The Views of Special Education Teachers on a Mobile Writing Application

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Abstract

Students' acquisition of writing skills plays a key role in their academic life. Approximately half a normal school day is covered by writing activities. Although writing is such an important skill in education, there are students who have difficulties. One of the specific learning disabilities, dysgraphia, can be defined as writing impairment. Educational technology is a promising solution for students with dysgraphia. Mobile devices in particular offer a wide spectrum of opportunities for students with dysgraphia to learn with their unique qualities. The main purpose of this study is to reveal the views of special education teachers on a mobile writing application after its use. Previous studies have developed a mobile writing application (Hopcan et al., 2019) and examined its effectiveness (Hopcan & Tokel, 2021). In this current study, a qualitative method was used to reveal the views of special education teachers on the mobile writing application after its use. Semi-structured interviews were conducted on the application with seven special education teachers. Teachers perceived the mobile writing application as easy to use. In addition, teachers found the application useful in terms of improving students' writing skills, teaching how to write accurately, and maintaining students' attention more than traditional writing practices. They perceived the mobile writing application as enjoyable for students. Some of the teachers had suggestions for improving the application.

Key Words

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Writing, an indispensable part of school life, has an important place in students' lives. The inevitability of handwriting applies to both school and beyond (Chicu et al., 2014). Akyol (2005) defines writing as a process of producing required symbols and signs through using motoric skills in order to express thoughts. In this context, acquisition and development are two stages of writing instruction. The acquisition process involves teaching how to write basic components such as letters, syllables, words and sentences in the first three years of school life. Approximately 50% of a normal school day covers writing activities (McHale & Cermak, 1992). Based on this, acquiring writing skills of students plays a key role in their academic life.

Although writing is such an important skill in education, there are students who have difficulties in writing. Dysgraphia, which is related with handwriting problems, is one of the specific learning disabilities (Parastar Feizabadi et al., 2013). American Psychology Association (APA, 2013) defines dysgraphia or impairment in writing as having difficulties in written expression. The rate of students with writing difficulties have been determined by research as follows: 10% (Maeland, 1992), 12% (Rubin & Henderson, 1982), 5% (Hamstra-Bletz & Blöte, 1993), 22% (Smits-Engelsman et al., 1995), 34% (Smits-Engelsman et al., 2001), and 13% (Karlsdottir & Stefansson, 2002). Alston (1985) also stated that 21% of secondary school students have writing disabilities. Studies on writing disabilities appear to extend on a spectrum that ranged between 5% and 34%. This number is increasing day by day and these students show common characteristics: Illegibility in handwriting (Alberta Learning and Teaching Branch, 2002; Chung & Patel, 2015; Richards, 1998), switching to cursive and print handwriting, spending too much time thinking about which words to write, and problems with sentence completion (Chung & Patel, 2015; Richards, 1998), confusing uppercase letters with lowercase letters and writing them alternately, errors in writing letters, incompleted (cursive) letters, irregular letter size, and shape (Reid et al., 2015; Richards, 1998). Furthermore, they have tight pencil grip (Alberta Learning and Teaching Branch, 2002; Richards, 1998), problems with body position, organization problems, slow writing (speed problems), and copying (Alberta Learning and Teaching Branch, 2002; Richards, 1998) becoming distracted while writing, an inability to adjust letter size, lines, and margins (Richards, 1998), spelling, grammatical, and punctuation errors (Yiğiter, 2005), poor performance in written assignments and exams, and reluctance in writing (Alberta Learning and Teaching Branch, 2002). Educational technology is a promising solution to meet the needs of students with dysgraphia. Mobile devices in particular offer a wide spectrum of opportunities for students with dysgraphia to learn with their unique qualities. By using mobile technologies, students can study independently of time (Evans, 2008; Kagohara et al., 2013) and place (Evans, 2008). Mobile devices have many advantageous features such as design, accessibility, ease of acquisition, mobility, touch screen interaction through motion, and connectivity (Fernández-López et al., 2013). In the literature, there is little research focusing on the development of technologies for writing (Czyzewski et al., 2009; Diah et al., 2012; Giordano & Maiorana, 2014); there remains a gap in the literature about the use of mobile technology for students with dysgraphia.

Diah et al. (2012) carried out a study with children between the ages of four and six who have writing difficulties. Computer assisted software (AJaW) was developed based on Hannafin and Peck Instructional Model to demonstrate how to grip a pencil, pre-writing activity, practices, and evaluation for motor-skills development by using a graphic tablet. AJaW was tested in terms of appearance, learnability and scaffolding. The results revealed that students found AJaW enjoyable and they were able to improve their motor skills. The software has been developed for helping students master complex writing skills.

A web-based, platform-free educational software that is usable with tablets and smartphones, for students with dysgraphia was by developed by Giordano and Maiorana (2014) based on a gesture recognition algorithm. Different types of writing exercises and feedback were presented by the software. Also the data taken from users was recorded and enabled real time statistics for individualized learning. The software has continued to be used to test its effectiveness and other aspects on dysgraphic students.

Czyzewski et al. (2009) created a smart pen system providing students with dysgraphia opportunities to practice their writing skills with a teacher or therapist. The findings of the study indicate that both teacher and students enjoyed using the system.

In Turkish literature, there is growing research on different aspects of writing and writing disabilities. Yet, studies about educational technology used in writing disabilities (dysgraphia) are very limited. Only an Android application was developed by Yılmaz (2014). It is recommended to be used in the education of students with writing disabilities. In another study, a mobile writing application was developed (Hopcan et al., 2019) and its effectiveness was examined (Hopcan & Tokel, 2021). There was an improvement in students' writing skills after using this application (Hopcan & Tokel, 2021). This study explores the views of special education teachers whose students participated in the experimental study. These teachers occasionally observed students from the outside while they were using the application. To this end, the main purpose of the study is to reveal the views of special education teachers on the mobile writing application after its use.

Method

Research Design

This study used a qualitative method in order to reveal the views of special education teachers on a mobile writing application after its use. Previous studies developed a mobile writing application (Hopcan et al., 2019) and examined its effectiveness (Hopcan & Tokel, 2021). In the current study, one-to-one semi-structured interviews were conducted on the mobile writing application with special education teachers.

Participants

The participants of this study were selected using purposeful sampling. Special education teachers whose students participated in the experimental study were included. All of them work in Istanbul. These participants were chosen for this purpose. Semi-structured interviews were conducted with seven special education teachers (see Table 1).

Table 1

Information about the Special Education Teachers

Code	Gender	Age	Experience
ST1	Female	26	2 Years
ST2	Male	70	49 Years
ST3	Male	29	8 Years
ST4	Male	60	41 Years
ST5	Male	23	6 Months
ST6	Female	24	2 Years
ST7	Female	27	5.5 Years

Instruments

Semi-structured interview protocol: For in-depth analysis of the application, a semi-structured interview protocol was given to the special education teachers. It consisted of five questions and seven sub-questions. A semi-structred interview form included questions such as: "Can you describe what you think of the use of the application and stylus pen for students?, "If you were to consider using a mobile application to teach other knowledge and skills, what would they be?", "What are the benefits of the application for students?"

Mobile writing application: This application, which uses a gesture recognition algorithm, was developed for Android devices. The content of application includes both uppercase and lowercase letters, syllabi, words and numbers (Figure 1). The duration of study, the percentage of correct writing, correct uppercase and lowercase letters, incorrect uppercase and lowercase letters, correct and incorrect numbers, correct and incorrect syllables, correct and incorrect words (Hopcan & Tokel, 2021, p.6) were logged in a database. A flow chart of mobile writing application is prensented in Figure 2.

Figure 1

Some Screenshots from the Application: Lowercase Letters, Uppercase Letters, Numbers, Syllables, and Word Parts Respectively
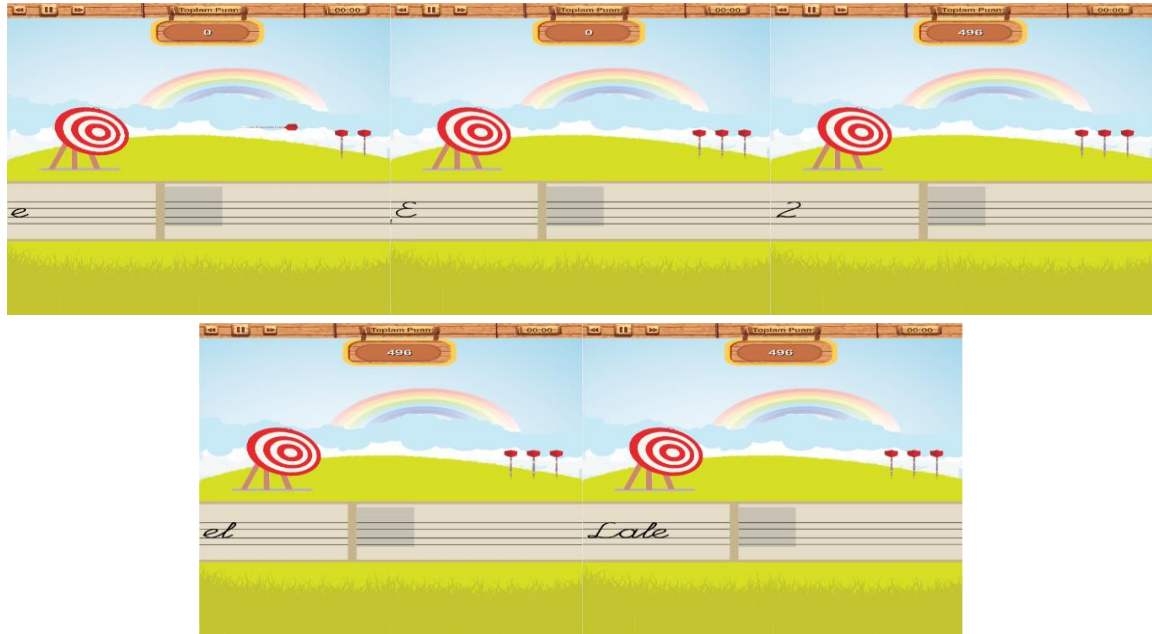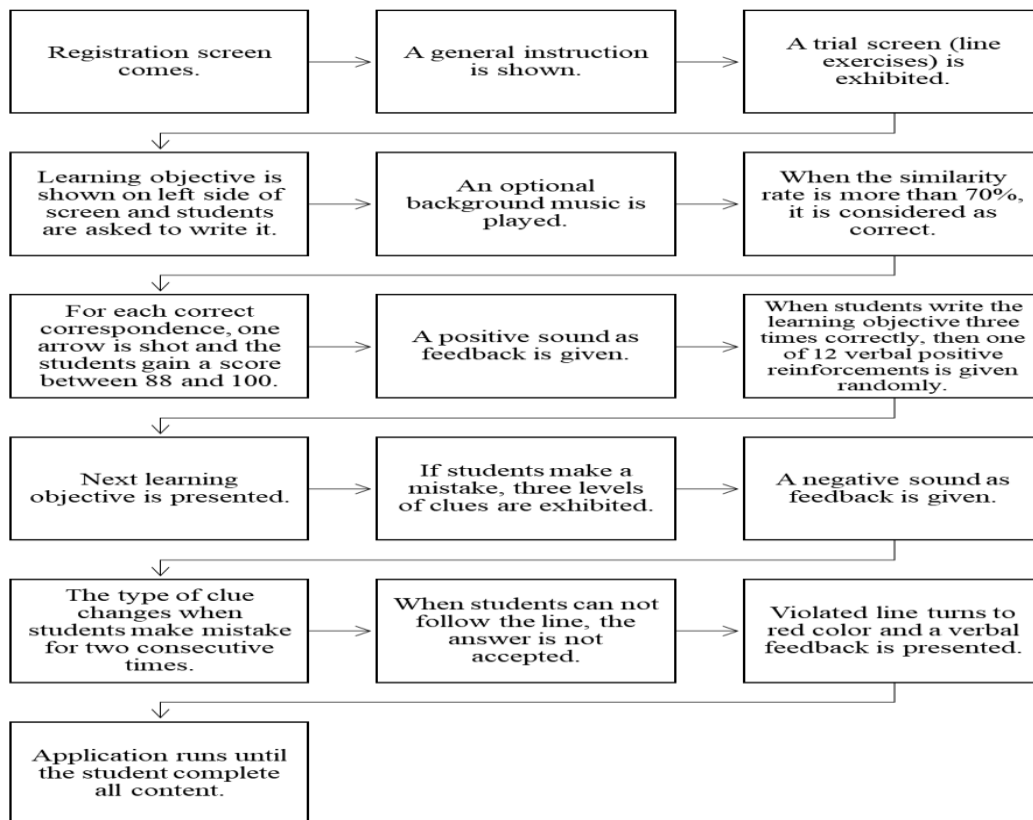

Figure 2

Flow Chart of Mobile Writing Application

Procedures

In this study, a semi-structured interview protocol was given to the special education teachers. Each interview took approximately 20 minutes.

Data Analysis

Interview data was examined using content analysis. Content analysis attempts to reveal concepts that can explain data. Through content analysis, we try to identify the data and reveal the truths that may be hidden within the data (Yıldırım & Şimşek, 2013).

Reliability and validity issues

Inter-coder reliability was defined as the agreement of different researchers about the codes on the same text. In addition, for inter-coder agreement the researcher should find another experienced researcher to cross check their codes (Creswell, 2013). The researcher worked with a research assistant from the same field in this step. She is experienced in qualitative research and a Ph.D. candidate. She was informed about the study in a detailed manner. Miles and Huberman's (1994) formula was employed to calculate inter-code reliability score. Inter-coder reliability equals the number of agreements divided by the sum of the number of agreements and the number of disagreements. In this study, the inter-coder reliability score was found to be *.84* using this formula. According to Miles and Huberman (1994), *.80* is a good score.

Thick Rich Description is one of the validity strategies in qualitative research. Researchers should use rich description in their study to convey the results (Creswell, 2013). The current study provides detailed information about the participants and settings. Creswell and Miller (2000) state that thick description gives other researchers transferring opportunity to their research contexts in order to establish credibility.

Peer debriefing or peer review is another validity strategy used in this study. Peer debriefing means that reviewing the research process by a peer reviewer who is familiar with the whole research process. In addition, peer debriefing enables researchers to add credibility to their research (Creswell & Miller, 2000). In the current study, three field experts provided reviews and gave support through all steps of the research as peer debriefers.

Disconfirming evidence is used to add credibility to the study. Creswell (2013) emphasizes that in order to establish credibility, researchers should discuss negative information as well. This is important because there are different perspectives and contradictory views in real life. By discussing contrary evidence, researchers can present their results in a more realistic and more valid way. The current study presents disconfirming/negative information as well as confirming/positive evidences.

<div align="center">

Results

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Special education teachers' views were examined following five themes: 1) perceived ease of use, 2) perceived usefulness, 3) perceived enjoyment, 4) aspects that need to be improved, and 5) future use.

Perceived Ease of Use

All interviewed teachers (n=7) perceived the mobile writing application as easy to use. One of them (ST1) stated that students were familiar with tablet:

"All of them were very familiar with the tablet already. In fact, initially it was something children were not familiar with [stylus pen]. The children had difficulty due to the fact that they had not used a digital pen before. However, it did not take long and they got used to it in two minutes. I think it was nice to use."

Similarly, another teacher (ST2) claimed that even a small child can use it easily: *"It is not difficult. It is an applicable project to the students. Students could use it in the spring term of the first grade."*

One teacher (ST3) stated that writing on a screen is easier than writing on a paper: *"Actually, it is easy to use for students. So writing on a tablet is better than writing on paper. Moreover, the screen is [slippery]."*

Another teacher (ST6) thought that the application ensures the ease of use with feedback and reinforcements: *"Children were guided by the application. For example, it gave feedback when (s)he made a mistake or it rewarded when (s)he earned it."*

Most of the teachers (n=4) found the stylus pen easy to use, but three of them had some concerns. For example, one teacher (ST2) stated:

"I think the pen sometimes got stuck, did not it? Did it prevent children to study serially? But if it can be improved, a pen which is more slippery and easier, children will be more successful."

ST3 discussed that there can be problems with the pen holding positions: *"Children must be able to begin the [writing] process when (s)he puts the pen [on the screen]. Children should not have to think: 'let's grip pen this way, let's grip pen that way'."*

ST5 suggested a pen with a small tip: *"I think the thing on the tip of the pen is not very practical. Being transparent increases practicability, it is an advantage. But we could try it with other pens with a small pointed tip."*

Theme: 1) Perceived ease of use

Teachers' Views

- The mobile application was easy to use because:

    o The students were familiar with tablet.

    o Even a child who was in 1st grade and second term can use it easily.

    o Writing on a screen is easier than writing on paper because the screen is more slippery.

- Students have never used a stylus pen; however, they got used to use it easily in a short time.

- Some of the teachers had concerns about the use of the stylus pen:

    o Pen holding positions should not be a problem for students.

    o A pen with a small tip was suggested.

Perceived Usefulness

All interviewed teachers (n=7) perceived mobile writing application as useful for students with dysgraphia from different perspectives.

Two of teachers (ST1 and ST3) claimed that the mobile writing application makes writing more interesting than paper-pencil. Therefore, mobile applications are more useful. For instance, ST1 said: *"I found it very good. It was interesting for children because of using a different thing instead of paper-pencil."*

In the same way, ST3 stated: *"They used to get bored before. Now, they ask to write [on the tablet] themselves."*

Moreover, teachers pointed out other useful aspects of the mobile writing application. ST1 deduced in a traditional writing class, teachers cannot be aware of mistakes in writing direction:

"For example, children need to return to some point while they are writing "a". I did not notice it, since I did not know this issue much. In fact, the cause of difficulty while writing was that the child could not write the letter accurately. However, your application gave feedback when the child did not return from the half of the letter. And (s)he had to do it again."

Correspondingly, ST3 believed that learning writing direction leads to accurate writing: *"At least, I think, they learned the writing directions of letters. They can use [write] them correctly."*

ST1 addressed usefulness from the perspective of not only allowing monitoring but also improving writing skills:

"I think it is very nice for monitoring children, for monitoring where their mistakes are. Thereafter, for example, now I am looking at my students' writing, they have improved more. Even, I thought it'd be much better if students write their assignments in [application] [she laughs]."

ST1 compared the application and the notebook in terms of the number of pages: *"We have to give some students activities of dozens of pages. It seems long to him/her but in the tablet [application] does not seem long. Therefore, it is good."*

All of the teachers believed that the mobile writing application was useful for improving students' writing skills. ST3 believed that the application improved writing skills of students more accurately:

"I think that the students develop their writing [skills] because they usually write without knowing. But this application shows them how to write beforehand, when children make a mistake, [mobile application] shows the mistake to them so I think it is useful."

ST3 thought the application's use of visuals made learning permanent:

"Besides, when [writing] is on the tablet, it is more permanent for the child. Well, icons are very important for us. Visualization is very important. If there is visualization, it will always be in the child's mind."

ST5 claimed that the writing application encourages more concentration than paper-pencil sessions: *"Considering they [children] could study for a long time, they are motivated. Normally they would not be."*

ST6 stated that visual and audio elements facilitated learning to write: *"So, since the child was presented with both auditory and visual stimulus, both writing and learning were easier. I think it is a good application."*

Moreover, ST2 emphasized that the application facilitates teacher's teaching activity: *"I would definitely use this application because instead of holding the children's hand and dealing with writing, using the tablet [is easier]. The application tells [how to write]."*

ST5 stated that the application's hierarchical clue system was great and it was also inspiring for special education field:

"I think it is a good thing because at first [children] see [the learning objective] clearly. Children were trying to do it, if they could not, [the application] gave them hierarchical clues."

Likewise, ST7 acknowledged the application was effective because of its feedback system: *"Because applications which tell the students their mistakes such as 'you overflowed the bottom line, you overflowed the top line etc.' it is particularly more effective"* and she added: *"So, as I said, making the lessons enjoyable, concretizing, correcting the mistake of the students [were advantages]."*

Theme: 2) Perceived usefulness

Teachers' Views

- The mobile writing application was useful because:

    o It makes writing more interesting than paper-pencil.

    o In a traditional writing class, teachers cannot be aware of mistakes in writing direction and learning writing direction leads to accurate writing.

    o It allows monitoring.

    o It improves writing skills.

    o Unlike traditional writing activities, there is not too many pages in mobile writing application.

    o It allows students to write more accurately.

    o Using visuals in the application made learning permanent.

    o It ensures better concentration than paper-pencil sessions.

    o Visual and audio elements facilitated learning to write.

    o It facilitates teacher's teaching activity.

    o The hierarchical clue system used is effective.

    o It has an effective feedback system.

Perceived Enjoyment

All participants perceived the mobile writing application as enjoyable for students with dysgraphia except for ST5. For example, ST1 stated: *"In fact, many of them had fun. They stressed that they should beat other children. But in fact they enjoyed it when they were away from stress themselves."*

Two of the special education teachers (ST3 and ST6) claimed that the mobile writing application was enjoyable such that students came to the special education center just because of this application. For example,

they stated (ST6 and ST7 respectively): *"We witnessed children coming to school to use this application because they had much fun..." "They had fun so they never complained. They did not say that we were bored or something. They might even come for application."*

Similarly, ST7 stated: *"We could see that they were more willing to come, it sounded fun. They were smiling most of time"* and added: *"For example, if you apply it at schools, I think you would ensure more participation."*

ST6 and ST7 claimed that this application made writing enjoyable for students. For example, ST6 stressed: *"Sometimes, writing can be boring for children. However, we make it [writing] with gamification. Besides, using both visuals and sounds are fun for children."*

ST1 and ST3 suggested the application was like a game. For example, ST1 stated:

"It does not seem like a course; it is seen by everyone as a game. A child finished all the words [in the application], who has difficulties with writing when I gave a paper to write to him/her."

Similarly, ST3 thought: *"It was usually presented as a game; I think they loved it [writing]."*

ST5 did not perceive the mobile writing application as enjoyable because of the fact that games did not come after every accomplished goal:

"Since there is a teacher in traditional setting, s(he) can make other activities. However, it is not like that in the tablet. Well, can it be? Absolutely, doable... I think it would be much more fun after children write "a" sound correctly, a game presents as a reward from the tablet automatically."

Theme: 3) Perceived enjoyment

Teachers' Views

- The mobile writing application was enjoyable because:
    - Students had fun.
    - Students came to special education center just because of this application.
    - Application made writing enjoyable for students.
    - It is like a game.
    - It is perfectly appropriate for students with dysgraphia.

Aspects that Need to be Improved

ST4, ST5, and S6 claimed that there is no need to revise/modify any part of the writing application. On the other hand, some of teachers had some suggestions. As mentioned previously, ST2 and ST3 suggested improving the use of the pen.

ST1 recommended that there should be a line on the animation screen:

"I said one thing. There was a text in the animation part [clue]. The letter was just on a blank space. If it was on a line like in the beautiful writing pad, they would have seen the [line] spacing."

ST7 suggested that the application should be more accurate: *"[The application] accepted some letters as correct when [students] wrote a similar letter. For instance, when a student wrote 'k' instead of 'h' it [the application] accepted it as correct."*

ST3 stated that students should be given rewards at every stage of the application for reinforcement: *"Children in general, you know, want a reward at the end. I think there can be a reward for every accomplished mission."*

Theme: 4) Aspects that need to be improved

Teachers' Views

- The use of the pen should be improved.

- There should be a line on the animation screen.

- The application should be more accurate.

- Students should be given rewards at every stage of the application as a reinforcement.

Future Use

All participants (n=7) wanted to use the mobile application for educational purpose. ST1, ST3, ST5, and ST7 underlined that the educational mobile application gets children's attention. For example, ST7 stated: *"Now, when a teacher only lectures, it is boring. They [the applications] prevent boredom and get children's attention."*

Besides ST5 deduced that getting children's attention can lead to more focus: *"All technological tools are interesting for children. Children can be more concentrated because of that."*

ST7 stated that educational applications provide the most updated information: *"Also, some of the information is updated. They [educational applications] are more accurate."*

In addition, teachers (ST1, ST3, and ST5) emphasized that as we are in an era of technology, we need to take advantage of mobile educational applications. For example, ST1 stressed: *"It does not work with paper-pencil because we live in the technology age. We have to move on mobile applications compulsorily."*

ST1 emphasized that mobile applications provide proper and easy monitoring of work:

"At first, monitoring is very easy. I have to have a lot of paper here; I have to group them according to students. There is not anything like that in the mobile applications. I know how much progress he/she made."

ST3, ST5, and ST6 emphasized the importance of using visuals. For example, ST3 stated: *"Papers are always black and white. You know the photocopies. Usually colored stuff attracts the attention of children."*

Similarly, ST6 emphasized the role of visualization in learning: *"Visualization always facilitates learning more. Therefore, the child sees and writes at the same time. Many senses of her/him work at a time."*

ST4 claimed that educational applications reduce children's mistakes with immediate feedback: *"The mobile application reduces mistakes a little. Children can see their mistakes easier and earlier. It would be nice in terms of good writing."*

ST3 thought that educational applications can help teachers: *"They are practical and useful for teachers."*

Theme: 5) Future use

Teachers' Views

- All teachers want to use mobile application for educational purpose because:

  - It gets children's attention which leads them to focus more.

  - Educational applications provide the most updated information.

  - The use of mobile applications could bring many advantages in the era of technology.

  - It provides proper and easy monitoring of work.

  - Using visuals is very important for learning.

  - The educational applications reduce the mistakes of children with immediate feedback.

  - The educational applications can help teachers in many ways.

Discussion, Conclusion & Suggestions

Face to face interviews were conducted to get the in depth views of teachers about the mobile writing application from the basis of "perceived ease of use, perceived usefulness, perceived enjoyment, aspects need to be improved and future use". Their views seem to be positive most of the time though there were several constructive criticisms given during the conversations. The remaining section discusses these views.

Views of teachers about the *"Perceived Ease of Use"* show that all of them found the use of the application easy. Similarly, Kagohara et al. (2013) underlined using tablets is easy. In this study, special education teachers emphasized that students have already used tablets in their daily lives. Also, Kagohara et al. (2013) emphasizes that tablets can be easily available. Students had not used a stylus pen. However, they could adapt to it in a very short time. Even a teacher said that writing on a tablet with a stylus pen is easier than writing on paper with a pencil. The reason is that the stylus pen does not encounter any friction force on the tablet surface; on the contrary, it can slip easily. However, in order to write on paper, it is necessary to apply a little force. Similarly, Tseng and Cermak (1993) mentioned that the applied force and good writing are directly proportional. However, teachers suggested that the stylus pen's grip angle should not be a problem and the palm rejection feature should be more effective.

The views of teachers on the "*Perceived Usefulness*" reveal that the application is useful for students with dysgraphia. In line with this, Arpacık (2014) revealsed that special education teachers believed that the interactive board is very useful for students with intellectual disabilities. Likewise, Doğan (2015) revealed that teachers stated the usefulness of the technology to provide a better learning opportunity for students with intellectual disabilities. In line with this, in Eliçin's (2015) study teachers emphasized that the tablet application was very beneficial for students with autism.

In particular, they emphasized that the application had an important role in attracting students and increasing their motivation. While they do not want to write too much in traditional lessons, now they say that they want to write by using this application. Moreover, teachers said that they know when students write some letters

incorrectly. Owing to the application, teachers can correct their mistakes and guide their students correctly. They expressed that since the application allows them to see where students make mistakes, they have a chance to focus on these mistakes more. They use worksheets daily and have to prepare and print them out every time so they are consuming paper and they have to keep the worksheets. However, owing to this application, they said that they would no longer have to deal with worksheets; they could reduce both paper consumption and their archiving. In addition, they observed that since the application allows the students to study more, they can write more accurate and faster than before. They stated that students' writing skills improved more after the use of the application than the traditional practices in the 4-5-month period. As a result, teachers considered that the application is useful in terms of keeping the students motivated when they study and facilitate teacher's activities. Similarly, Fedora's (2015) study on teacher candidates showed that using tablet and dictation software for students with writing difficulties was helpful for preservice teacher in helping them be ready and confident for integrating these technologies in their future classrooms.

The views of teachers on "*Perceived Enjoyment*" show that all the participants found the application enjoyable for students with dysgraphia. They emphasized that if it was not enjoyable, they would not study at least 80% of the session. They even observed that they were more enthusiastic about their lessons. Since the application had an educational scenario and was supported with visuals and audio elements, students did not see the application as a lesson so they did not get bored. One of the teachers stated that one of his students normally study for a little time but he was surprised to see that the student studied almost the whole session. Similarly, Eliçin (2015) revealed that teachers emphasized that students with autism were more interested in tablet application than the traditional lesson. In the current study, only one teacher mentioned that traditional education could be more enjoyable than the application. In traditional educational settings, special education teachers can start a different activity when students are tired/bored of writing considering the situation of their students. In addition, they can give small breaks or play games. Nonetheless, the application was not developed to completely take the place of a teacher. On the contrary, it was developed in order to support the teacher's teaching activities and to allow the students to do practice much more on their own.

The views of teachers on "*Aspects that Need to be Improved*" about the stylus pen, application, and their interaction seems to be positive most of the time. However some of the teachers indicated that the stylus pen and the interaction with the tablet should be improved. One of them indicated the lack of using lines in the animations as a weakness and suggested to the researcher that lines should also be incorporated within the animations. The researcher took this recommendation as a note and reported in the study for further studies. In addition, one of the teachers mentioned that the application accepted some letters as correct when students wrote similar letters. It is obvious that the writing movements of some letters are very similar. Sometimes it is inevitable that the application may detect a similar letter instead of the correct one. Such problems can be encountered not only in gesture recognition algorithms but also in handwriting recognition algorithms. In order to overcome this problem, sensitivity can be increased. Furthermore, a teacher suggested that some virtual rewards should be offered and added to students' profile.

The views of teachers on "*Future Use*" reveal that all of them are eager to use it in their courses with the belief that it will enrich their courses in terms of both instruction and interaction. This result seems to align with the study of teacher candidates in Fedora's research (2015), in which almost three-quarters of preservice teachers

were found to be willing to use such technologies in their future classrooms. In line with this, in Eliçin's (2015) study teachers emphasized that they want to use tablet applications for students with autism since they are useful. Similarly, in Gauvreau's (2015) study the teachers were willing to use the mobile technologies in their classes for children with autism.

Special education teachers in particular thought that the application could attract students' attention in this study. Thus, the students can concentrate and can focus on writing more. As previously mentioned, students with specific learning disabilities have attention problems. It is always an effort to draw attention to important stimuli in learning environments (McNamara, 2007). Computers and these kinds of devices can get students' attention and help them to focus on the learning task. This is crucially important in the case of students with learning disabilities (Fernández-López et al., 2013). Similarly, they can reduce attention problems arising in mainstream classes (Zhang, 2000). Likewise, the teachers emphasized that the tablet application could increase the attention span of students with autism (Eliçin, 2015).

Since such an application can be improved and updated easily, teachers thought that they could access the latest accurate information with the help of the application. Teachers reported the advantages of the application, serving as a facilitator both for their students and themselves. They noted the value of the application as an instrument that can enable them to prepare for lessons while reducing the preparation time required for regular classroom activities. In addition to being a supportive instrument, the application also helps teacher to monitor their students' progress based on real data as well as to diagnose mistakes and misconceptions students make during the learning process. Although this study contributes to the literature and the practice field, it is limited to seven special education teachers working in Istanbul.

Ethic

All procedures in this study involving human participants were carried out in accordance with the ethical standards of Middle East Technical University Research Ethics Committee with number 2016-EGT-095.

Author Contributions

This article was written with the joint contributions of both authors.

Conflict of Interest

The authors declare that they have no conflict of interest.

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