significant pretest-posttest difference, with statistical significance set at $p < .05$.

3. Results

Table 1 presents descriptive statistics for the pretest and posttest scores (N = 16). Mean understanding increased from 76.25 (SD = 19.62) at pretest to 87.50 (SD = 19.15) at posttest, a relative increase of 14.75%. The Wilcoxon signed-rank test indicated that this increase was statistically significant, $W = 0.00$, $p = .014$.

Table 1.

Descriptive statistics for pretest and posttest scores (0–100 scale)

Measure	N	Mean	SD	Range
Pretest	16	76.25	19.62	40–100
Posttest	16	87.50	19.15	40–100
Gain	**16**	**11.25**	**14.55**	–

The mean N-Gain was 0.55, corresponding to the medium category. Table 2 presents the distribution of participants across N-Gain categories; five participants (31.25%) fell in the high category and two (12.5%) in the medium category, while four (25%) fell in the low category, two of which were LOCF-imputed cases with a gain of zero by construction. Five participants (31.25%) had already reached the maximum pretest score and could not be assigned an N-Gain value, a ceiling effect discussed further in Section 4.

Table 2.

Distribution of N-Gain categories (N = 16)

N-Gain category	n	%
High ($g \geq 0.7$)	5	31.25
Medium ($0.3 \leq g < 0.7$)	2	12.50
Low ($g < 0.3$)	4	25.00
Not computable (ceiling at pretest)	5	31.25
Total	**16**	**100**

4. Discussion

The significant pretest-posttest increase observed here is consistent with Level 2 (Learning) of Kirkpatrick's training evaluation framework, under which a training program is considered effective at the learning level when participants demonstrate measurable knowledge gains from pre- to post-assessment. Applications of this framework outside the corporate training

context in which it originated, such as its recent use in evaluating an integrated teaching program for medical students (Gupta et al., 2025), similarly relied on paired pre-post assessment to demonstrate learning-level effectiveness; the present findings extend this application to teacher training for child protection, a domain in which structured Level 2 evaluation has been comparatively rare.

The medium N-Gain observed in this study (0.55) is lower than the high N-Gain (0.85) reported in a comparable single-session interactive teacher workshop on a technical instructional topic (Setiawati et al., 2026, as compared informally here). This difference may reflect the greater conceptual and emotional complexity of bullying and sex-education content relative to technical pedagogical skills, which may require more extended or repeated exposure to shift understanding substantially. It is also broadly consistent with quasi-experimental evidence that child-protection knowledge interventions can produce significant, though sometimes moderate, gains relative to a comparison condition, as reported in a quasi-experimental evaluation of a sexual-abuse-prevention program among Malaysian primary school children (Mat Pa et al., 2025) and in a systematic review of school-based child sexual abuse prevention programs (Celik, 2024).

Five participants (31.25%) had already reached the maximum possible score at pretest, producing a ceiling effect that limited the measurable range of improvement for this subgroup. Rather than indicating a weakness in the workshop, this pattern suggests that some teachers already possessed strong baseline understanding, plausibly reflecting prior teaching experience or informal exposure to similar content; it also illustrates a general measurement limitation of pre-post designs when baseline competence is heterogeneous, and points to a need for instruments with sufficient ceiling headroom in future evaluations.

Viewed through an ecological-systems lens, the intervention targeted the school microsystem indirectly, by strengthening the understanding of teachers as the adults most directly and continuously present within that microsystem. Because bullying and sexual abuse both represent threats originating within or adjacent to the same microsystem, an integrated single-session approach is conceptually coherent: it addresses two related sources of risk to the same immediate environment in one coordinated intervention, rather than treating them as unconnected training needs.

5. Conclusion

This study found that a single-session, integrated anti-bullying and sex education workshop produced a statistically significant and medium-sized increase in primary school teachers' understanding, evaluated as a Kirkpatrick Level 2 learning outcome. The findings support the feasibility of integrating multiple child-protection topics within one training session for primary school teachers, and situate the school as a protective microsystem in which teacher understanding is a plausible lever for broader child-protection outcomes.

6. Implication

Theoretically, this study extends the application of Kirkpatrick's Level 2 training-evaluation framework beyond its more common corporate and medical-education contexts into the child-protection training domain, and illustrates how ecological systems theory can frame teacher training as an indirect intervention on the school microsystem. Practically, the results suggest that schools and training providers can feasibly combine anti-bullying and sex-education content within a single workshop session rather than treating them as separate programs, without an apparent loss of measurable learning effectiveness. For policy and practice, given the observed ceiling effect among some participants, future training programs

may benefit from a brief pre-assessment to differentiate content depth for teachers with varying baseline understanding, and from follow-up sessions to consolidate learning beyond the immediate post-training measurement captured in this study.

This study is limited by its pre-experimental, single-group design without a control group, its short-term outcome measurement, and its small sample size (N = 16) at a single school, which restrict causal inference and generalizability. Future research should employ quasi-experimental or randomized designs with a comparison group, larger and multi-site samples, and follow-up measurement to assess retention of understanding over time. The instrument's reliability was not tested, and its psychometric evidence was limited to content validity based on expert judgment. Future research should pilot-test the instrument and report reliability estimates (e.g., KR-20) using a larger sample and a longer test.

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Appendix

Table 3 is summarizes the mapping between the five instrument items and the constructs they were designed to measure.

Table 3.

Instrument item-to-construct mapping

No.	Construct	Indicator	Item
1	Bullying	Understanding of the definition/concept of bullying	1
2	Sex education	Recognition of forms of sexual violence against children	2
3	Sex education	Understanding of age-appropriate sexuality-education content for children aged 9–12	3
4	Bullying	Understanding of the impact of bullying on children	4
5	Psychological first support	Understanding of initial psychological support steps for victims of violence	5