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Using the Flipped Classroom Model to Prevent Sexual Violence in Special Needs Children

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Abstract

The Flipped Classroom learning is designed to develop a future learning model for Special Needs Children (SNC). This article investigates students' perceptions of the impact of learning transitions on the prevention and handling of sexual violence in integrated children with disabilities using gender mainstreaming principles and teacher beliefs. This research utilizes a mixed methods approach within a concurrent design structure that combines primary research using quantitative surveys with semi-structured qualitative interviews. The delivery of sex abuse material through traditional methods such as lectures or tutorials is replaced with flipped Classroom learning through instructional videos. This study found that the transition was generally well-received by students with SNC in inclusive schools. Engaged students tended to perform well in the flipped Classroom learning environment. However, scaffolding in the form of teacher beliefs and gender mainstreaming to prepare students for the transition to flipped Classroom learning is key to promoting knowledge acquisition, performance, engagement, collaboration, and overall positive student experiences.

1. Introduction

The level of sexual victimization of children (aged 0-18 years) with disabilities is at a higher risk of becoming victims of sexual crimes compared to non-disabled children [1–3]. Sexual violence against disabled females is at a higher risk than disabled males [4]. Nevertheless, disabled boys have a higher risk of experiencing repeated child sexual abuse (CSA) than girls [5]. A very high level of sexual victimization has a detrimental impact on

psychological, emotional, and cognitive development [6–8].

Individuals who experience victimization during childhood have different levels of cognition compared to those who do not experience it. Childhood abuse has an impact on the occurrence of delinquency, substance abuse, and adolescent involvement in sexual offenses, while sexual interest and loneliness are indirect consequences of childhood trauma [9]. Childhood trauma has a causal relationship and a higher risk of deviant behavior occurring during adolescence and adulthood. Victimization during childhood often occurs in various environments, developmental stages, and with different behaviors, which is subsequently known as polyvictimization [10]. Polyvictimization is a highly significant public health issue, with nearly 1 in 18 adolescents (8.8%) being polyvictims experiencing 18 or more types of victimization [11]. Other research found that 64.74% of children have experienced at least one type of polyvictimization, while 33.06% have experienced lifetime polyvictimization [12].

The results of a meta-analysis conducted by previous researchers on 24 studies involving 2,526 participants revealed that this method produces a substantial and moderately positive effect on students' learning achievement compared to traditional or conventional learning [13–16]. Flipped classroom is one form of blended learning where learning is moved outside the classroom with the aid of online technology before attending face-to-face sessions [17–22].

Every individual has the potential to become a victim or perpetrator of victimization. Sexual harassment, especially involving special needs children (SNC) still often occurs in society [23]. The circumstances of SNC may not necessarily allow them to comprehend criminal actions, necessitating close guidance from teachers at school. The mentor should possess diligence, patience, and basic communication skills to convey information persuasively, using invitations and explanations grounded in facts. In the era of globalization, implementing blended learning has become significant. Students find it easier to adapt to technology, and its utilization has a positive impact on them. Therefore, efforts should be directed towards creating a learning model that actively engages students. In this research, the author aims to introduce a learning model applicable during the teaching and learning process, believed to address issues related to explaining facts about sexual violence against SNC, specifically through the flipped classroom learning model.

Flipped classroom learning has the potential to play a positive role in student engagement, behavior, cognition, and emotional aspects of learning [24]. The flipped classroom teaching method is adop from a learning model previously developed by the researcher, with the addition of elements related to gender mainstreaming and teacher beliefs in the in-class process [25–27]. Gender differences affect the competitive behavior of school children aged 7 to 16 years [28]. While teacher belief is a crucial variable in the study of teaching, as educational pedagogy heavily considers the central role of beliefs [29–31]. Overall, flipped classroom learning provides students with the opportunity to prepare at home before attending classes, resulting in a shift in how teachers deliver content from traditional in-class face-to-face sessions to an online format using technology.

Aceh is one of the provinces in Indonesia that has experienced a sharp increase in sexual violence in recent years [32]. Almost every week, Aceh newspapers report cases of sexual harassment in the province. Perpetrators typically come from close associates, and most of victims are individuals with disabilities. Currently, the Flipped Classroom learning method has been widely adopted by educators at all levels and disciplines. The Flipped Classroom was introduced by Jonathan Bergman and Aaron Sams in the field of chemistry in Connecticut, United States [33]. The core principle of the Flipped Classroom is to exchange or flip activities typically conducted in class with home-based activities. The implementation of the flipped classroom learning model in schools is anticipated to be an innovative and engaging approach to learning for students with diverse learning styles. This method is expected to assist students with special needs, particularly those identified as slow learners, in becoming more active participants in the learning process by encouraging them to ask questions and express their opinions with confidence. Therefore, foundational research that integrates 'Flipped Classroom' learning with gender indicators and teacher beliefs to prevent cases of sexual violence against students with special needs in inclusive schools.

2. Materials and Methods

2.1. Research design

This research employs a mixed-methods approach in a concurrent design structure, combining primary research using quantitative surveys with semi-structured qualitative interviews [34, 35]. The quantitative survey was administered to students identified as categorized SNC registered in Inclusive Elementary Schools under the Langsat Cluster in the city of Banda Aceh, Indonesia. Data analysis was conducted independently, followed by

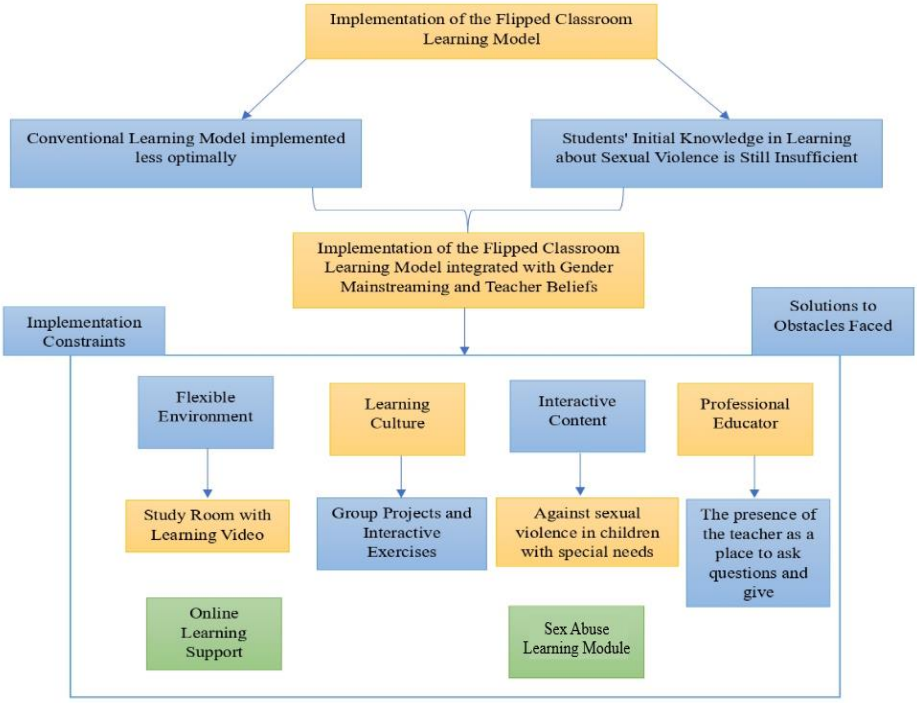

Figure 1. Implementation of the flipped classroom learning model integrated with gender mainstreaming and teacher beliefs.

triangulation and integration to present a pragmatic view of the findings. Based on previous observations, the SNC in this research were classified into four main groups: Children with Disabilities, Slow Learners, Children with Specific Learning Difficulties (including dyslexia, dysgraphia, and difficulties in mathematics), and Gifted Children. Subjects for this research were selected from within these four categories.

2.2. Procedure for Data Collection

The collection of quantitative data was conducted through an initial survey by the researcher, which involved observing the characteristics of the children. For qualitative data collection, the surveyed students were asked to participate in interviews. The semi-structured interviews, each lasting 45 to 60 minutes, covered the following key areas: 1) Expectations and experiences of learning (P1, P4); 2) Performance aspects (P1, P2, P3); 3) Methods and outcomes of learning/Knowledge acquisition (P3, P4); 4) Interaction with online resources (P2). These sessions were recorded and transcribed verbatim. Analysis included content examination of subjects, detailed field notes, and observer comments, all documented in MS Word and Excel. To ensure anonymity, participant identifiers were replaced with pseudonyms. The qualitative data underwent thematic coding and examination, both deductively and inductively, using NVivo 12, a computer-aided qualitative data analysis tool (CAQDAS) [36]. This qualitative analysis was then combined with quantitative results to form comprehensive findings. The framework of flipped classroom learning implementation can be elaborated in the Figure 1.

Quantitative data were obtained from the research hypotheses formulated as follows:

- H1: The flipped classroom learning provides a positive impact on the learning experience of SNC in inclusive schools;
- H2: Engagement with online materials has a positive impact on students' knowledge acquisition about sex abuse;
- H3: Acquiring knowledge about sex abuse has a positive impact on efforts to prevent sexual violence against SNC in inclusive schools;
- H4: Performance has an impact on students' overall learning experience.

The information gathered from the attitude questionnaires is processed through both inferential and descriptive statistical methods. These techniques are employed to determine and contrast the average scores from evaluations conducted before and after implementing the flipped classroom approach. A t-test, specifically designed for related data, is used to assess the significance of the mean differences. Furthermore, the questionnaire results are subjected to descriptive and inferential statistical analysis to evaluate and compare achievement scores. For a more comprehensive data analysis, Analysis of Covariance (ANCOVA) is utilized.

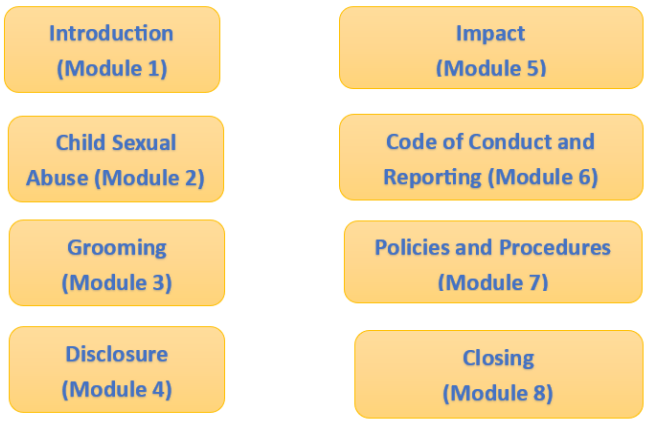

Figure 2. Sex abuse teaching module.

The instructional media development model in this research uses the Multimedia Development Life Cycle (MDLC) model, which is a multimedia product development cycle that begins with product analysis, product development, and launch phases [37]. The implementation of flipped classroom integrated with gender mainstreaming and teacher belief in this research is divided into the following categories:

- Precedent session: In this session, students are expected to take the following actions before they attend their regular classes for the week:
    - Watching videos
    - Concept understanding through expert lectures
    - Attempting pre-test based on the understanding of video content

  The learning material, in the form of videos and PowerPoint presentations with a duration of approximately 30 minutes, is uploaded to the website. Students watch, read, and complete exercises based on the concepts, ensuring they have a basic understanding. They also engage in discussions to clarify any ambiguities.

- In class session: This session focuses on the following actions when students are in the classroom:
    - Summary of the content presented in the expert lecture video.
    - Template-solving session.

  The issues discussed in this template are broadly classified into three categories:
    - Questionnaire category: This section contains questions that assess the understanding of basic concepts. The questionnaire was distributed to 8 students at Public Elementary School 54 in Banda Aceh City to assess the effectiveness of the flipped classroom learning model. The questionnaire consists of three parts. The first part is used to collect demographic details of students, containing questions to investigate students' preferences for the delivery of concepts in learning. The second part contains questions to evaluate students' attitudes toward flipped classroom learning, both before and after class activities. The third part assesses student performance, including the knowledge acquired and the overall learning experience on a five-point Likert scale.
    - Individual exercise category: In this section, learners are presented with several questions deemed necessary to apply the specific concepts learned to master the application of the summarized concepts.
    - Group exercise category: In this section, students are confronted with higher-level problem-solving and generate multiple solutions.
- Post class session: Students are intended to complete multiple-choice questions as part of the post-test conducted after the classroom session. The questions framed in the post-test cover the entire topic discussed. Each course segment consists of a minimum of 10 objectively stated questions, and the test duration is 20 minutes.
- Assessment: This pedagogical activity is also evaluated as part of the assignment, where the results of the post-test conducted by students are considered.

Table 1. Assessment criteria.

No.	Assesment Criteria	Weight-age
1	Pre-test Score	20%
2	Assignments	30%
3	Post-Test Score	50%

Structure distribution module: The learning implemented using the flipped classroom is distributed into several modules as depicted in Figure 2. Each module includes video attachments, pretest questions, templates, and post-test questions.

2.3. Data Analysis

The research test design was conducted through field testing with a class consisting of 8 children who were provided with activities through modules. Subsequently, a questionnaire was administered with two teachers as participants. This pilot test will determine the subsequent evaluation process. The test design in this research was conducted using an experimental design on group pre-post-tests. This research was conducted through a pre-test to post-test assess the effectiveness and efficiency of using sex abuse learning modules to prevent all forms of sexual violence against SNC in inclusive schools.

$$O1 \; X \; O2 \qquad (1)$$

Where $O1$ is pretest results, X is treatment the sexual education module, and $O2$ is post-test results.

The assessment of the effectiveness of flipped classroom learning activities encompasses four key parameters. Firstly, the analysis includes the percentage of students who made multiple attempts at the pre-test. Secondly, it evaluates student performance in both the pre-test and post-test. The third parameter considers the percentage of level 3 questions embedded in the assessment. Lastly, feedback provided by students constitutes the fourth element in gauging the efficacy of the flipped classroom approach. The survey question summary consists of six essential elements: preference, preparedness, elements of online learning, knowledge gained, performance, and learning experience. In addition to frequency, mean, and correlation calculations for analyzing quantitative data, structural equation modeling techniques are also used (PLS-SEM) [38].

3. Results and Discussion

The sex abuse model developed in flipped classroom learning is instructional material that contains relatively short and specific content designed to achieve learning objectives. The sex abuse module is related to three aspects of child development: psychological, emotional, and cognitive development. The module is structured to encompass all interdependent and complementary activities and objectives, all of which are sequentially implemented to achieve the learning goals. Evaluating the learning activities includes assessing contributions made by students individually as well as in teams. The assessment criteria for evaluating student performance are shown in Table 1 [39].

Overall, based on the analysis of questionnaire responses from 8 respondents, it is evident that the majority of students (75.6%) agree or strongly agree that the flipped classroom model can enhance their learning experience (mean = 4.23, SD = 1.01). The t-test results indicate a statistically significant difference between students who underwent flipped classroom learning compared to conventional teaching (P<0.000). Students reported that they gained more knowledge about sex abuse (mean = 4.56, SD = 0.56) and had better knowledge about sex abuse in the flipped classroom learning model compared to lecture and presentation models, with a significant significance level (P<0.000).

Furthermore, based on the qualitative responses to the question 'What is your opinion on the shift from lecture and presentation-based learning to flipped classroom learning?' students mentioned that flipped classroom learning is more effective for their learning, especially for SNC. Signs of satisfaction were also evident in the students' responses as seen in the qualitative data, with identified responses such as 'definitely like it,' 'satisfying,' 'gained an interesting experience,' and 'acquired the knowledge I wanted.'

The results of the structural model path analysis are summarized in Table 2. Based on the analysis, it is evident that the developed flipped classroom learning model has been able to explain a significant variance in the learning experience of SNC in inclusive schools (R^2 = 0.59; β= 0.77, P=0.00). However, these findings can only demonstrate results in teaching sex abuse to special needs students, so the effectiveness of the flipped classroom teaching model greatly depends on the structure of the material to be taught to SNC in inclusive schools. Here, special attention from academics is also crucial, with Teacher Belief being a determinant of the success of special needs students in organizing flexible learning activities. In the implementation of flipped classroom learning, there needs to be good alignment between resources and learning activities to have a positive impact on the overall learning experience. These findings support previous research by Mutiawati, which stated that motivational orientation and teacher support influence student learning behavior [40, 41]. The score R^2 is low because

Table 2. Relational pathways for the hypotheses.

Hypothesis	Proposed path	Path coefficient (β)	R^2	f^2	Conclusion
H1	FC-LE	0.77[a]	0.59		S
H2a	E-KG	0.62[a]	0.17	0.21	S
H3a	E-P	0.42[a]	0.31	0.05	S
H3b	KG-P	0.43[a]		0.22	S
H4a	KG-LE	0.33[a]	0.24	0.10	S
H4b	P-LE	0.23[a]		0.05	S

Note: Indicate P < 0.00, LE: Learning Experience, KG: Knowledge gained (KG), P: Performance

Table 3. Elements of online learning.

Elements of online learning	Mean rating	Standard Deviation
Guru's presentation slides	4.23	0.81
Embedded videos	4.21	0.93
Group discussion assessment	3.82	1.21
Links to other web pages	3.72	1.06
Reading links	3.35	1
Links to social media	3.78	1.09

Note: Indicate P < 0.00

there are still students who experience learning difficulties at home, especially due to a disconnection between reading materials and classroom activities.

In Table 2, it is also evident that there are overall differences in the knowledge acquired and student performance. However, in structured interviews, it was also found that students' unfamiliarity with this model posed some challenges. One of the respondents stated, 'Actually, in the first two modules, I wasn't quite ready because I wasn't accustomed to the flipped classroom learning process, but in the subsequent modules, I felt more comfortable, so I can say that I'm ready.' In the initial weeks of learning, students experienced a higher cognitive load [42]. This pressure arises because students simultaneously adopt a new learning approach and delve into new material to expand their knowledge. Consequently, in this context, students require more support from teachers in the flipped classroom learning environment, especially during the initial weeks of starting a subject. Interview results state, "In my opinion, guidance during the introductory sessions in the first few weeks, with teacher support related to the learning process, is something I really need." These findings confirm that while teacher belief may not be a significant predictor, the teacher's belief indicator in providing scaffolding to students in their learning process will help facilitate the transition for students to switch to flipped classroom learning and positively enhance students' learning motivation [43, 44].

Another important finding from this research is that students who participated in flipped classroom learning were more capable of cooperating and actively participating in group activities compared to traditional classes. One student stated “the most valuable thing for me in flipped classroom learning is team discussions because each of us has a different understanding of the topics provided in the module, which sometimes leads to bias. So, my friends and I help each other clarify misunderstandings about something”. Such a learning environment provides students with the opportunity to grasp knowledge and engage in social learning activities. Students are encouraged to generate and share their learning outcomes, engage in discussions, debates, or presentations, offer critiques, provide ideas, and ask questions. Environments like these can provide students with the space to construct external representations of their knowledge and share them with their peers.

In flipped classroom learning, online learning activities such as watching videos, completing online quizzes, and assignments on the discussion board are an integral part that requires students to report their engagement with the online activities used. Findings in Table 3 indicate that there are no significant differences in students' average scores and the soft skills/hard skills possessed by students.

These findings serve as a reference for how students learn in the flipped classroom learning environment, where preparation before class begins with students acquiring prior knowledge by watching videos, completing online quizzes, and detailed discussion assignments. These tasks are completed by students to receive formal assessments. Subsequently, between pre-work and class time, students flexibly review and reflect on the upcoming content before attending the next class. In this session, students have the opportunity to apply, clarify, share, or expand their knowledge and ideas with peers. "It is known that after the flipped classroom learning process, 28% of students can use the learning

materials throughout the semester. Students can access presentation slides to reflect and revise the knowledge they have acquired or check readings they haven't understood. Therefore, students can gain additional knowledge and new ideas acquired during the flipped classroom learning process while others consolidate their knowledge and work on assignments".

The transition period to the flipped classroom learning environment, based on the data obtained, has been able to actively encourage students to develop new learning methods, especially for students with disabilities with specific needs. From the learning process of the sex abuse material, it has been proven that students are more proficient in managing their own learning processes compared to other students who are still experiencing difficulties and require more assistance and time to adapt to their new environment. The qualitative and quantitative findings from the flipped classroom learning activities indicate that students' performance is related to their abilities and attitudes in preparing themselves for flipped classroom learning. Their engagement with online sex abuse materials also shows a multi-faceted and dynamic nature, coupled with maximum teacher belief support to help them acquire and expand their knowledge of sexual violence, whether committed by close individuals or others in their environment. This then leads the researcher to the assumption that to support students' knowledge acquisition, performance, and positive learning experiences for SNC in inclusive schools, active student involvement in the learning process, teacher support, and flexible gender mainstreaming are required. It is also important to consider an approach to learning that engages students from various perspectives and is dynamic in the context of teaching SNC in inclusive schools.

In this study, the sampled students are specifically those identified as SNC. The researcher deliberately focused solely on the singular topic related to learning about sexual violence in SNC. However, the primary goal of implementing the flipped strategy is to use a preferred learning approach for students, namely, videos. Other factors, including methods, class size, and interpersonal relationships, may influence students' negative attitudes before the use of the flipped classroom.

4. Conclusions

The writing of this article discusses the learning experiences of SNC in inclusive schools within the flipped classroom environment. These findings highlight the diversity of characteristics among SNC, their autonomy, and readiness to encourage knowledge acquisition, performance, and overall learning experiences in inclusive schools. In terms of attitude, SNC with a prepared and proactive learning mindset appear to have more positive learning experiences. Teachers in inclusive schools can create an engaging learning environment through the use of instructional media and the arrangement of modules taught to instill agency, ownership, and student collaboration in the learning process.

The research findings indicate that flipped classroom learning has a positive impact on the attitudes of students with special needs regarding the understanding of the subject of sexual violence. The flipped classroom strategy provides a platform for students to independently learn at home repeatedly, enabling them to achieve an optimal understanding of the concept of sexual violence. Additionally, flipped classroom helps students learn at their own pace, resulting in a better comprehension of the concept of sexual violence in school-age children. Although flipped classroom learning requires the use of data to download videos, students can also transfer videos through flash drives or other means among themselves.

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