Speech-to-Text Technology as an Inclusive Approach: Lower Secondary Teachers' Experiences

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ABSTRACT

Speech-to-text (STT) technology enables pupils to write using their voice. This qualitative study explores six teachers' experiences with introducing STT technology in a whole-class environment at a Norwegian lower secondary school. The aim was to explore the benefits and challenges of using STT as an inclusive approach for writing instruction in lower secondary education. The teachers in the study stated that most of their pupils found STT useful when beginning longer writing assignments (for example, as an aid for brainstorming and drafting) and producing texts in foreign languages. Reported challenges were pupils distracting each other, inaccuracy of the technology, improper use, and pupils whispering because they were too embarrassed to speak out loud. The teachers' views were initially consistent with a broad definition of inclusion, as they saw the educational opportunities of introducing STT to the whole class. However, after implementation they were concerned with structural challenges, including formal assessment of writing and individual adaptation of the curricula, which suggests a narrow interpretation of inclusion.

A major challenge in education concerns how to create an inclusive learning environment for all learners. Both the UNESCO Salamanca Statement (1994) and the UN Convention on the Rights of Persons with Disabilities (United Nations, 2006, Art. 24. 2b) have been ratified to ensure that persons with disabilities have access to an inclusive, high-quality, free, and equal education. According to Haug (2017), a narrow definition of inclusion concerns education only for pupils with disabilities, while a broad definition addresses education for all pupils. Chambers (2020) argues that assistive technology can promote greater access to integrated settings, particularly

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with respect to reading and writing. However, there is little overlap between research on educational technologies used in full-class environments and technology used to support literacy in special education interventions (Pandya & Avila, 2017).

Despite limited research on assistive technology in inclusive settings, studies have shown both benefits and challenges of these technologies for pupils with varying abilities in reading and writing. For example, Silvestri et al. (2021) found that some learners with reading and writing difficulties benefited from assistive technology use. The results showed that individuals with dyslexia who had poor decoding skills but good listening comprehension experienced greater benefits than did other pupils with reading difficulties. In a study on writing technology use among 27 pupils with dyslexia, Mossige et al. (2021) found that approximately 30% of pupils introduced to custom-made assistive technology chose not to use it because they lacked technical support or perceived it as disruptive rather than helpful.

Speech-to-text technology (STT) has traditionally been seen as an assistive technology designed specifically for pupils with learning difficulties (MacArthur, 2009). STT converts spoken language to written text and has been available since the early 1990s as an assistive technology for pupils with a documented need through licensed software, such as Dragon Speak and IBM Voice Type (Ok et al., 2020). Speech recognition has radically improved since the earliest versions of STT software, providing improved accuracy and transcription of continuous speech (MacArthur, 2009). Since 2015, STT's integration into popular devices and software like Apple's iPad, Google's Chromebook, and Microsoft's Office have made it available to almost all pupils and teachers. Despite this increase in availability, there has been scant research examining the use of STT in educational contexts (Evmenova & Regan, 2019; Perelmutter et al., 2017).

In this study, a group of researchers observed and interviewed six teachers who were encouraged to introduce all pupils at a Norwegian secondary school to STT technology during writing assignments. The teachers were authorized to determine how and to what extent STT was to be implemented; however, they were also instructed to introduce the technology in a full-classroom environment. The researchers aimed to explore STT as an inclusive approach in lower secondary education and examine teachers' experiences with the technology during writing activities. The following research question guided this study: What benefits and challenges are inherent to STT as an inclusive approach for the teaching of writing in lower secondary education?

Theoretical perspectives

Aiming to show the multitude and hierarchy of definitions of inclusion within education, Göransson and Nilholm (2014) analyzed inclusive education research and identified four categories of definitions. Articles using the first level of definitions (Category A) describe inclusion as the placement of pupils in need of special support in general education classrooms. Category B articles consider inclusion as meeting

the social and academic needs of pupils with disabilities in need of special support. Articles in Category C argue that inclusion should also meet the social and academic needs of all pupils, while Category D articles consider inclusion both to concern all individuals and be characteristic of a culture. According to the Category D definition, inclusion is affiliated with the notion of community and creating a mindset that values subjugated knowledge, equity, justice, and diversity. Relating Göransson and Nilholm's framework to Haug's (2017) definitions of inclusion as either narrow or broad, articles in Categories A and B are considered by Haug to fit the narrow definition of inclusion, while Categories C and D reflect a broad definition. To employ this theoretical framework, findings are presented according to Göransson and Nilholm's categories. Their theoretical framework will be employed when discussing STT's benefits and constraints according to different aspects of inclusion.

The broad and narrow dichotomy of inclusion also exists in research on educational technology. Researchers may apply a narrow perspective to consider how different digital approaches enhance access and participation for pupils with special educational needs (e.g., Foley & Ferri, 2012). Thus, a narrow perspective is prevalent in studies of assistive technology, which concentrate on equipment or software used to improve or maintain the functional capabilities of individuals with disabilities (Individuals with Disabilities Act, 1990). Assistive technologies may play a primarily compensatory or adaptive role in education, whereas educational technology offered to all pupils is intended to enhance learning in general or within specific curricular areas. When employing a broad definition of inclusion, research on educational technology may focus on how all pupils benefit from the technology rather than a particular aspect of inclusion. For example, Haug and Klein (2018) investigated STT as a writing strategy for a heterogeneous group of fifth grade pupils in general education, and Shadiev et al. (2017) studied STT's influence on learning performance, attention, and mediation among 30 university students.

Researchers have proposed Universal Design for Learning (UDL) as a means of addressing the dilemma of how educators can create inclusive learning environments by introducing technology to all learners. Rose et al. (2018) created the UDL framework to ensure educational equity for learners who had previously been presented with a one-size-fits-all approach to educational activities and material. The framework's formulation aims to optimize teaching and learning for all by providing multiple means of engagement, representation, action, and expression (Rose et al., 2018). Some researchers have criticized UDL for considering special education approaches suitable for all learners. For example, Kumar and Wideman's (2014) study of UDL inspired coursework in higher education showed that applying the framework increased teachers' workloads in order to fulfill UDL principles. Loreman (2017) argued that inclusive approaches like UDL differ from previously favored special education approaches based on specific processes and schedules for teaching and adapted to a given situation and pupil. Loreman (2017) supported the claim that inclusive pedagogical approaches demand more from teachers than previous

approaches in terms of professional skill, judgment, flexibility, and willingness to grow as professionals.

Methods

Setting and design

The current study employed a longitudinal, exploratory design using qualitative methods. It is part of a larger project incorporating both quantitative and qualitative approaches to examine the introduction of STT in lower secondary school classrooms with diverse learners. The setting was a lower secondary school with 92 pupils in grades 8–10, in southern Norway. A team of researchers and the Norwegian National Service for Special Needs Education (Statped) collaborated on the project. The researchers were responsible for gathering data, and Statped employees developed the digital course and led training sessions with teachers and pupils. All 14 teachers at the school took part in the digital course and were invited to participate in the study, to which six teachers agreed.

Ethical considerations

The research group followed guidelines and recommendations from the Norwegian Centre for Research Data. All participants received and signed consent forms after having been informed that participation was voluntary. All personal information was kept anonymous, and participants were informed that they could withdraw at any time prior to the publication of findings.

Participants

The participants included three male and three female lower secondary school teachers. Two teachers had less than 5 years of experience; two had between 5 and 15 years of experience; and two had more than 20 years of experience. They taught different subjects, including language arts (Norwegian), foreign languages (English, German, French, and Spanish), mathematics, physical education, religion, social science, and natural science. One participating teacher was also the assistant principal. Two participants had no prior experience with STT technology. The other four had used it to some extent during writing activities, either didactically with pupils or on their own (e.g., to write emails, meeting notes, or personal "to do" lists).

Data collection

Data were collected in three phases in the form of focus group interviews and implementation plans made during the pre-intervention period (phase one), full-class observations during the intervention (phase two), and individual teacher interviews after the intervention (phase three). The author observed six lessons during the intervention period (two lessons per grade level). Lessons were observed at the beginning

of the implementation period in weeks 2 and 5. The original study design underwent several alterations due to national Covid-19 pandemic restrictions and a shortage of teaching staff. For instance, observations scheduled for weeks 8 and 10 were canceled, focus group interviews were conducted with only two pairs of teachers, and the six individual interviews scheduled to take place immediately after the implementation period were postponed until the following semester.

STT intervention

Prior to introducing STT in the classrooms, two project members with expertise in special education and assistive technology led a 60-minute training session with the teachers, followed by a 45-minute instructional session for the pupils in each class. During training sessions, teachers and pupils were instructed on how to activate STT and use voice commands to produce punctuation marks, such as "full stop" or "comma." Participants had the opportunity to ask questions and try out STT during brief writing activities. When using STT on their laptops, pupils activated speech recognition in Microsoft Office Word. Microsoft had made STT available in Norwegian approximately four months prior to the implementation period (October 2019). STT has been available in Norwegian on iPads since the launch of Apple's iOS 9 in 2015. The pupils activated the STT feature using the keyboard settings on their iPads. The pupils chose which applications to use, including Pages, Notes, Book Creator, iThoughts, and Microsoft Word.

Both teachers and pupils had individual iPads and/or laptops. For digital assignments, the school used two learning management systems: Showbie and It's Learning. The research project provided pupils and teachers with noise-reducing headphones with microphones and iPad covers with integrated Bluetooth keyboards. During pre-intervention interviews, teachers were asked to make suggestions about how STT could be introduced in their classroom, including which subjects were most appropriate for implementing STT and in what timeframe. Based on these suggestions, a timetable was created for each class using the digital platform Showbie. Prior to the intervention, teachers filled out a timetable (see Table 1) indicating the time allotted to STT activities per subject area, as well as the chosen lesson content and assignments. The teachers provided information on whether pupils had used STT as planned, and how they experienced the teaching sessions during the 10-week intervention period. The teachers from each grade level created a collective plan for their group of learners (Table 2).

Analysis

Data were analyzed from different sources, including transcriptions from teacher interviews, logs of comments, timetables from Showbie, and observation notes made during training sessions and lessons. The process of corroborating data from different individuals, types of data, and methods of data collection, known as *triangulation*, was

Table 1. Example of an implementation plan from grade 9

When (week)	1	2	3	4	5	6	7	8	9	10
What	Introduction	Test out		Winter Holiday	Make dispositions, drafts and mind maps			Write longer texts		
# Lessons (45 minutes)	2	4	4		2	2	2	4	4	4
Subject		Norwegian English Social Science Science			History English Science			Norwegian History:		
Theme		English: Slavery Social Science: Russian revolution Science: Electricity			History: American history Science: Experiments			History: Slavery		
Assignment		Answer questions from a short text			Prepare for a longer assignment			Write longer assignments		
Completed (Yes/no)										
Comments										

Table 2. Average number of lessons and subjects planned and having used Speech-to-Text technology

	Grade 8	Grade 9	Grade 10
Planned average number of lessons (45 min.) using Speech-to-Text	7	3	3
Average number of lessons (45 min.) using Speech-to-Text during the intervention	6	4	2
Subjects	Language Arts, English and Social Science	Language Arts, English and Social Science	Language Arts and Natural Science

used to enhance the study's accuracy and credibility (Creswell, 2014). Göransson and Nilholm's (2014) hierarchy of definitions of inclusion was used as a broad framework for organizing data for further analysis. Although Göransson and Nilholm (2014) based their categories on definitions of inclusion in the literature, it is useful to apply this framework to the analysis of teachers' experiences with inclusion. Teachers' actions when implementing inclusion, and their manner of describing these actions, reflected their understanding of the phenomenon, which may or may not correspond with broader theoretical perspectives, such as those of Göransson and Nilholm (2014) and Haug (2017). In either case, such an approach is likely to enrich the knowledge base.

Data were first sorted according to the previously defined four categories: placement (A), meeting the academic and social needs of pupils with special needs (B), meeting the academic and social needs of all pupils (C), and aiming to create a mindset that values diversity (D). Within this framework, the data's emerging themes were coded into subcategories. Given that participants agreed to introduce STT to all pupils in whole-class settings as a premise for participating in the project, the placement issue (A) did not emerge as a prominent theme or concern. Therefore, the main findings are structured and discussed in relation to Categories B, C, and D.

Findings

STT for pupils with reading and writing difficulties

Some teachers had prior experiences with STT, which influenced their expectations and understanding of using the tool with their whole class. Three pupils with reading and writing difficulties had previously been provided with STT. However, two of these pupils had not wanted to use it, while the third had used it throughout the three years of lower secondary school, including on their final exam. During interviews and intervention planning, teachers mentioned the fact that STT was allowed as a test accommodation only for learners with special needs. While making the implementation plans, one 10th grade teacher specified that they had a lot of material to cover

before the final exam. The teacher was hesitant to introduce STT as a writing tool for all pupils, because it would not be available to all on the final exam.

One teacher described his experience with a pupil with dyslexia who had previously been introduced to STT. The teacher reported that the pupil was entitled to special education, as he had not developed sufficient orthographic encoding skills in English. Consequently, he made many spelling errors when attempting to apply the phonemic rules of Norwegian to English texts. This pupil was more fluent when speaking English than when writing it, enabling him to produce longer texts through using STT. Yet, the teacher emphasized the difference between "getting started" with STT and continuing to use it in everyday writing activities. As mentioned, although the school had introduced SST to other pupils with similar special educational needs, they chose not to adopt it as an assistive technology. He explained:

> Speech-to-text technology is incredibly easy to get started with. It's quite accessible because you activate it, start speaking, and look—it's writing what you're saying! However, the challenge is to exploit its potential, to make it a tool that [pupils] will actually use. That's a bit harder.

The teacher further explained that the pupil who continued using STT was more willing and able to edit his text compared to other pupils with reading and writing difficulties. The teacher noted that the pupil discovered that STT allowed him to produce a draft that could be improved using additional assistive tools, for example spellchecks.

STT as a tool for all pupils

Three prominent themes emerged relating to whether STT is an inclusive approach that meets the academic and/or social needs of all pupils: (1) pupil acceptance, (2) curricular content, and (3) assignments.

Pupil acceptance

Findings revealed a perception among teachers that pupils' acceptance of STT and their success in using it were linked to each pupil's individual aptitudes, such as problem-solving skills, flexibility, and willingness to take on new tasks. Most teachers considered STT to be a technology that could provide new opportunities for all pupils and, for example, activate them to learn background knowledge, communicate ideas, and create first drafts. However, one teacher explained that pupils who mastered typing reported that it was annoying to be forced to learn a new method that they perceived as both time-consuming and less accurate. This teacher described how pupils who generally mastered new skills quickly also tended to master the use of STT without difficulty. He explained that skilled writers complained less about delays or errors (e.g., STT mistakenly generating homophones) and that they quickly tried again when something went wrong. Conversely, learners who were less motivated at school were less likely to give STT a chance. He explained:

> I think it's because they struggle a bit in general with school assignments, and then they experience another thing [STT] that does not work optimally, so they lose motivation faster compared to others who are more willing to try different approaches.

Curricular content

One participant argued that STT could be more appropriate in writing-intensive subjects such as language arts. She also considered it relevant for use in religion or social science because some pupils found it challenging to get their ideas down in writing in these subject areas. She described how they would have several ideas when they discussed different topics orally but struggled to write down their reflections and arguments. Another teacher suggested that STT could be a suitable tool for learners who often write long texts:

> I know that several pupils write a lot, and maybe it'd be easier for them … the way I experience speech-to-text is as an aid that may provide… the opportunity to speak more freely and directly into a document. I see it as an opportunity, a portal into new methods of learning.

Although opinions varied, some teachers reported that STT could help activate pupils' background knowledge and enable them to communicate ideas without having to worry about grammar and spelling. While not all pupils needed this assistance, the teachers believed that all pupils could benefit from it.

Assignments

The analysis revealed little agreement among participants regarding the appropriateness of STT for different kinds of assignments or classwork. One teacher argued that it had worked well with shorter writing tasks, for example, when pupils were required to answer questions from a text that they had read. As noted above, other teachers considered STT a suitable tool for starting rough drafts. One teacher used STT as a digital brainstorming tool during the implementation period and saw it as an aid for process-oriented writing. She explained that watching pupils write a draft using STT reminded her of how she used to create drafts when producing handwritten texts during her own time as a pupil.

> I've been thinking that we're going back to the way I used to work when I was writing a text, back when the main focus was on the draft. Lately, I think there's been too little focus on planning and developing a text… Now [with STT] your teacher can say that you have to plan the text.

Several teachers highlighted the importance of planning and expressed that the main benefit of using STT was that pupils were able to make a first draft without having to worry about spelling. A language teacher explained that some of his pupils struggled to write drafts in English when they started lower secondary school, resulting in

their making notes in Norwegian before writing longer texts in English. He believed that most pupils could benefit from using STT for writing drafts and taking notes in foreign languages when they knew how to pronounce a word yet struggled with spelling it.

In the focus group interviews, two teachers discussed whether texts written through using STT demonstrated learners' oral or written skills. They considered it both an opportunity and a dilemma that the line between speaking and writing was less evident when pupils used their voices to write. Another teacher argued that STT provides an opportunity to discuss rules and norms for formal and informal language, as well as what is expected when producing written assignments within different genres.

Creating acceptance of diverse communities

Several findings show how STT may contribute to or limit access to inclusion with respect to creating learning communities that value diversity. The teachers considered STT to be an approach that could reduce barriers to participation by allowing more pupils to take part in writing activities. In their reflections on using STT in a whole-class environment, they saw STT as an opportunity when pupils were working on collaborative tasks. At the same time, they experienced challenges with respect to group composition, increased distractions, and improper use of technology in these settings.

Opportunities for collaboration

With respect to creating new opportunities for collaboration, one teacher described how using STT had influenced the way he taught writing:

> Traditionally, writing's been considered a quiet activity, but that doesn't work for me. I want the pupils to work together and develop their ideas together. So, they need different phases of writing, with one phase being a bit noisier than others because they can use STT during it. Afterwards, they can edit their texts in a quieter setting on their own.

Several teachers offered similar statements, indicating that STT could give pupils an opportunity to write together while including pupils who would experience barriers if they had only a keyboard or pen available to use.

Challenges to inclusion

The teachers also reported challenges when introducing STT in a whole-class environment. These challenges included pupils distracting each other, improperly using technology, and whispering because they were too embarrassed to speak out loud, resulting in further technical difficulties. A teacher highlighted the importance of considering group constellations when placing pupils in groups for writing assignments using STT.

> The groups can't be too large, and you have to consider which pupils work well together. Some pupils make comments, and you have to have someone in each group who'll take charge and make sure that everyone stays on task, or else they'll start using it inappropriately, at least when they're testing it out for the first time.

Another teacher commented that pupils who hesitate to speak up should be placed in the same group to avoid being intimidated by more outspoken pupils. A third teacher preferred smaller groups of pupils in several more private locations that allowed pupils to speak out loud and use STT more actively. This teacher noted, "With the full class present, they only whispered, and then they had to repeat everything several times." This finding was also evident during observations, in which some pupils seemed embarrassed to speak out loud when they were working on individual writing tasks while sitting in the same room. Some pupils "stalled," which limited the length of the texts that they produced.

Another challenge was related to the introduction of STT in lower secondary education. As one teacher explained, "When they start in lower secondary school, they have to be able to write longer texts, and they're expected to argue their point of view." The teachers considered it too late to introduce STT at this stage, as most pupils had already acquired efficient handwriting and typing skills. In addition, their focus had shifted from spelling and creating coherent texts to communicating subject matter content. Therefore, most of the participants recommended introducing STT earlier, for instance in grades 5–7 (ages 10–12).

Discussion

Providing opportunities for all

This study explores the potential of STT as an inclusive approach for writing instruction in lower secondary education. Fundamental questions exist in relation to what teachers and schools may gain or lose when shifting to new technologies, such as STT. The difficult balance between a narrow and broad approach to inclusion became evident through teachers' reflections when they described the potential of STT for all pupils. The teachers reported the main benefits of STT to be the opportunity for pupils to discuss conventions of spoken and written language, make drafts using oral skills, and acquire a new approach to learning. These findings align with UDL principles as well as a broader understanding of inclusion, which states that inclusive technology should provide learning opportunities for all pupils (Göransson & Nilholm, 2014; Haug, 2017). Rose et al. (2018) argue that the goal of UDL is not simply to help learners master a specific body of knowledge or skills but to master learning itself. UDL empowers educators to create learners who know how to learn regardless of their strengths and weaknesses (Rose et al., 2018). According to the Norwegian language arts curriculum, by year 10 pupils are expected to be able to "inform, relate, reason and reflect in various oral and written genres and for different purposes and adapt to the receiver and the medium" while having the capacity

to "express themselves in different genres and experiment with genres in a creative way" (The Norwegian Directorate for Education and Training, 2020). In a broad sense, then, teachers considered STT to be an approach that could be useful for all pupils working toward mastery of these lofty goals contained in the lower secondary curriculum.

Social and academic needs

According to the second highest level of inclusion in Göransson and Nilholm's (2014) hierarchy, inclusion benefits both the academic and social needs of all pupils. The teachers reflected upon structural constraints in the Norwegian Education Act (2006) when planning to introduce STT to all pupils. Currently, STT is not allowed on formal written exams in secondary education in Norway unless the pupil has a documented need for exam accommodations. Parents of pupils who are not able to demonstrate their competence on written exams must apply to the school principal, who must evaluate whether STT or other assistive technology can enable the pupil to demonstrate their competence without providing them with an unfair advantage or making it impossible to test their skills in the relevant competency areas (Regulations to the Education Act, 2006). The formal limitations of the Norwegian Education Act contrast with the UDL framework, which states that all learners should be provided with flexible options to express their skills, knowledge, and understanding in assessment situations (Rose et al., 2018).

The teachers described varying degrees of the academic benefits of STT for their pupils. They reported that skilled writers complained less about accuracy errors, while less motivated writers were less likely to give STT a chance. De Smedt et al. (2018) highlighted the close relationship between low writing achievement and a lack of academic motivation. In relation to reading, a pattern emerged that was consistent with the biblically derived concept of the Matthew effect, which states that the "rich get richer, and the poor get poorer" (Stanovich, 1986, p. 360). Thus, pupils who struggle with decoding may have lower expectations when introduced to new writing activities because they tend to produce more spelling and grammatical errors and spend more time completing tasks. Despite being introduced to the same technology (e.g., STT), pupils nevertheless approach writing activities with different experiences, motivation, and likelihood of success.

Both classroom observations and teacher interviews revealed that pupils were embarrassed to use STT in a whole-class environment, and teachers encouraged pupils to find remote locations. These findings are consistent with another exploratory study by Ok et al. (2020) on the use of STT for writing activities among pupils with high-incidence disabilities. In that study, teacher-reported challenges included finding the right environment (e.g., a quiet place), pupil distractions, improper use, as well as resistance and anxiety among pupils surrounding STT use. Given that teachers must create classroom climates that are conducive to learning, acceptance of new technology is heavily influenced by the degree to which this technology damages

the social and physical harmony within the classroom. A primary intention behind introducing STT in a whole-class environment has been to avoid the potentially negative impact of separating children for the purpose of "specialized" interventions. However, if STT causes disruption, isolation, or embarrassment, the technology may function poorly as an inclusive approach.

Creating inclusive learning communities

The teachers saw STT as a tool that could provide more pupils with an opportunity to participate in writing activities. By increasing pupils' participation in and access to writing, STT may contribute to creating more inclusive learning communities that value diversity. In other words, STT may help create flexibility and reduce learning difficulties. In accordance with the UDL framework, disabilities are not inherent in individuals but rather are created in an interaction between the learner and the learning environment (Rose et al., 2018). Thus, improving the interaction between pupils and their environment through the use of assistive technology may reduce barriers to learning and inclusion. Yet, teaching professionals may find it difficult to know in advance which pupils will benefit from assistive technology. With a universal approach, all pupils are provided with an array of alternatives (Haug, 2017). These experiences may alter pupils' perceptions of the technology. Göransson and Nilholm's (2014) "highest level" of inclusion is not limited to the creation of communities, but also refers to the creation of a more tolerant society. While STT alone cannot create more accepting, diverse, and inclusive learning environments, it may alter ideas of what writing is in an educational context and increase acceptance of alternatives, provided that pupils are introduced to the technology at an appropriate stage in their development. Currently, we lack sufficient research to identify exactly when that point might be. However, the teachers in this study asserted that lower secondary school is not the appropriate point, given the demands made on pupils at this stage of their education and the literacy progress that many have already achieved.

Conclusion

The study highlights that implementation of STT technology challenges different aspects of inclusion, which teachers and school leaders need to take into consideration. The participating teachers considered SST to be primarily an assistive technology that was useful for pupils with writing difficulties. At the same time, they noted that STT offers opportunities for all pupils to participate in collaborative writing tasks, discuss norms for formal and informal language, and produce first drafts without having to worry about spelling. However, STT was only available to pupils with a documented need for assistance on the final exam. Therefore, the teachers did not consider STT to be equally available and beneficial to all pupils. When new approaches to writing appear, teachers and school leaders are required to consider the extent, aims, and consequences of introducing (or not introducing)

the approach. These findings provide educational professionals and researchers with insights into the complexity of introducing STT as an inclusive approach. The findings show that STT provides academic opportunities for most learners. At the same time, it is described as a disruptive and embarrassing element in a whole-class environment. The conflict of interest between fulfilling pupils' social and academic needs became particularly evident when teachers argued that pupils could benefit from being placed in smaller groups and more private locations when using STT. This is an argument against introducing STT in a whole class-environment. However, if the smaller, secluded groups consist of pupils with and without writing difficulties, it can be considered an inclusive approach according to Haug's (2017) broad interpretation of inclusion. More research is therefore needed on the implications of introducing STT as a writing approach in primary and secondary education.

Author Biography

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