



Teachers' Cognitive Engagement Orientation towards *Subtitled Video-Based Learning* for Deaf Students

Zaenal Abidin^{1*}, Bima Prasetyo², Setyo Wuri Kartika Nugraheni³

^{1,2}Ma'arif University of Nahdlatul Ulama Kebumen, Indonesia

³Sultan Agung Islamic University, Indonesia

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Abstract

This research is motivated by the importance of using appropriate learning media for deaf students, one of which is subtitle- based learning videos . The use of subtitles helps deaf students understand the material because the information is presented through visuals and text simultaneously. This study aims to analyze Teachers' Cognitive Engagement Orientation Toward Subtitle - Based video learning for Deaf Students at SLB BC Swadaya Masyarakat Semarang. The study used a quantitative approach with a descriptive design. The research participants were teachers who taught deaf students and had used subtitle- based videos in learning. Data were collected using a 1–5 Likert scale questionnaire that had been validated by academic experts and special education practitioners. The results showed that the research instrument obtained a very feasible category with an average validation of 0.988 and a feasible category in the practical test with an average of 0.785. In addition, the results showed that the orientation of teachers' cognitive engagement was in the good to very good category in all research dimensions. The dimensions of autonomy-supportive orientation, relatedness-supportive orientation, and agentic engagement orientation obtained the highest scores, while competence-supportive orientation and cognitive engagement orientation still showed some limitations. The use of subtitle- based learning videos is considered to help deaf students understand the material, increase learning engagement, and support communication during the learning process. However, several aspects, such as student learning independence, video-based learning activities, and reflection on understanding, still need improvement to optimize the use of subtitled videos in the learning of deaf students

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INTRODUCTION

Current developments in learning technology encourage teachers to use media that are more engaging and easier for students to understand, including those with hearing impairments. One medium that is increasingly being used is subtitle- based learning videos. For deaf students, subtitles help them understand the material because information is conveyed not only through the teacher's voice or explanations but also through readable text. The use of subtitles in learning videos is important because deaf students rely more on visual abilities to receive information during the learning process (Aozora et al., 2024).

In special education settings, teachers play a crucial role in determining appropriate media for students' needs. Teachers need not only to use media but also to engage cognitively in selecting, understanding, and adapting learning media to achieve learning objectives (Purwanto et al., 2024).

* Corresponding author:

Zaenal, et al., Universitas Ma'arif Nahdlatul Ulama Kebumen, Indonesia. ✉ zae04102000@gmail.com



The orientation of teachers' cognitive engagement toward the use of subtitle - based video learning is crucial because it relates to how teachers perceive, use, and optimize these media to aid the understanding of deaf students (Papageorgiou et al., 2025).



Figure 1. Research Location

Based on initial observations at the Community-Based Special Needs School (SLB BC Swadaya Masyarakat Semarang), the use of learning media is still dominated by simple slides, writing on the board, and direct explanations from teachers. During the learning process, several obstacles were encountered by deaf students. Text in learning media, such as slides or books, often uses abstract terms, making them difficult for students to understand. Furthermore, students also struggle when having to view learning media while simultaneously paying attention to the teacher's lip movements or sign language. This condition easily distracts students and reduces their understanding of the material.

On the other hand, the use of subtitled instructional videos has not been optimally utilized in the learning process. Some teachers use videos only as supplementary media, rather than as a primary learning strategy. However, subtitled videos can help students follow the material more focused because visual and textual information are presented simultaneously (Orak & Turan, 2024). This suggests that teachers' orientations toward the use of subtitles require further study, particularly regarding their cognitive involvement in the learning process of deaf students.

Previous research has shown that subtitles in instructional videos can help deaf students understand the content, increase their learning attention, and enrich their vocabulary (Ningsih et al., 2025). However, most research still focuses on the effectiveness of media on student learning outcomes. Research examining teachers' cognitive engagement orientations toward the use of subtitle - based video learning is still limited, particularly in special schools. This research is important because it can provide insight into how teachers view and use subtitle- based videos in teaching deaf students. Furthermore, this research is also expected to provide input for teachers in developing learning that is more appropriate to the needs of deaf students.

Based on the description, the purpose of this study is to analyze teachers' cognitive engagement orientation toward subtitle-based video learning for deaf students at SLB BC Swadaya Masyarakat Semarang. The novelty of this study lies in its focus on examining teachers' cognitive engagement orientation toward the use of subtitle -based learning videos for deaf students. Previous studies have focused more on the effectiveness of subtitle media on student learning outcomes, while this study focuses on how teachers understand, utilize, and integrate subtitle - based video learning in the learning process of deaf students.

METHOD

3.1 Research Design

This study employed a quantitative approach with a descriptive design (Sugiyono, 2023). This design was used to describe teachers' cognitive engagement orientations toward *subtitled video-based learning* for deaf students. This quantitative descriptive study was chosen because it aimed to obtain an overview of teachers' perceptions and practices in supporting student learning engagement through the use of *subtitled videos*.

This research is based on *Self-Determination Theory* (SDT), which emphasizes support for the



needs of autonomy, competence, and relatedness in learning (Peters, 2023). Furthermore, this study also adopted the *Cognitive Engagement Framework* to identify teacher engagement orientations, including *behavioral engagement*, *cognitive engagement*, *emotional engagement*, and *agentic engagement*.

3.2 Research Participants

Participants in this study were teachers who teach deaf students at the Community-Based Special Needs School (SLB BC Swadaya Masyarakat) in Semarang. Participants were selected using a purposive sampling technique, with the criteria being teachers who had previously used *subtitle-based videos* in their learning.

3.3 Research Instruments

The research instrument used a closed questionnaire with a Likert scale of 1–5, namely:

Table 1. Likert Score Interval

Score	Category
1	Strongly Disagree
2	Don't agree
3	Neutral
4	Agree
5	Strongly agree

The questionnaire was structured based on dimensions in *Self-Determination Theory* and the *Cognitive Engagement Framework*. The instrument consists of 28 statements divided into seven dimensions:

1. *Autonomy-Supportive Orientation*
2. *Competence-Supportive Orientation*
3. *Relatedness-Supportive Orientation*
4. *Behavioral Engagement Orientation*
5. *Cognitive Engagement Orientation*
6. *Emotional Engagement Orientation*
7. *Agentic Engagement Orientation*

Each statement item aims to measure teachers' orientation in supporting the involvement of deaf students during learning using *subtitle-based videos*.

In addition to closed statements, at the end of the questionnaire a suggestion and input column is provided to provide space for respondents to express their opinions regarding the use of *subtitled videos* in learning for deaf students.

3.4 Instrument Validity

The research instrument was validated by two validators, consisting of an academic expert and a special education practitioner. Validation was conducted to determine the suitability of the instrument's content, the clarity of the language, and the relevance of each indicator to the research objectives (Sundayana, 2014).

3.5 Data Collection Techniques

Data collection was conducted through a survey using a questionnaire. The questionnaire was administered to teachers both in person and online. Respondents were asked to tick (✓) the answer that best reflected their experience using *subtitle-based videos* in teaching deaf students.

* Corresponding author:

Zaenal, et al., Universitas Ma'arif Nahdlatul Ulama Kebumen, Indonesia. ✉ zae04102000@gmail.com



3.6 Data Analysis Techniques

Data were analyzed using descriptive statistics. The analysis was conducted by calculating the average value (*mean*), *percentage*, and *standard deviation* for each research dimension. The results of the analysis were used to describe the level of teacher engagement orientation towards subtitled video-based learning for deaf students.

RESULTS AND DISCUSSION

Result

1. Feasibility of Research Instruments

Before the instrument was used in the main study, a feasibility test was conducted by **special education academics** and **practitioners (special education teachers)** . This test aimed to ensure that the instrument was appropriate in terms of content, construction, language, and technique, and relevant to the learning context of deaf students.

Table 2. Instrument Validation Results by Academic Experts

Assessment Aspects	Score	Category	Information
Content Eligibility	25/25	Very Worthy	Instruments according to research objectives, theories, and characteristics of deaf students.
Construct Feasibility	25/25	Very Worthy	The item arrangement is systematic, clear, and able to measure the orientation of teacher cognitive involvement.
Language Eligibility	19/20	Very Worthy	The language is academic, consistent, and communicative, although there is still some improvement in sentence clarity.
Technical Feasibility	15/15	Very Worthy	The instructions, format, and layout of the instrument are user-friendly and systematic.

Validation results showed that the instrument obtained a total score of 84 with an average of 0.988, categorizing it as highly appropriate. This indicates that the instrument is theoretically sound and suitable for measuring teachers' cognitive engagement orientation. The instrument was then tested for understandability and practical use by teachers in the field to determine its suitability to actual learning conditions.

Table 3. Results of Practical Feasibility Test of Instrument

Assessment Aspects	Score	Category	Information
Suitability of Learning Practices	16/20	Good	The instrument is quite appropriate to the learning conditions and experiences of teachers of deaf students.
Instrument Understanding	12/15	Good	The language and sentences in the instrument are easy to understand and not confusing.



Eligibility for Use	11/15	Good	The instrument is easy to use and the charging time is quite efficient, but the layout still needs improvement.
Benefits of Instruments	12/15	Good	The instrument is considered capable of describing teacher cognitive involvement and is useful in evaluating learning.

The practical test results showed a total score of 51 with an average of 0.785, categorizing it as feasible. The instrument was deemed easy to use, appropriate for the learning needs of deaf students, and understandable by respondents. Based on these two results, the instrument was deemed suitable for use in the main study.

2. Research Results (Teacher Questionnaire)

After the instrument was declared suitable, a questionnaire was then given to teachers to find out how teachers' cognitive involvement was oriented towards *subtitle-based video learning* for deaf students.

Table 4. Recap of Teachers' Cognitive Engagement Orientation

Orientation Aspect	Average Score	Category	Core Findings
Autonomy Supportive Orientation	4.5	Very good	Teachers provide freedom, learning choices, and opportunities for students to express understanding.
Competence Supportive Orientation	3.75	Good	Teachers help students understand and increase their confidence in understanding <i>subtitled videos</i> .
Relatedness Supportive Orientation	4.5	Very good	The teacher-student relationship and communication are well established and support learning interactions.
Behavioral Engagement Orientation	4.0	Good	Teachers encourage student activity and focus during video-based learning.
Cognitive Engagement Orientation	3.75	Good	The teacher helps students understand the video content in a deep and reflective way.
Emotional Engagement Orientation	4.0	Good	Teachers create a pleasant learning atmosphere and increase students' interest in learning.
Agentic Engagement Orientation	4.5	Very good	Teachers provide space for students to express their opinions and be involved in the learning process.

In general, the research results indicate that teachers' cognitive engagement orientation is in the good to excellent category. The dimensions with the highest scores are Autonomy-

Supportive Orientation (4.5), Relatedness-Supportive Orientation (4.5), and Agentic Engagement Orientation (4.5). These results indicate that teachers provide freedom to students, build good relationships, and involve students in the learning process.

Meanwhile, Competence-Supportive Orientation (3.75) and Cognitive Engagement Orientation (3.75) are in the good category, but still show some limitations in helping students understand the material more deeply. The Behavioral Engagement (4.0) and Emotional Engagement (4.0) dimensions are also in the good category, which shows that teachers are quite capable of encouraging active participation and creating a positive learning atmosphere.

Discussion

Based on the research results, teachers at the Swadaya Masyarakat Special Needs School (SLB BC) in Semarang demonstrated a positive engagement orientation toward the use of *subtitle-based learning videos* for deaf students. This is evident from the average scores across all dimensions, which ranged from good to excellent. These findings indicate that teachers not only use *subtitled videos* as supplementary media but also strive to utilize them to support students' learning processes more actively and meaningfully. These results align with several previous studies that suggest that the use of *subtitled videos can help deaf students understand learning materials because information is presented visually and textually, making it more easily understood. Furthermore, subtitle-based media is also considered capable of increasing student attention and engagement during the learning process.*

In the Autonomy-Supportive Orientation dimension, an average score of 4.5 was obtained, which is considered very good. Teachers provide freedom for deaf students to understand video content, choose learning methods, and convey their understanding of the material being studied. These results indicate that teachers have attempted to create learning that provides space for students to learn independently. However, for the indicator "encouraging students to learn independently through *subtitled videos*," the score obtained was still lower than the other indicators, namely 3. This indicates that student learning independence still needs to be improved, especially in the use of *subtitled videos* without direct guidance from teachers. This finding is supported by previous research that explains that video-based learning can help students with special needs learn more independently, although still requires teacher guidance in the initial stages of media use. (Pearson, 2024).

In the Competence-Supportive Orientation dimension, the average score obtained was 3.75, categorized as good. Teachers were deemed quite capable of helping students understand the content of *subtitled videos* and increasing students' confidence during learning. Teachers also guided students in processing the information contained in *the subtitles*. However, the indicator regarding the ease of video material for students to understand obtained a score of 3. This condition indicates that there are still obstacles in the presentation of video material, such as the use of language that is too abstract or the speed of *subtitles* that is not fully in accordance with the reading ability of deaf students. These results are in accordance with previous research which stated that the success of using *subtitles* in learning is influenced by language clarity, text size, and *subtitle display speed* to suit the reading abilities of deaf students (Papageorgiou et al., 2025).

The Relatedness-Supportive Orientation dimension received an average score of 4.5, categorized as very good. Teachers were able to establish good communication with students and provide emotional support throughout the learning process. Furthermore, teachers encouraged interaction among students in understanding the video content. These findings suggest that the use of *subtitled videos* does not reduce social interaction in learning but can actually help create a more connected and comfortable learning environment for deaf students. Other research also shows that interactive visual media can help improve communication and social interaction among deaf students during classroom learning activities (González-afonso et al., 2026).

In the Behavioral Engagement Orientation dimension, the average score was 4.0. Teachers actively encouraged students to engage in video-based learning activities and maintained student focus throughout the lesson. However, the indicator regarding student involvement in activities related to *subtitled videos* received a score of 3. This indicates that learning activities that directly involve students still need to be developed, for example through discussions, Q&A sessions, or assignments based on *subtitled videos* to make students more active

during the lesson (Purwanto et al., 2024). This is also supported by previous research which stated that the use of learning videos will be more effective when accompanied by interactive activities so that students are not only watching, but also actively involved in the learning process (Fariyeni et al., 2022).

Furthermore, in the Cognitive Engagement Orientation dimension, the average score was 3.75. Teachers encouraged students to deeply understand the video content, connect the material to previous experiences, and use thinking strategies to understand the material. However, the indicator regarding student reflection on understanding still received a score of 3. This indicates that teachers have not fully accustomed students to reflecting on their learning outcomes after using *subtitled videos*. Previous research also explains that learning reflection is important for students to be able to re-understand the material they have learned and increase cognitive engagement in learning (Reynolds et al., 2022).

In the Emotional Engagement Orientation dimension, an average score of 4.0 was obtained, categorized as good. Teachers were assessed as being able to foster student interest in learning *subtitled videos* and create a pleasant learning atmosphere. However, the indicator regarding increasing student enthusiasm obtained a score of 3. These results indicate that although students feel comfortable in learning, not all students show high enthusiasm during the use of *subtitled videos*. Factors such as media variation, video content, and delivery methods may influence this condition. This finding is in line with other studies that state that video media can increase student learning motivation if packaged in an interesting way and according to student characteristics (Pardi et al., 2025).

The final dimension, Agentic Engagement Orientation, received an average score of 4.5, categorized as very good. Teachers provide opportunities for students to express their learning needs, contribute to learning, and share their ideas. Teachers also involve students in directing the learning process. These results indicate that *subtitled video-based learning* provides sufficient participation space for deaf students, enabling them to become more than just recipients of information (Ni, 2023) but also actively participate in the learning process. Relevant research also explains that learning that provides opportunities for students to express their opinions and actively participate can increase students' self-confidence and engagement in learning. (Ningsih et al., 2023).

In addition to the results of the teacher involvement orientation, this study also showed that the research instrument used was considered appropriate. Validation by academic experts and special education practitioners obtained an average of 0.988, categorized as very appropriate. The assessment covered aspects of the appropriateness of the content, construction, language, and technical aspects of the instrument. Meanwhile, the results of the instrument's feasibility test obtained an average of 0.785, categorized as appropriate. Practitioners assessed that the instrument was quite appropriate for the learning conditions of deaf students, easy to understand, and relevant to the use of *subtitle-based videos* in learning (Rizal et al., 2017). Overall, the results of the study indicate that teachers have a positive orientation towards the use of *subtitle-based learning videos* for deaf students.

The use of video *subtitles* is considered to help students understand the material, increase learning engagement, and support communication during learning. However, several aspects, such as student learning independence, video-based learning activities, and student reflection on understanding, still need improvement to optimize the use of video *subtitles in supporting the learning of deaf students*.

Implications :

The research results show that *subtitle-based learning videos* can support the learning process of deaf students. Teachers are well-involved in supporting students during learning, providing freedom to learn, helping them understand the material, and fostering positive communication in the classroom. The use of *subtitled videos* also helps students become more active and understand the content more easily. Therefore, *subtitled videos* can be used as an appropriate learning alternative for deaf students.

Contribution of Community Service :

This research contributes to the use of digital learning media for deaf students, particularly *subtitle-based videos*. Furthermore, it also produces an instrument deemed suitable for use in assessing teacher engagement orientation in deaf students' learning. The results are expected to serve as additional references for teachers, schools, and other researchers in developing learning that better suits the needs of deaf students.

Limitations :

This study has several limitations. It was conducted only at one school, the SLB BC Swadaya Masyarakat Semarang, so the results cannot reflect conditions in other schools. The number of respondents was also limited. Furthermore, the study only addressed teachers' orientation toward the use of video *subtitles* and did not directly examine their impact on the learning outcomes of deaf students.

Suggestions :

Teachers are advised to further develop *subtitled video-based learning activities* to encourage students to be more active, independent, and better understand the material. Video selection should also be tailored to students' abilities, such as by using simple language and clear *subtitles*. Schools are expected to support the use of digital learning media by providing adequate facilities. Future researchers are advised to conduct research with a larger number of respondents and in different schools to broaden the scope of the research.

CONCLUSION

Based on the research results, it can be concluded that Teachers' Cognitive Engagement Orientation Toward *Subtitle - Based Video Learning* for Deaf Students at SLB BC Swadaya Masyarakat Semarang is in the good to very good category. Teachers showed positive involvement in supporting the use of *subtitle-based learning videos* by providing learning freedom, supporting material understanding, good communication, and student involvement in the learning process. The use of *subtitle-based video learning* is considered to help deaf students understand the material more easily, increase learning engagement, and support interaction during learning. In addition, the research instrument used was also declared feasible based on the results of expert validation and practical tests. However, several aspects such as student learning independence, video-based learning activities, and reflection on understanding still need to be improved so that the use of *subtitled videos* can be more optimal. The results of this study are expected to be a reference in the development of digital media-based learning for deaf students and can be further developed in subsequent research with a broader scope.

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