The effects of digital storytelling with group discussion on social and emotional intelligence among female elementary school students

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Abstract: Stories can contribute to the emotional well-being of children and storytelling is one of the new methods of teaching in the classroom. The main objective of the present study is to evaluate the effects of integrating digital Storytelling on the level of social intelligence and emotional intelligence in female elementary school students. In this quasi-experimental study, all third grade female elementary school students who were studying in an elementary school in Shiraz were involved based on the census method (N = 60). A quantitative approach was taken and the levels of social intelligence and emotional intelligence were examined in all participants before the training. Tromso social intelligence scale and Bar-on emotional intelligence inventory were used to measure the respondents’ social and emotional intelligence. Simple random sampling was performed and the participants were randomly assigned to either an intervention group in which digital Storytelling was integrated with group discussion (N = 30) or a control group in which there was no intervention (N = 30) using the random allocation software. The results showed that...
integrating digital storytelling with group discussion led to meaningful improvement in social intelligence and emotional intelligence among the female elementary school students, whereas in the control group no meaningful changes were observed. Therefore, a combination of digital Storytelling with group discussion is a potentially beneficial educational method for female elementary school students.

Subjects: Internet & Multimedia - Computing & IT; Education - Social Sciences; Teaching & Learning - Education; Social Psychology; Educational Psychology

Keywords: digital storytelling; group discussion; Social Intelligence; Emotional Intelligence; elementary school students

1. Introduction
Throughout history, stories have been told by Iranian grandparents to their grandchildren as an educational tool to instill moral values in them. As Mobahani (2019) put it, stories withhold layers of the abstract and seasoned cultural heritage of a nation within themselves and storytelling is an important part of the Persian culture. Iran is a great civilization in which story telling as a rich tradition has been used for thousands of years and different Persian stories were told in the masterpieces of the great Persian poets such as Ferdowsi and Rumi.

For around 800 years, the lyrical poetry and the epic Masnavi of the great Persian poet Jalal ad-Din Muhammad Rumi and the stories his books contained have been retold in successive generations. Rumi’s books have sold millions of copies throughout the world, widely influencing thought and literature. Moreover, the Ferdowsi’s the Shahnameh is, according to Dabashi (2019), an epic poem recounting the foundation of Iran through mystical, heroic and historical ages which is the beating heart of Persian literature and culture. It includes 62 stories, 990 chapters together with 60,000 rhyming couplets. Ferdowsi’s epic language is so rich that it profoundly interests the reader. The stories of the Shahnameh have been retold for a thousand years and as clarified by Talebi (2009), in Iranian story-telling traditions, sometimes practiced in coffee houses, story-tellers’ titles varied according to their style of story-telling and the subject matter of the stories. Therefore, storytelling has been used as an educational tool for different age groups in Iran and one of the aforementioned groups is that of children.

Storytelling provides an effective tool for teaching children social, cognitive and emotional skills, especially (Lewis et al., 2014). It has a rich tradition, and has developed and expanded to assume an active, contemporary presence (O’Byrne et al., 2018) across settings and can contribute to the emotional well-being of children by focusing on reducing fears. Moreover, it helps children express hidden threatening emotions and learn problem-solving strategies (Anderson et al., 2018).

Storytelling can reduce behavioral problems and increases students’ social skills. It plays an effective role in reducing anxiety and improving cognitive function in children (Shaffeyan et al., 2017), thereby providing a positive environment which is a prominent way to aid students. Moreover, if students’ negative perceptions are changed into positive ones, a positive result will be obtained (Ellis, 2006, as cited in Nourinezhad & Kashefian-Naeini, 2020). Children and students can visualize the scenes, actions, and characters during listening stories (Anderson et al., 2018); moreover, creative imagination seems to have a positive effect on cognitive and social development, as well as social and emotional intelligence.

Stories can convey messages and values to children (Mashalpourofard, 2019) and storytelling is an indirect teaching method that is more compatible with the child’s searching, curious, and active spirit, and motivates him or her to explore more (Schmoelz, 2018). Moreover, stories are usually heard better because of to their elements of simplicity, fluency and the fantasy and they may
elevate children’s mental and emotional ability and make them familiarized with sounds, words and language (Schmoelz, 2018).

The stories children hear may affect them in the long run and these impacts may differ between boys and girls. Storybooks are according to Abad and Pruden (2013), one way children learn about the world, be familiar with gender stereotypes, and possibly break gender stereotypes and children’s storybooks “can provide a representation of societal values during a time when children are developing their gender roles, and thus, represent an important avenue for research on children’s developing gender stereotypes” (p. 3). The very nature of storytelling itself is at stake (Hofmeyr, 1992), which for many individuals is constantly embedded in sexual division. Moreover, contents of stories which girls hear is more gender-specific and is connected more intimately to forms of women’s work. As Hofmeyr puts it, this strand of often goes on, like a thread, into the world of initiation where gender instruction is clearly institutionalized.

Therefore, storytelling is a known tool which accelerates children’s encounters with life. Moreover, it helps them in different states of affairs and social drawbacks which they should tackle in the future and for which they must be prepared in advance (Chegeni & Chegeni, 2018). Topics such as mental sensitivity, kindness, unanimity, and sympathy for others and moving beyond discriminatory practices can be promoted via stories. Not only moral consciousness and ethics can be introduced to children via stories but stories can also be a significant aid for children with special needs and problematic behaviors (Bratitsis, 2016). The children who hear stories can have close experiences in their imagination and learn how to feel empathy with the story heroes. Therefore, stories can drastically promote not only emotional intelligence but also empathy.

Digital storytelling is one of the educational methods that has been formed with the development of technologies. It combines storytelling with multimedia capabilities (such as text, audio, video, animation, and film), makes learning concepts easier and more engaging, and enhances active learning and collaboration in learners. Digital storytelling is an effective tool to help teachers motivate their students to engage in discussion, participate in instruction, and support the comprehension of content (Kosara & Mackinlay, 2013). Over the past decades, there has been a great deal of interest in using digital storytelling in children’s education (Dewi et al., 2018; C. C. C. Liu et al., 2019). Digital story-telling offers different advantages which have been acknowledged by different experts. It has a great potential to aid students in learning language (Ohler, 2013) due to the interplay between writing, speaking and listening, empowers students to be confident communicators and makers of media when they gain 21st-century literacy skills and deeper understanding in vast areas of the curriculum (Saponoro, 2014) and fosters creativity and stimulates reflection on learning and life processes (Kasami, 2018).

A multitude of studies have investigated the effectiveness of digital storytelling on students, and many have shown that digital storytelling has a greater effect on students’ learning (Istemic Staričić et al., 2016), creativity (Schmoelz, 2018), motivation (K. P. K. P. Liu et al., 2018), social intelligence (Murck, & Mey, 2019) and emotional intelligence (Mashapourfard, 2019). Social intelligence is the ability to understand others. It is the ability to use communication skills, keep friendly relationships and show appropriate social behaviors and empathy with other people (Brown et al., 2019). Research shows that lack of social intelligence education in students exacerbates learning problems and hinders students’ academic achievement and has a negative impact on their academic performance (Yusuf et al., 2018). According to research, social intelligence has a positive and significant relationship with emotional intelligence. Emotional intelligence is a social skill which is defined as facilitating communication with people and controlling one’s emotions in relation to others and the ability to encourage and guide them (Navarash, 2019). It is the ability to identify and express emotions in oneself and others (Eifenbein & MacCann, 2017) and the skills of emotional intelligence enable people to adapt to stressful situations and have high self-esteem (Thomas et al., 2017). It is regarded as an integration of interpersonal and intrapersonal intelligences and language learning (Pisghadam, 2009, as cited in Behjat, 2012) and has been studied in different contexts. For example, Ishak, Mustapha, Mahmud, and Ariffin (2006) examined emotional
intelligence of teachers in schools. Mavroveli et al. (2008) investigated the emotional intelligence of children.

Lawrence and Paige (2016) investigated how oral storytelling can help children successfully communicate regarding their emotions. Holmes (2019) also analyzed the way social stories can be applied as a means to help foster emotional intelligence in young children and reported that social stories are a precious tool for stimulating children to talk about their feelings. Likewise, Dettore (2002, as cited in Holmes, 2019) maintained that story books function as a learning platform to aid children in expressing themselves, and empower adults to help children navigate and value their feelings. Similarly, Pieterse and Rosemary (2011) measured the impact of digital story-telling on trait emotional intelligence of students in South Africa and found that digital stories affected the emotional development of participants.

In fact, research has shown that children's emotional development could be enhanced storytelling (Erikson, 2018). Hence, Digital storytelling is a valuable means whereby the emotional intelligence of children who listen to stories is influenced. Storytelling encompasses an element of education and entertainment. The element of education is conveyed via the message which is delivered and it is complemented by the element of entertainment to create a lively atmosphere and to obliterate boredom. Storytelling helps them to visualize experiences and imagine the pictures in their minds. Moreover, it supplies children with linguistic models and thoughts which they can follow (Flórez Aristizábal et al., 2017).

In most studies, cognitive intelligence or IQ has been investigated widely. However, the studies on the impact of digital storytelling on the two types of intelligence, namely social and emotional intelligence among elementary school children have been rare and scant, especially in the Iranian context. Moreover, most studies on Social and Emotional Intelligence have focused on adult participants though as Paavola (2017) put it, Emotional Intelligence which has been based in early childhood will appear as a central aspect for success in the entire life, both in personal and academic achievements. Likewise, Emotional Intelligence makes children endowed with some valuable traits in that it helps them become aware of their emotions, manage their feelings, overcome obstacles and show empathy for others. Similarly, Social Intelligence is according to Henderson et al. (2008), critical to social, cognitive and language development. Therefore, factors which can improve children's Social and Emotional Intelligence should be identified and utilized in the best possible way. Given the possible merits of digital storytelling in improving the aforementioned types of intelligence, as well as the importance of training health beliefs in this age period, this study examines the effects of the digital storytelling method on the level of social intelligence and emotional intelligence among female elementary school students.

1.1. Research question
In this study, digital storytelling is combined with group discussion and one main research question is answered:

Does integrating digital storytelling with group discussion influence female elementary school students' level of Social Intelligence and Emotional Intelligence?

2. Methodology
As we objectively collected and analyzed numerical data, quantitative approach was applied. The objective of this quasi-experimental pretest–posttest study was to evaluate the effects of digital storytelling on female elementary school students' level of social intelligence and emotional intelligence. As we planned to manipulate the independent variable and make comparison between groups, we selected the quasi-experimental design and as we measured the dependent variables once before the treatment and once after it, we chose the pretest-posttest design. The research question was: Is there a significant difference in the level of social intelligence and emotional intelligence between female elementary school students who participated in the intervention (digital storytelling) and the control group (no intervention) groups?
The independent variable was digital storytelling and the levels of social and emotional intelligence were the dependent variables of the study. The scores on The Tromsø Social Intelligence Scale and Bar-on Emotional Intelligence were used for comparing social intelligence and emotional intelligence between the intervention and the control groups.

2.1. Participants
The study population consisted of all third-grade students enrolled in a female elementary school in Shiraz, Iran, during the first semester of 2019. Nearly all parents in Iran send their children to single-sex schools after preschool and it is a norm there; therefore, we selected the study participants from a female only school as we planned to make comparisons between an intervention group and a control group from the same gender in an attempt to keep the homogeneity of the groups.

All students who were studying in the third grade in the elementary school and were willing to participate in the study were included. Students who were enrolled as guest students for the aforementioned semester and those unwilling to continue their cooperation in the research were excluded from the study.

2.1.1. Sampling method
Initially, census method was applied to select all third grade elementary school students (female students) who were studying in an elementary school in Shiraz during the first semester of 2019 \( (N = 60) \). The researchers chose this group because the students were readily available to them.
Participants were then randomly divided into an intervention group (n = 30) and a control group (n = 30). Simple random sampling was performed using random allocation software and study samples were allocated to one of the groups based on the prepared list (Figure 1).

2.2. Instrumentation

2.2.1. The Tromsø Social Intelligence Scale
This scale evaluates the ability to recognize the emotions of oneself and others, distinguish between emotions and use this information to guide one’s thoughts and actions and can be used in all age groups. The inventory consists of 21 questions, presented in seven incremental levels of response, numbered from 1 completely agree (5 point) to completely disagree (1 point) in three subscales of Social Information Processing which indicates ability to understand and predict Others’ Feelings and behavior (SIP) Social Awareness that shows ability to act appropriately in different situation (SA) and Social Skills (SS). Habib et al. (2013) reported acceptable levels of content validity and internal consistency.

Using Cronbach’s alpha coefficient, Heidari et al. (2009) reported the reliability of this questionnaire and its subscales to be 0.75 (“The Tromsø Social Intelligence Scale: Factorial Structure and Reliability of the Persian Version of Scale in the Students Population,” n.d.) (Appendix 1).

2.2.2. Bar-on Emotional Intelligence
This questionnaire measures a person’s ability to cope with environmental needs and pressures and can be used in all age groups. The inventory consists of 90 questions, presented in seven incremental levels of response, numbered from completely disagree (1 point) to completely agree (5 point) in tackling five subscales of intrapersonal (emotional self-awareness, self-expression, self-esteem, and independence), interpersonal (sympathy, social responsibility, and interpersonal relationships), stress management (management of stress and tension), adaptability (effective response to problematic situations), and general mood (enjoyment of life and maintenance of a positive attitude and mood).

According to Parsay, et al. (2016), this questionnaire has an adequate face and content validity, and reliability for measuring Emotional Intelligence in Iranian society (Parsay et al., n.d.). In order to validate the instruments, both the Tromsø Social Intelligence Scale and the Bar-on Emotional Intelligence questionnaire were given to a number of experts in the field and they were asked whether or not the questionnaire items were appropriate. Their views were taken into consideration for the final version of the questionnaires. Table 1 provides some information about the research instruments used, the variables measured and the dimensions of the instruments.

2.3. Data collection procedures
After receiving approval from the Ethics Committee of Shiraz ministry of education, the researchers initiated the implementation of research. Then, they attended the selected school, and identified the

| Instruments | Dependent Variable | Dimensions               |
|-------------|--------------------|--------------------------|
| The Tromsø Social Intelligence Scale | Social Intelligence | Social Information Processing |
|             |                    | Social Awareness          |
|             |                    | Social Skills             |
| Bar-on Emotional Intelligence | Emotional Intelligence | Intrapersonal Skills     |
|             |                    | Coping with Stress        |
|             |                    | Adaptability              |
|             |                    | General Mood              |

Table 1. Research Instruments, Variables and the Dimensions of the Variables
students eligible for inclusion. After that, the researchers explained the aims and methods and the process of the study to the children and their parents, and written informed consents were obtained from them. Then the Participants’ demographic data (age, parents’ educational and economic levels), the level of Social Intelligence and Emotional Intelligence of students were fully documented at the beginning of the study and after four weeks. The children completed the questionnaires in approximately 40 minutes under the guidance and explanation of the researchers.

2.4. Research procedures
After completing the questionnaire, the children were randomly assigned to two groups, namely intervention group (digital storytelling) and control group (routine class). The research samples underwent four two-hour sessions within four weeks (every 1 week). In each two-hour session, a digital storytelling was presented to the students which continued for four sessions. The digital storytelling contents were developed by the Institute for the Intellectual Development of Children and Young Adults. The learning objectives of the stories contained improving children’s social, and Emotional Intelligence i.e., dealing with stress, negative emotions and the ability to manage anger.

In the first session, in a story “I am angry”, children were introduced to various emotional situations. Through this story, children learned the right ways to deal with the aforementioned situations. In the second session, another story entitled “Angry Cat” depicted a garden of different animals that lived together and taught them how to express emotions and interact properly with others. The main character was the angry cat which gradually learned how to present its emotions in a friendly manner. The story of “Going off the Deep End” which was told in the third session also showed how to deal with debtors in conflict and emotional situations and taught children how to be aware of the behaviors of others, to show positive reactions to others’ unexpected actions and to respond appropriately.

Furthermore, in the final session “The Stress Relief” was a compelling story that taught children how to manage their emotions. This story helped them to strengthen their emotional intelligence and social intelligence (Figure 2).

At first, stories were told to children in a peaceful environment and all listened to them. In each session, the researcher encouraged the children to participate in the discussion. Asking children “what do you think will happen next” while telling the story, children were encouraged to find solutions by group discussion. Moreover, they tested different methods to deal with stress, negative emotions and the ability to manage anger. Then, the instructor sought children’s views about
stories and asked them to talk with other children about the content of the story and what happened in it so that their discussion would be expanded.

Moreover, at the beginning of each session, the researcher asked the children what they had learned from the previous sessions and in the last session, the contents of the previous days were summarized. The teacher played the role of a facilitator at this stage and provided the necessary help to the students. Simultaneously, the instructor endeavored to convey social concepts of stories to them in children's language. The aforementioned concepts included respecting one another, discussing and talking with one another and communicating their thoughts and feelings. In the next stage, the teacher provided additional information on the social concepts of storytelling in a childlike language.

It should be noted that the control group received only classroom training. The researcher taught students the same concepts such as dealing with stress, negative emotions and the ability to manage anger in four class sessions with discussion and questions and answers. One week after the intervention, the social intelligence and emotional intelligence questionnaires were completed by both groups. At the end of the study, educational content was provided to the control group.

3. Statistical analysis
Data analysis was performed using SPSS software (version 23). Descriptive statistics including mean and standard deviation and descriptive tables were used to survey the demographic characteristics of the research samples. To evaluate the effect of intervention, Multivariate analysis of covariance (MANCOVA) was performed. In MANCOVA, intelligence scores were used as dependent variables and before intelligence scores as covariates. Independence of covariates (before scores) and treatment is avoided by random allocation and checking the before mean scores in two groups by t-test. P-value<0.05 was considered as an acceptable significance level.

4. Results
In this study, 60 elementary school children were placed in two groups, namely digital storytelling (30 female students) and control (30 female students). Using “Chi square” test, the frequency distribution of age and parents’ educational and economic levels showed that there was homogeneity between the two groups (p > 0.005). The comparison of the two groups in terms of demographic data revealed that there were no significant differences between the foregoing groups before the intervention and the research samples were selected randomly.

The social intelligence and emotional intelligence scores in the intervention and control groups were evaluated and compared before and three months after the intervention. For this purpose, the mean and standard deviation of their scores (social intelligence and emotional intelligence scores) were calculated by means of paired t-test immediately before and three months after the intervention (Table 2).

| Intervention Group | Social Intelligence | Emotional Intelligence |
|--------------------|---------------------|------------------------|
|                    | Control Group M SD  | Digital Storytelling M SD | Control Group M SD  | Digital Storytelling M SD |
| Pre-test           | 31.10 4.01          | 30.25 3.91              | 58.99 3.45          | 58.89 3.43              |
| Three Months after the interventions | 31.29 3.99          | 33.50 3.69              | 59.22 3.47          | 62.24 3.17              |
As can be observed in the above table, the means of social intelligence scores were the same before the intervention in both groups (p = 0.466 and p = 0.911). Moreover, it was illuminated that social intelligence and emotional intelligence scores in digital storytelling group increased after training compared to control group. The main hypothesis of the research states that the educational intervention including digital storytelling influences elementary school students’ social intelligence and emotional intelligence. As the results of Shapiro-Wilk test, box’s test of equality of covariance matrices, homogeneity of variance of the groups and homogeneity of regression slopes (p > .005) showed, the distribution of scores in the population is normal.

To determine the effect of the intervention, the MANCOVA was used to test for significant differences between group means (Table 3). The results showed that digital storytelling had a significant effect on the social intelligence and emotional intelligence of elementary students (p = 0 < .001)

Multivariate analysis of covariance (MANCOVA) was used to investigate the effect of digital storytelling on the dimensions of social intelligence (Social Information Processing, Social Awareness and Social Skills), and emotional intelligence (intrapersonal skills, coping with stress, adaptability, general mood) as illustrated in Table 4.

It was shown in Table 4 that, the mean scores of the social intelligence in sub-dimensions of social awareness and social skills and the average scores of the emotional intelligence in sub-dimensions of intrapersonal skills, and coping with stress were statistically significant after the intervention (0 < .001).

Eta squared shows the variance of the dependent variable in the sample, but not in the population and makes predictions about the effect size. Inasmuch as the sample size was not large, extra explanations were not provided. Moreover, it is large for variables when there are significant differences in the groups (over 0.14).

5. Discussion
This study was carried out to find out the effects of digital storytelling on the levels of social intelligence and emotional intelligence in elementary students. Moreover, the results showed that the score for emotional intelligence in the digital storytelling group significantly increased in the intrapersonal skills, and coping with stress sub-dimensions. These upsurges revealed that the stories performed in this program, by emphasizing the importance of self-respect and respect for others, led to an increase in children's scores of interpersonal and social skills. After the training, children learned to care about their own needs, expressed their own feelings and those of others. Furthermore, the results indicated that digital storytelling has a significant effect on increasing scores in the dimensions of social awareness and social skills, while this method did not exert a significant effect on the dimension of social information processing in the social intelligence. In our study, stories included different types of social skills, such as the need to discuss about one’s feelings, listening to others and respecting one another, all of which enabled children to improve their social awareness and social
| Group                  | Sub-Dimensions     | Sum of Squares | df | Mean Square | F    | P-value | Eta squared |
|-----------------------|--------------------|----------------|----|-------------|------|---------|-------------|
| Social Intelligence   | Social Information Processing | 0.317          | 1  | 0.317       | 0.48 | 0.29    | 0.11        |
|                       | Social Awareness   | 89.46          | 1  | 89.46       | 100.40 | 0.001  | 0.63        |
|                       | Social Skills      | 53.93          | 1  | 53.93       | 110.10 | 0.001  | 0.58        |
| Emotional Intelligence| Intrapersonal Skills | 115.169        | 1  | 115.169     | 111.58 | 0.001  | 0.74        |
|                       | Coping with Stress | 150.55         | 1  | 150.55      | 104.06 | 0.001  | 0.71        |
|                       | Adaptability       | 21.89          | 1  | 21.89       | 0.81  | 0.33    | 0.14        |
|                       | General Mood       | 31.91          | 1  | 31.91       | 0.81  | 0.27    | 0.11        |
skills scores. However, promoting students’ social information processing needs longer periods of training. The results illuminated that this method significantly improved the level of social intelligence and emotional intelligence of children.

Various studies have been conducted on the effectiveness of digital storytelling. For example; Sulistianingsih et al. (2018) who investigated the effect of digital storytelling on emotional intelligence in students confirmed that it had positive and significant effects on emotional intelligence in students (Sulistianingsih et al., 2018). Moreover, Pieterse and Rosemary (2011) which reported that digital storytelling has a positive effect on the emotional intelligence of participants. Yuksel-Arslan, Yildirim and (Sulistianingsih et al., 2018) affirmed that Digital storytelling is effective in participants’ emotional intelligence and communication skills. Similarly, Aktaş and Yurt (2017) affirmed that digital storytelling is an effective approach for increasing motivation and learning in students. Likewise, a study by Bratitsis & Ziannas also showed that Interactive digital storytelling can enhance social intelligence and empathy of early childhood children (Bratitsis & Ziannas, 2015).

There are several reasons why digital storytelling can lead to superior performance. Because of its simple language, storytelling, expressing reality in the form of fantasy, being close to real life, and imitating the protagonist often yield lasting results. According to Chegeni and Chegeni (2018), storytelling can be used to teach children many social skills and help them to promote their social and emotional intelligence. In addition, the ability of children to recognize their emotions is stimulated and enhanced by this digital storytelling. Digital storytelling allows children to learn the hidden message in the stories at their desired time, location and learning pace to attain mastery in learning. A two-way interaction between story and learner occurs in storytelling. This interaction maximizes the possibility of message transmission. In the present educational program, stories which incorporated educational elements improved children’s social growth and augmented it. By telling them the aforementioned stories, children became familiarized with respecting others, empathizing, expressing their inner feelings including emotions in a safe and tranquil environment. Thus, these advantages might result in greater effectiveness of training through the storytelling method.

Another concept taught to children in these stories was the ability to cope with stress. Some of the main characters in the story were usually characters who, despite their problems and failures, did not stand still and tried to adapt to the stress again, and the pressure and the problem arose. In fact, during these stories, children saw that there was a child or an animal in the story who endured hardships and instead of bending over, sought a way to overcome whereby s/he was made stronger. But the results showed that the digital storytelling did not have a significant effect on strengthening students’ adaptability and general mood. The reason for this insignificance may be that improving these abilities requires a longer period of education and training.

In the information age, it is difficult to ignore the role of technology in education (Shahsavari et al., 2010) and many students of twenty-first century “prefer to receive materials digitally where it is acceptable” (Noorinezhad et al., 2021) and digital storytelling is an educational method which is based on technology in which an amalgamation of story with multimedia aspects occur. With the prevalence of multimedia in recent years (Kashefian-Naeini & Sheiknezami-Naeini, 2020), multimedia aspects such as text, audio, animation and film pave the way for a more fruitful transfer of educational concepts and smooths the path for active learning among learners (Jager et al., 2017); moreover, using multimedia in education has caused “a revolution in learner’s learning process” (Salehi, 2017, p. 112). With the application of fascinating and suitable graphics and animations, educational multimedia can stimulate learners and instill a positive attitude towards educational materials among them (C. C. Liu et al., 2019).

Along with creating a fun and entertaining environment, the story conveys messages indirectly to children. Our study also indicated that digital storytelling with group discussion leads to an improvement in the emotional intelligence of the students. There are several reasons why integrating these approaches are the effective. One of the reasons was active participation of the students in group discussion. We used group discussion to promote active and interactive
learning in our research. The use of interactive activities is one of the characteristics of effective teaching. This finding is in line with similar results regarding the significant effect of digital technology in enhancing learning and academic achievement (Aktaş & Yurt, 2017; Karim & Mustapha, 2020). Working within a group has greater advantages for learners, as they share their views, observations, and previous experiences with each other and create new knowledge.

6. Implications
Given the effectiveness of digital storytelling, the educational application of this method is recommended to improve social and emotional intelligence among the elementary students. Hence, educators are encouraged to use digital storytelling in order to enhance students’ social and emotional intelligence. In addition, students with higher social intelligence are better at knowing the ins and outs of socializing, understanding others, communicating and effectively tackling new situations. In the same token, students with higher emotional intelligence could have an increased attention, foster better relationships, regulate their behaviors and possess empathy. All in all, as digital storytelling can yield fruitful results, it is advisable that teachers be instructed about the best ways to make use of this method and school principals equip schools with the necessary equipment to integrate it into the academic curriculum provided that some other studies also confirmed the positive outcomes of the present study with regard to the use of digital storytelling in primary schools.

7. Limitations of the study
The empirical results reported herein should be considered in the light of some limitations. This study was conducted in a female only school and the main limitation in this study was that female elementary school students were only involved. This limitation could be addressed in future research by including some participants from male schools and making a comparison between male and female students with regard to the extent of effects that digital storytelling with group discussion exerted on social and emotional intelligence of the participants. Our study was limited to an amalgamation of digital storytelling with group discussion, while in some other contexts this mode of storytelling may be combined with group discussion in one group and role play in another group to seek the potential differences.

This study was performed only in a single school and needs to be implemented on a wider scale for generalization. The length of the instruments is another limitation. Inasmuch as we had two dependent variables, we used two questionnaires. In other studies, in order to prevent students’ fatigue, one of the instruments (either the Tromso social intelligence scale or the Bar-on emotional intelligence inventory) can be used and the effects of the independent variable can be determined on one dependent variable.

Moreover, as only short-term effects were studied, there is a need for long-term follow-ups. For future research, it is recommended that digital storytelling with group discussion be implemented for a longer time and with a larger sample size to accomplish a more precise evaluation of the students’ social intelligence and emotional intelligence.

8. Recommendations for future work
This study sought to investigate the effects of integrating digital storytelling with group discussion on the level of social intelligence and emotional intelligence among elementary school students. Another work can be conducted to investigate the aforementioned factors among students of other levels, for example, those at kindergartens or secondary schools. Other studies may focus on the influence of storytelling and language development or storytelling and students’ empathy. Effects of storytelling on other types of intelligence such as linguistic intelligence, interpersonal and intrapersonal intelligences may also be illuminating.
9. Conclusion

Digital storytelling is altering the nature of storytelling and opening avenues to new modes of learning. The present study sought to determine the effects of integrating digital storytelling with group discussion on the levels of social intelligence and emotional intelligence on female elementary school students. The social intelligence and emotional intelligence scores in the intervention (digital storytelling) and control group (without intervention) were evaluated and compared before and three months after the intervention. Multivariate analysis of covariance (MANCOVA) was used to investigate the effect of digital storytelling on the dimensions of social intelligence (Social Information Processing, Social Awareness and Social Skills), and emotional intelligence (intrapersonal skills, coping with stress, adaptability and general mood). It came to light that integrating digital storytelling with group discussion exerts a significant role in augmenting the students' social intelligence and emotional intelligence. Hence, it is recommended that digital storytelling be combined with group discussion to obtain the best results and to improve children's social intelligence and emotional intelligence.

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Disclosure statement

No potential conflict of interest was reported by the author(s).

Ethical considerations

The present study was approved by the ethics committee of Shiraz ministry of education. In accordance with ethical principles, the researchers explained the aims, methods and conditions of the study to the children and their parents, and written informed consent was obtained from them. They were assured that the results would be used only for research purposes.

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