Emotional Education as a Means of Developing Social Competence in Primary School Students in Wartime

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Abstract

Emotional education is key for primary school children, as it promotes their emotional development and successful socialization. Specialized mobile software, which are integrated into psychological and pedagogical support programmes for primary school students, can help in the development of children's emotional intelligence (EI). The aim of the research was to analyse the effectiveness of using two mobile applications (Emotional, and Bouncy the People Trainer). They were designed to stimulate the EI growth among children aged 6-9. The research methods included psychological methods from the EQ.app kids computer software, emotional education programmes developed on the basis of socio-emotional learning (SEL) methods, mathematical statistics methods (correlation analysis, Pearson correlation coefficient, Student's t-test). Analysis of the dynamics of EI indicators revealed significant differences between the experimental group (EG) and control group (CG) on pre-tests and post-tests. In the EG, a statistically significant improvement (p-value = 0.000) was observed in the indicators of emotional praxis by 8.57 points, in perceptual and language components by 10.63 points. This gives grounds to conclude that working in two mobile applications helped to develop children's EI. At the same time, the CG remained at their pre-test scores, showing no improvement. Research prospects include a deeper study of the impact of different methods of emotional education on the children's mental state and social skills, as well as an analysis of the long-term consequences of such programmes. It is important to study the integration of digital technologies in the process of emotional education, evaluate the effectiveness of various mobile applications, online platforms and other digital tools for the development of EI and social competence.

Keywords:

Primary School Students, Emotional Intelligence (EI), Child Development, Mobile Applications, Wartime.

Introduction

Emotional support helps children facing additional stressors because of wartime to better adapt and maintain psychological resilience. Communication skills are essential to facilitate children's social interaction and emotional development. Dialogic interaction, being

an objective and universal form of development, determines the existence and structural organization of any system (Wang et al., 2024). However, social adaptation can be particularly difficult for children with severe developmental disabilities and emotional mental disorders caused by war (Ishchenko et al., 2024; Kucherenko et al., 2024). Therefore, social adaptation of children with emotional disorders is one of the most important tasks of special pedagogy and psychology (Thorius et al., 2024). Given that emotional intelligence involves recognizing and managing emotions effectively, it becomes a foundational skill in helping children with emotional disorders navigate social situations, thereby enhancing their adaptability in social contexts (Truba et al., 2024).

The concept of EI means the ability to recognize one's feelings and the emotions of others, as well as the ability to manage them and use this information to regulate thoughts and actions (Ahsen et al., 2023). Early development of EI plays a key role in a child's social adjustment, academic success, and long-term well-being (Iqbal & Noor, 2023). By fostering EI from an early age, educators and caregivers can better equip children to handle the emotional and behavioral challenges associated with volitional disorders, ultimately aiding in their social adjustment and academic success.

Emotional and volitional disorders encompass a range of conditions that create problems in regulating children's emotions, impulses, and behaviour (Bryant et al., 2019). These disorders come in many forms and can significantly affect a child's ability to communicate effectively and maintain positive relationships. For example, children with attention deficit hyperactivity disorder (ADHD) may have difficulty staying focused, controlling impulsive behaviour, and managing their emotions, which impairs their communication skills (Wolraich et al., 2019). In wartime, behavioural disorders are manifested by defiant and disobedient behaviour in relation to authoritative persons, which further complicates constructive dialogue with peers and adults.

Autism spectrum disorders (ASD) are primarily manifested as deficits in social communication and interaction. However, individuals with ASD may also experience emotional dysregulation and difficulty with volitional control, further complicating their communication skills (Moulton et al., 2019). Similar to individuals with ASD, children with emotional and volitional disorders often struggle with emotional regulation and volitional control, impacting their communication abilities and complicating social interactions.

Children with emotional and volitional disorders have problems in communication and social interaction, which can hinder their ability to navigate effectively

in social situations (Tarver et al., 2019). Given these social challenges, developing emotional intelligence becomes crucial, as it equips schoolchildren, especially those with emotional and volitional disorders, with the skills needed to manage interactions and adapt as they grow.

This research contributes theoretically by deepening the understanding of emotional intelligence's role in supporting social adaptation among children with emotional and volitional disorders, a relatively underexplored area in educational psychology. By highlighting how EI can serve as a foundation for improved social skills and emotional regulation, this study offers insights that can inform evidence-based educational practices tailored for these children. Furthermore, it enriches the literature by identifying specific EI competencies that are most impactful for social adaptation, providing a framework that future studies and interventions can build upon. The importance of EI in schoolchildren in the context of their growing up and development is difficult to overestimate (Pauletto et al., 2023). Children with higher EI levels feel better in society, less susceptible to stress and more adaptable (Mohammadi Orangi et al., 2023). That is why specialists in the field of psychology and education should use different techniques for its development and improvement, and parents should be informed about it (Brady et al., 2023; Ciolan & Florescu, 2023). Technological progress of the 21st century opens up a number of new prospects for the educational sphere, which include specialized mobile applications (Subiyantoro et al., 2024; Zhylin et al., 2024). At the same time, it is extremely important that the programmes do not carry a threat in the form of uncontrolled consumption or poor quality (Meyer et al., 2021; Paramita et al., 2023).

The aim of the study is to analyse the effectiveness of using mobile applications in the context of psychological and pedagogical support aimed at improving the EI of children aged 6-9 years in wartime.

Research objectives:

1. Conduct an analysis of the dynamics of EI levels of the CG and EG children by comparing the studied indicators.

2. Determine the statistical significance of the identified differences.

3. Compare the EG and CG with each other and draw a conclusion about the effects of the experiment.

Literature Review

EI helps a person to recognize, understand, accept, control, and make sense of his/her feelings and emotions, as well as apply this knowledge in relation to everyone around him/her (Samara et al., 2024).

Effective interaction with other people requires empathy, self-control, and nonviolent communication, which emphasizes the importance of developing emotional intelligence (Anand et al., 2024; Gao et al., 2023). The ability to understand the feelings of peers and the ability to manage emotions can help a child to adequately express his/her feelings and experiences, not to use destructive conflict resolution methods (Perry et al., 2020; Sánchez-Núñez et al., 2022).

The difficulty of conducting an effective dialogue is one of the main communication problems faced by children with emotional and volitional disorders. This problem is often associated with insufficient consideration of the interlocutor's wishes and readiness for communication (Woodgate et al., 2020). However, in wartime, it is even more difficult for children with emotional and volitional disorders to understand the point of view of their interlocutors because of their inherent difficulties with empathy.

The second communication problem observed in children with emotional and volitional disorders in wartime is their poor orientation in feedback from communication partners. In wartime, children may engage in one-sided conversations, focusing solely on their own interests or topics of conversation, without acknowledging and responding appropriately to the contributions of others (Yamamoto, 2021).

A third significant communication problem faced by children with emotional-volitional disorders in martial law is social saturation, which means a reduced tolerance for social interaction. In wartime, children with emotional and volitional disorders, including such conditions as anxiety disorders causing oppositional defiant disorder (ODD) or ASD, have a further reduced ability to tolerate stress or frustration, which further complicates their social interaction and communication (Tarver et al., 2019). In wartime, these problems become even more acute, requiring a comprehensive approach to the development of interventions and modern technology tools. There is a limited number of practical developments to improve the quality of communication of children with emotional and volitional disorders. The need for such tools becomes even more urgent in wartime. However, it is necessary to continue research on the development of social competence in children in wartime.

Methods and Materials

Research Design

Empirical research was conducted in several stages.
The first (preparatory) stage:
- determination of the sample;
- selection of mobile applications.
The second (initial) stage:
- collection of basic data: conducting primary testing of the EI level;
- learning how to use mobile applications.
The third (experimental) stage:
- implementation of mobile applications in the education of the EG children.
The fourth (final) stage:
- repeated testing;
- data analysis.

In this research, measuring the placebo effect was deemed unnecessary because the focus was specifically on examining the impact of targeted interventions—in this case, emotional intelligence (EI) training—on social adaptation and behavioral outcomes in children with emotional disorders. The study's design involved a clear comparison between the intervention group and a control group that did not receive EI training, providing a straightforward assessment of the intervention's efficacy without the need for a placebo condition. Furthermore, since the observed outcomes (e.g., improved social skills and emotional regulation) are directly linked to the specific mechanisms of EI development rather than general expectations of improvement, the placebo effect was unlikely to influence these behavioral and emotional outcomes significantly.

The CG did not experience any changes in their activities; the EG studied with two specialized mobile applications that were aimed at developing their EI: Emotionary (Funny Feelings, 2023) and Bouncy the People Trainer (Ripple Effects, 2023). Examples of their interfaces are presented in Appendixes A and B.

Furthermore, emotional education programmes developed using social-emotional learning (SEL) methods were used (Table 1).

Sample

The empirical study was conducted during seven months, from September 2023 to January 2024. The sample included 60 children aged 6 to 9 years of the Specialized School No. 155 with in-depth study of the English language of the Shevchenkivskyi district of Kyiv. Only one educational institution in the city of Kyiv was chosen for the study for several reasons. First, focusing on one educational institution allows for a deeper and more detailed study of the social competence and emotional state of children in specific conditions. Second, it makes it possible to carefully control all variables and factors that can affect the results of the study, which increases the reliability and accuracy of the obtained data. More detailed information about the study participants is given in Table 2.

The sample used in this study is a purposive sample, specifically selected based on specific characteristics and the unique context provided by a single institution, Specialized School No. 155, in Kyiv. This type of sample allows for in-depth exploration of social competence

and emotional states within a controlled educational environment. Purposive sampling is commonly used in studies where researchers aim to understand phenomena in a specific context or with a particular group, allowing for detailed observations and reliable control over influencing factors.

The sample size is explained by the fact that it is this number that makes the sample representative and the results valid. Children 6-9 years old were chosen based on their psychological characteristics, when they intensively learn to communicate, understand themselves and others, and build relationships in the school environment. The experimental study was conducted by 8 psychologists on the basis of children's medical and psychodiagnostic centres in Kyiv: KinderKlinik, MottyLotty, Open World Centre for Children Rehabilitation and Development.

Research Methods

The computer programme EQ.app kids (https://eq-ap.com/en/) was used as a method for determining EI. The underlying methodology includes four subtests aimed at assessing different components of EI, including emotional praxis, perceptual and linguistic components, a semantic component, and a regulatory component.

Emotional education programmes were used, developed on the basis of social emotional learning (SEL) methods, which included trainings for the EI development, as well as games and exercises for the development of empathy. These programmes were aimed at developing children's ability to recognize and manage their emotions, as well as to better understand other people's emotions.

Mathematical statistics methods were used for data processing and analysis. Descriptive statistics included the calculation of means, medians, and standard deviations to assess general trends in the data.

Instruments

The study covers four stages, such as subtests:

1. assesses elementary emotional praxis through facial expressions, pantomime, and prosody, offering 16 tasks;

2. aimed at assessing perceptual and language components, including identification and correlation of emotions, contains 56 tasks;

3. assesses the semantic component of EI, focusing on understanding the meaningful aspects of basic emotions, which includes 16 tasks;

Table 1.

Programmes of emotional education of children developed on the basis of methods of social emotional learning (SEL)

Name of the programme	Programme description	Target audience	The main components of the programme	Use in wartime
Second Step	The programme is aimed at developing EI and social skills	Children 6-9 years old	Teaching empathy, emotional regulation, conflict resolution	emotional support, helps children to cope with stress
PATHS (Promoting Alternative Thinking Strategies)	The program is designed to develop emotional and social competencies	Children 6-9 years old	Anger management, decision making, social interaction	Helps to reduce the level of anxiety and aggression in conditions in wartime
RULER	The programme is designed to integrate emotional learning into everyday life	Children 6-9 years old	Recognizing, understanding, marking, expressing, and regulating emotions	Supports children's emotional stability during a crisis
MindUP	The programme is based on mindfulness practices to improve emotional resilience	Children 6-9 years old	Mindfulness practices, stress reduction strategies, emotional regulation	Helps children to focus and cope with stressful situations

Source: Developed by the author on the basis of collected data on the participants of the experiment

Table 2.

Data on research participants

Group	Total	Boys	Girls	Average age	SD
CG	30	12	18	7.87	0.19
EG	30	14	16	7.63	0.24
Total/Mean	60	26	34	7.75	0.21

Source: Developed by the author on the basis of collected data on the participants of the experiment

4. is designed to assess the regulatory component, that is, the ability to regulate emotional states, which includes 15 tasks.

SPSS Statistics 26 was used for the analysis, which involved comparing data on EI before and after the experiment. The Student's t-test for paired samples was applied to determine the statistical significance of these changes, and comparisons between groups used the same instrument but from independent samples.

Results

The first objective of the research was to analyse the dynamics of EI indicators of the EG and CG children by comparing the studied indicators. Tables 3 and 4 contain parameters of analytical statistics that reflect the studied four subtests of EI.

In the CG, the difference between the average values of the EI indicators before and after the test showed weak variability.

The EG shows a significant increase in the average values for various EI components. For emotional praxis, the value increased by 8.57, which may indicate an improvement in children's ability to use emotions in their activities and interactions. The perceptual and linguistic components increased by 10.63, indicating an improvement in the ability to recognize and verbalize

Table 3.

Analysis of the dynamics of EI indicators of the CG children

		pre-test emotional praxis	post-test, emotional praxis	pre-test perceptual and linguistic components	post-test perceptual and linguistic components	pre-test semantic component	post-test semantic component	pre-test regulatory component	post-test regulatory component	pre-test integral indicators	post-test integral indicators
CG	Mean	22.33	23.20	95.07	95.27	21.63	21.53	8.00	8.27	147.03	148.27
	N	30	30	30	30	30	30	30	30	30	30
	Standard deviation	3.367	3.112	4.323	4.234	3.567	3.104	1.531	1.258	7.000	6.119
	Standard error of the mean	.615	.568	.789	.773	.651	.567	.280	.230	1.278	1.117
	Variance	11.333	9.683	18.685	17.926	12.723	9.637	2.345	1.582	48.999	37.444
	Excess	-1.750	-1.483	-1.172	-1.284	-.919	-.998	-1.517	-.606	-.377	-.859
	Asymmetry	.242	.154	.105	.084	-.527	-.242	-.123	-.432	.545	.015

Source: Developed by the author on the basis of collected data on the participants of the experiment

emotions. The increase in the semantic component by 7.4 indicates that children have become better aware of the meaning of their emotions and their influence on behaviour. The regulatory component increased by 3.37, indicating an improvement in children's ability to control and regulate their emotions. The obtained indicators can be explained by the integrated approach of mobile applications that combine educational tasks with game elements, which makes the learning process more interesting and effective for children.

Integral indicators increased by 29.97, demonstrating the positive impact of the experiment on the respondents' general level of EI. The second task of the study was to calculate the Student t-test for paired samples to determine the statistical significance of the found differences (Table 5).

In the CG, changes between pre-tests and post-tests in all subtests were not statistically significant, p-values in all cases were higher than the threshold

of 0.05. Statistically significant differences are noted in the EG (p-value = 0.000). This gives grounds to conclude that working with two mobile applications helped to develop children's EI. At the same time, the CG remained at their pre-test scores, showing no improvement. The third task of the study was to apply the Student's t-test for independent samples to compare the EG and CG with each other and to draw conclusions about the effects of the experiment. The results are presented in Table 6.

Therefore, the current calculations confirm the proposed hypothesis that regular use of mobile applications can significantly develop EI indicators in children of this age group.

Discussion

The findings (Booton et al., 2023) indicated the need to integrate digital tools into the educational process to promote both learning and child development, which is consistent with the findings of this study. Another

Table 4.

Analysis of the dynamics of EI indicators of the EG children

		pre-test emotional praxis	post-test, emotional praxis	pre-test perceptual and linguistic components	post-test perceptual and linguistic components	pre-test semantic component	post-test semantic component	pre-test regulatory component	post-test regulatory component	pre-test integral indicators	post-test integral indicators
EG	Mean	23.30	31.87	95.87	106.50	21.23	28.63	7.93	11.30	148.33	178.30
	N	30	30	30	30	30	30	30	30	30	30
	Standard deviation	3.164	1.871	4.607	4.385	3.115	1.159	1.461	1.489	7.685	4.815
	Standard error of the mean	.578	.342	.841	.801	.569	.212	.267	.272	1.403	.879
	Variance	10.010	3.499	21.223	19.224	9.702	1.344	2.133	2.217	59.057	23.183
	Excess	-1.156	-1.362	-1.290	-1.323	-.806	-1.478	-1.437	-1.345	.385	-.822
	Asymmetry	-.281	-.267	-.314	.012	-.269	-.063	-.019	-.287	-.714	.237

Source: Developed by the author on the basis of collected data on the participants of the experiment

Table 5.

Calculation of the statistical significance of the differences between pre-tests and post-tests for the CG and EG

		Pairwise differences			95% confidence interval for the difference		T	Degrees of freedom	Value (double sided)
		Mean	Root mean square deviation	Root mean square error of the mean	Lower	Higher			
				CG					
Subtest 1	emotional praxis	-.867	4.718	.861	-2.628	.895	-1.006	29	.323
Subtest 2	perceptual and linguistic components	-.200	5.714	1.043	-2.334	1.934	-.192	29	.849
Subtest 3	semantic component	.100	4.649	.849	-1.636	1.836	.118	29	.907
Subtest 4	regulatory component	-.267	1.911	.349	-.980	.447	-.764	29	.451
Total	integral indicators	-1.233	8.597	1.570	-4.444	1.977	-.786	29	.438
				EG					
Subtest 1	emotional praxis	-8.567	3.757	.686	-9.970	-7.164	-12.489	29	.000
Subtest 2	perceptual and linguistic components	-10.633	5.262	.961	-12.598	-8.668	-11.068	29	.000
Subtest 3	semantic component	-7.400	3.701	.676	-8.782	-6.018	-10.952	29	.000
Subtest 4	regulatory component	-3.367	1.938	.354	-4.090	-2.643	-9.513	29	.000
Total	Subtest 1 emotional praxis	8.704	1.589	-33.217	-26.717	-18.858	29	.000

Source: Developed by the author on the basis of collected data on the participants of the experiment

Table 6.

Determination of experiment's effects by calculating the level of significance using the Student's t-test for independent samples

		Levene's test for the equality of variances		t-test for equality of means					95% confidence interval for the difference	
		F	Significance	T	Degrees of freedom	Value (double sided)	Average difference	The root mean square error of the difference	Lower	Higher
pre-test emotional praxis	Equal variances are assumed	1.553	.218	-1.146	58	.256	-.967	.843	-2.655	.722
	No equal variances are assumed			-1.146	57.778	.256	-.967	.843	-2.655	.722
post-test, emotional praxis	Equal variances are assumed	14.320	.000	-13.075	58	.000	-8.667	.663	-9.994	-7.340
	No equal variances are assumed			-13.075	47.538	.000	-8.667	.663	-10.000	-7.334
pre-test perceptual and linguistic components	Equal variances are assumed	.589	.446	-.694	58	.491	-.800	1.153	-3.109	1.509
	No equal variances are assumed			-.694	57.766	.491	-.800	1.153	-3.109	1.509
post-test perceptual and linguistic components	Equal variances are assumed	.004	.949	-10.095	58	.000	-11.233	1.113	-13.461	-9.006
	No equal variances are assumed			-10.095	57.929	.000	-11.233	1.113	-13.461	-9.006

Source: Developed by the author on the basis of collected data on the participants of the experiment

study focused redesigning a mobile content model to develop mathematical skills in schoolchildren. The mobile applications were found to be beneficial due to their potential to increase engagement, interaction and personalized experiences for young learners (Ismail et al., 2023). This complements our findings, showing that mobile applications can be effective not only for the development of EI, but also for the acquisition of specific knowledge and skills.

Another paper (Meng et al., 2023) examines the impact of digital literacy on children's school readiness and mental health. The study (Paramita et al., 2023) discovers the potential duality of the effects of electronic devices on children, pointing to the potential for improved social and communication skills with moderate use. The results of our experiment are related to these studies, as they also indicate the importance of digital literacy and moderate use of electronic devices for the development of children's social competence and emotional well-being.

One of the articles (Pauletto et al., 2023) emphasizes that targeted learning can significantly contribute to the development of key aspects of EI, which is reflected in the current study through the use of specialized mobile applications. As in this article, the results of our study support the conclusion that carefully designed educational interventions can improve EI.

Another study emphasizes the importance of quality and content of mobile education programmes. It is noted that not all apps meet educational standards, especially free versions with distracting elements (Meyer et al., 2021). Another study (Vanbecelaere et al., 2020) examines adaptive and non-adaptive games in the context of reading instruction, indicating no significant differences between different instructional methods. The results of our experiment are related to these studies, as they also emphasize the importance of the quality and content of mobile educational programmes for the development of social competence and emotional education of children.

One paper (Santos et al., 2021) discusses the League of Emotions Learners (LoEL) project, which uses a gaming application to develop emotional competence in a younger generation. These results are directly related to our research, confirming the positive impact of digital tools on the emotional development of children, provided that their educational and developmental goals are well organized.

The article (Liu et al., 2021) show that educational programmes for tablets based on the theory of multiple intelligences can significantly improve attention in schoolchildren. The results of our experiment are related to this study, as they also demonstrate the improvement.

Another study (Arzone et al., 2020) emphasizes the importance of gamification and emotional intelligence in the learning environment. The article (Al-Saadi & Al-Thani, 2023) covers the use of a specific mobile application, EmoTEA, for children with ASD. The results of our experiment are related to these studies, as they confirm the importance of integrating gamification and the development of EI in the educational environment for improving children's social competence. The obtained results confirm the achievement of the set aim and objectives of the research. Children who completed the emotional education programme showed significant improvements in social competence and the ability to manage their emotions. The positive impact of high-quality educational programmes for tablets and mobile applications on children's attention and social skills was established.

Conclusions

Military conflicts and associated social upheavals significantly affect the psycho-emotional state of children, especially of primary school age, when the foundations of their social competence and EI are being laid. In such conditions, emotional education becomes a critically important tool for supporting and developing children's ability to adapt, communicate, cooperate, and maintain emotional balance. Analysis of the dynamics of indicators of EI revealed significant differences between the EG and CG on pre-tests and post-tests. The academic value of the work is that it enriches the knowledge base in the fields of pedagogy and psychology, the conclusions can be used by other researchers in their studies. The spheres of application of the results relate to educational programmes of school institutions of various profiles.

The results of this study offer several contributions to educational practices, especially in fostering social competence and emotional well-being among children with emotional and volitional disorders. First, they highlight the critical role of emotional intelligence (EI) training in improving children's ability to navigate social interactions, suggesting that incorporating EI-focused curricula or targeted programs within schools can directly support social adaptation. Furthermore, the findings demonstrate the value of structured, controlled interventions, encouraging educators to adopt evidence-based approaches for enhancing social skills in children with specific emotional needs. By showing measurable improvements in social competence and emotional regulation, this research provides a practical framework for developing tailored educational programs that cater to students' emotional and social requirements, potentially leading to more inclusive and supportive learning environments.

Research Limitations

Only 60 respondents were included in the sample, which is related to the difficulties of involving children in research similar to this one. Furthermore, the limitation is only one educational institution for primary school students, which complicates data extrapolation. The mobile applications were adapted to the target language, but this still remains a certain limitation, which causes the need for developers to adapt such mobile applications to wide geographical and linguistic contexts.

Research Prospects

- Development of emotional education programmes adapted to wartime.

- Development and implementation of methods for evaluating the effectiveness of emotional education in primary school children.

- Determination of effective methods of psychological support for children experiencing stressful situations.

Recommendations

It is recommended to create emotional education programmes adapted to the students' individual needs taking into account their emotional state and level of development. Such programmes should include exercises to develop EI, including recognizing and expressing emotions, managing stress, and developing empathy. Special trainings on methods of emotional education will help teachers and psychologists to more effectively support students and introduce appropriate programmes into the educational process.

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Appendix A. An exampof the interface of the Emotionary mobile application
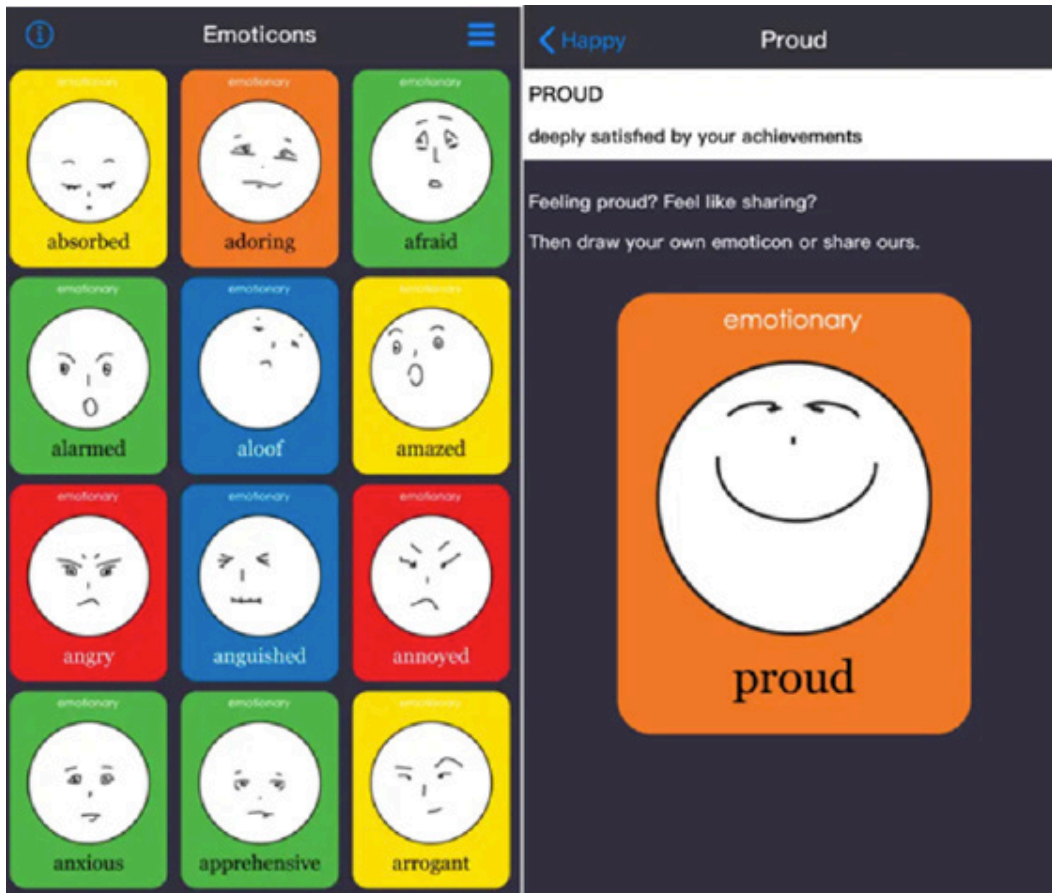
Appendix B. An example of the interface of the Bouncy the People Trainer mobile application