



Abstract of the PhD thesis

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THE DEVELOPMENT OF THE EMOTIONAL ELEMENTS OF THE SOCIAL COMPETENCE WITH THE TOOLS OF MUSIC THERAPY AMONG STUDENTS SPECIALIZING IN TEACHING

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The theme and structure of the thesis

The dissertation deals with the development of the emotional elements of the social competence through the devices of music therapy among students specializing in teaching. The *main reason for choosing this topic* is that it was not the development of the affective factors, the music therapy improvements performed in the framework of pedagogy (e.g. *Gooding*, 2011; *Rawlings* 2016), emphasized. The system of the specific devices of music therapy does not appear in the social competence development programs elaborated for teachers (e.g. *Dolev* and *Leshem*, 2017).

The interpretation of therapy concerning the development is well-known in the methodology of music therapy (e.g. *Missura*, 2005; *Buzasi*, 2006), thus this research applies the music therapy as a development device and method. Overall, a lack of an elaborated program appears in higher education, which program uses special devices to develop the emotional elements of the social competence e.g. the devices of music therapy.

The theme of the thesis elaborates and tests a training program accomplished by the means of music therapy. The training intends to develop the emotional elements of the social competence of the students participating in teacher training. The development program applies techniques developing the social skills resting on methods and means used in music therapy. While completing the exercises the students gain their own experience about the efficiency of the exercises, thus they will presumably be able to use them in the classroom. According to another expectation, the students' attitude to music therapy will deepen as an indirect effect of using the means of music therapy. The attitude to music developed in music therapy is referred to as musical attitude to music therapy distinguishing it from the music education or general artistic pleasure, since neither the musical profession nor the experience acquired through general artistic pleasure play a decisive role in terms of music therapy (*Missura*, 2005).

The structural units of the thesis are the following: The first part introduces the conceptual and content characteristics of the social competence. The second unit discusses the development of the social competence and the factors influencing the development. A separate subdivision deals with the effect of the attachment or emotional interactions on the socioemotional development and the role of emotions in the operation of the social competence. The third chapter describes the development of the social competence and the characteristics of the developing programs. The fourth part demonstrates the role of music in developing the social competence and analyses the psychological aspects of the musical experience, taste and musical sense. The fifth unit summarises the practical bases of the music therapy and the connection between the means of the music therapy and the development of the social skills. The next large part of the thesis (the sixth) introduces the development and the preparatory process of it. The seventh unit deals with the development and measurement of the measuring instruments and the choice of the sample. In the eight unit the results of the development are demonstrated, while in the last unit the pedagogical usefulness and the further possibilities of the research are summarized.

The goal, theoretical background and concept of the development experiment

The purpose of the development experiment is to develop and test a training program performed through the devices of music therapy among teachers and conceived to develop the emotional elements of the social competence. Its secondary aim is to

deepen the students' musical attitude to music therapy via exercises of the devices of music therapy.

Following *the theoretical background* in the international field, numerous examples demonstrate the training of the social and emotional skills among children (e.g. *Domitrovich*, 2007), however, they do not focus on the medical treatment but on the development within the framework of pedagogy. There are also programs for teachers (e.g. *Dolev* and *Leshem*, 2017), which aim to develop the emotional factors in a personalized way, and indicate the educators' more effective management of the conflict situations affecting their students when the educators incorporate the experiences of the training.

However, the devices used in the training are not specific. That is why the devices and methods of music therapy were incorporated into our experiment. The improvisation of music therapy as a method of active music therapy was applied for situation and dramatized exercises and stories. Experiencing the music through listening to it as a method of receptive music therapy served to introduce and finish the above-mentioned exercises.

As an indirect result, according to the literature (e.g. *Vértes*, 2010), we expected to deepen the students' musical attitude to music therapy, which can appear in the course of the development through the devices of music therapy. The sound effects applied in music therapy cannot be experienced via music education or general artistic pleasure, since the repertoire of the instruments of music therapy or the way and form of sounding these instruments is unsettled in contrast to the settled forms of music education (e.g. instructions in notes) or general artistic pleasure.

The dimensions of the music attitude to music therapy include the intensity, activity and experience of music and perception of the sounding environment (*Losonczy*, 1969). The music experience is a cognitive, emotional and perceptual process produced by music, which can evoke behavioural and psychophysiological reactions (*Gabrielsson*, 1995). The perception of the sounding environment means the conscious handling of the sound effects around us. The musical intensity and activity expressing the love of producing different sounds represent the form and mode of music. The improvisations through trying different sounds (*Bruscia*, 1987; *Wigram*, 2006) provide increasingly expanding forms and ways of playing music.

The *conception of our research*, the definition of the elements to be developed and the exercises prepared for the development followed the model of the affective-social competence by *Halberstadt*, *Denham* and *Dunsmore* (2001a). It is the model, which especially places the emotional factors to be developed into the dynamics of the social relationships while leading them through situational examples (*Szabadi*, 2014, 2016).

The *components of the model* include *sending, receiving, and experiencing emotional messages*. All the three main components have *four progressive abilities*. They are the following: *awakening to consciousness, identification, contextualization and control*. All the four skills are hierarchically connected and progressively evolving one after another within a particular component as the individual becomes able to mediate emotions during social interactions. This means that the awakening to consciousness, identification, contextualization and control of sending, receiving and experiencing emotional messages progress throughout the entire life on unconscious, conscious, and automatic levels, through the enrichment of the social experiences. To develop every single skill each component must work on an elementary level at least, which requires experience and practice. The development of a particular element entails

a higher level of the subsequent element. According to the model, this is the way the development of an ability becomes transactional. For example, when the identification of the other party's emotional message develops it results in greater awareness of the way we experience our own emotions. Based on the description of the model, the development of skills results in a dynamic interaction between the individual development and environmental opportunities.

In their recommendation *Halberstadt, Denham and Dunsmore* (2001b) offer the extension of all the aspects of the affective social competence to adult age groups. In their study, they also encourage the researchers to develop their own independent framework of testing and to use their own model, examples, and system. Consequently, we defined the elements to be developed, the development indicators, the structure and the nature of the measuring instrument, and the development exercises according to their examples.

The operation of the elements of the affective social competence is presented with *Halberstadt, Denham and Dunsmore* (2001a) through the *story of joining a group*. This way, they interpret the good and bad solutions of sending, receiving and experiencing emotional messages, on the unconscious, conscious, and automatic level of the development. *To test the elements* they suggest drawing up an imagined situation in which the experimentees have to decide what they would do or say in the place of the story's protagonist. Responding takes place when the process of the story is interrupted the moment of sending, receiving and experiencing emotional messages. *To develop the elements* the authors also propose situational exercises, which can be based on a similar, imagined situation. Interpreting and practicing the situation, the participants operate the sending, receiving, and experiencing of the emotional signals more and more automatically. The key to creating the imagined situation is that its context and the aim of the task outlined by the situation should be usual and known to the experimentees. The authors also point to the role of the *evaluators* who describe the behavioural manifestations of the experimentees. They should also be aware of the context of the imagined situation and the purpose of the task to be solved.

Accordingly, in our research, we organized the series of our own musical exercises for a targeted age group following the model of the situation of joining a group. According to the antecedents of the literature, the devices of the music therapy seemed effective concerning the development of the social components (e.g. *Gooding*, 2011; *Schellenberg et al.*, 2015) but they disregarded the emotional components. However, neurophysiological studies (e.g. *McGraw Hunt and Legge*, 2015) show that music can mobilize unconscious emotional contents. That was precisely the reason why in our experiment we used the devices of music therapy for situational exercises.

The music listened at the beginning of the music session can provide the *musical experience* used in music therapy. Listening to music in this case can be an intellectual task, through thought control and deliberate processing of the heard music. While it appears in the musical education and general artistic pleasure as a musical purpose directed by the effect of a particular instrument or sounding medium (cd...), in the case of music therapy the intention of the therapist and the therapeutic (i.e. development) goal determine the musical purposes (*Wagner*, 2006). Deepening the perception of the sounding environment can happen through listening to the silence followed by the verbal interpretation of the "heard". The musical improvisations used for the situational exercises (providing models, dramatizing stories ...) stimulate the musical intensity and activity via more and more increasing psychophysiological reactions (*Wigram*, 2004).

The psychophysiological reactions extend the non-verbal communication signals under the influence of the improvisations (Konta, 2010).

The nonverbal communicative aspect of the music exercises can be linked to the affective social competence. According to *Halberstadt, Denham and Dunsmore* (2001a) and *Booker and Dunsmore* (2016), the individual's communication provides an informative source for the purpose of the interaction. For this reason, the affective social competence is defined as the authentic interpretation and control of the emotional communication between the two parties (*Booker and Dunsmore*, 2016).

According to our conception, as the psychophysiological reactions deepen thanks to the exercises, the set of our nonverbal signals becomes richer. This leads to a more effective functioning of the affective social competence. As the musical exercises uplift our psychophysiological reactions encouraging us to try further sounds, our music attitude to music therapy will deepen. The basis for this is that the set of the emotional signals originated from the basic program of biology can be supplemented with additional elements through practice and experience (*Halberstadt, Denham and Dunsmore*, 2001a; *Booker and Dunsmore*, 2016) and the music therapy provides a special device system and method to it. (*Buzasi*, 2006).

The questions and hypotheses of the research

The *main question* of the research is whether the students are able to develop alternative solutions in an emotionally difficult social situation as a result of compiled situational exercises?(K₁)

Does the sound complex experienced through the devices of music therapy create a musical relationship not experienced so far, that is, a deep music attitude to music therapy?(K₂)

The *hypotheses* of the test:

Sending, receiving, and experiencing of the students' emotional signals increases with creative elements in the course of doing exercises.(H₁)

The musical experience of the students deepens via the perception of the sounding environment and the musical activity and intensity strengthens through the exercises.(H₂)

The measuring devices and test measurement of the research

The researchers of the examination developed two own instruments. The Affective-Social Competence Test measures the development of the emotional factors while the Questionnaire of the Musical Attitude to Music Therapy describes the attitude to music of music therapy.

Halberstadt, Denham and Dunsmore's (2001a, 2001b) model of the affective social competence served as a basis in the course of elaborating the instrument of measuring the emotional factors. Relying on it, the elements to be developed and measured were specified: sending, receiving and experiencing the emotional messages. A table of specification outlined the emotional dimensions with the elements and questions connected to them (*Szabadi*, 2016).

The instrument sets out from a moment of time demonstrating a situation. It develops into a story by the dynamics of the response. The protagonist tries to join to his/her three fellows to ask for help with the schoolwork. The fellow students' situation and

emotional condition is different. Accordingly, the main character has to response and express his intention. Primarily he/she has to be aware of their own emotions and be able to control them adequately. The stream of the story becomes interrupted by questions when it arrives at a new element. The simplicity and possibility of generalization was the main aspect while creating the items and stories.

The aspects of the measurement were the following: (1) the agreement of the evaluating participants' characterization, (2) the stability of the evaluation in time, (3) the independence of the evaluation from two external criteria (personal change and change in the professional life), (4) the stability of the response in time, (5) the internal validity: the selection of the main and control questions. The main questions coincided with the original questions applied so far. The control questions were only used in the course of this examination and they represented the modified versions of the previous questions, (6) the test of the internal consistency of the test, (7) the comparison of the test with other devices measuring already operating similar constructions. The four categories of the responses, namely the conventional, emotional, intellectual and creative ones were produced from the students' answers. The transfer to the creative category indicated the development. Nine independent judges evaluated the students' solutions. In the second stage of the test and in the course of development experiment, we had to find two other evaluators because the former ones refused the work. The common feature of the evaluators is that they are all representatives of the helping profession and are familiar with the annual routine and timetable of the university.

A questionnaire examining the basic attitude to music and relying on *Losonczy*'s work (1964) involved the possible musical dimensions characterizing the musical aspects of the training accomplished by the means of music therapy. The dimensions were the following: musical intensity, activity, experience and perception of the surrounding acoustic world. A table of specification summarized the specified dimensions and their elements and questions created by the researchers of the present training. The students had to choose the answers the most typical of them. The increasing number of the answers concerning the attitude to music demonstrated the basic attitude deepening (Szabadi, 2016).

The aspects of the measurement involved (1) the verification of the musical factors' independence from the student's specialization and (2) the examination of the stability in time of the musical attitude to music therapy through repeated measurement (,test-retest reliability). In addition the examination of the independence of the attitude to music (3) from the negative musical experience through repeated measurement also belonged to the aspects of the measurement, (4) the examination of the internal consistency of the questionnaire, (5) the comparison of the characteristics of the questionnaire with other devices measuring already operating similar constructions.

Kasik's theoretical work (2010) for encoding while *Kárpáti* and *Zempléni*'s examinations (1997) for testing via external criteria provided ideas. The particular specification of the external variables happened in the course of a personal conversation with the students and judges.

60 students in the first, second and third year majoring in teaching participated in testing the measuring instruments. Thirty of them were specialized in singing-music and thirty in science. There were twenty-eight men and thirty-two women. The aim of the development determined the students' selection, however, their possible previous participation in a music therapy program precluded them from participating in this examination. The students volunteered to fill in the questionnaire. The testing of the

measuring instruments and the development experiment had different samples owing to organizational reasons. The common feature of the samples was the congruence of their training program and of the university's annual routine and timetable.

The students had one lesson uniformly to work. They were informed about the aim and method of filling in the measuring instruments and about the definitions of the elements to be measured. The definitions of music therapy of the musical factors got particular attention. Since it is necessary to emphasize over again that the perception of the examined musical elements, namely of the musical intensity, activity, experience and surrounding acoustic world do not depend if one is a musician or not. Code sheets were provided for evaluating the instrument prepared for the examination of the emotional factors and they described the way of filling in and the specifications of the categories of the answers. The following aspects determined the selection of the judges: (1) they had to be independent from each other and the institution (2) they had to represent the sciences and arts similarly to the students (3) they were not supposed to possess special qualification (e.g. psychologist, teacher of handicapped children, remedial teacher, therapist, trainer) as a consequence of which they would have evaluated the behavioural manifestations, appearing in the answers, beyond the given aspects crossing the competence line and direct aim of the examination. Consequently three performers, two qualified nurses and four teachers of science were invited to classify the students' answers at home, independently one of another.

The results of the test measuring the emotional factors

The first table summarizes the measuring results of the test.

Table 1. The results of the measurement of the Affective-Social Competence Test

The reliability of the evaluating participants	<i>Krippendorff-α=0.83–0.91, %=86.4–94.6</i>
The stability of the evaluation	<i>Cronbach-κ=0.76–0.83, %=85.0–88.3</i>
The independence of the evaluation from the external criteria	$\chi^2=18.2–22.4$, $p<0.01$
The stability of the students' response	$\chi^2=22.5–29.1$, $p<0.01$, <i>Cronbach-κ≥0,75</i>
The internal validity	$\chi^2=22.5–29.9$, $p<0.01$, <i>Cronbach-κ≥0,84</i>
The internal consistency of the test	$\chi^2=17.0–17.8$, <i>Cramer-V≥0,64, p<0.01</i>

The test of the instrument measuring the emotional factors took place in the autumn of 2012, in the spring of 2013 and in 2016. First, the judges' characterization given to the students' answers were compared to/with each other. The second time the judges' decision was compared to/with their own judgement in the course of a repeated coding of the same answers. In the following phase – after the third judgement of the same answers – the independence of the evaluation from two external criteria – change in the professional and personal life - was examined.

In the last stage of the measurement the stability in time of the students 'answers was analysed while they repeated filling in the measuring instrument. In the following, control questions, besides the ones applied so far, were also used to examine the internal validity of the instrument. The control questions put the original questions into different

words and were used only in this case. In addition, we tested the internal consistency of the test and compared the characteristics of the test with other devices measuring already operating similar constructions.

The *comparison of the evaluations* proved that the evaluators assessed the students' solutions similarly concerning the sending, receiving and experiencing of the emotional signals. The evaluators' assessment proved to be *stable in time*. To test the evaluators' reliability and the stability of the evaluation in time seems important since the assessor himself can determine the degree of development (Gooding, 2011). We increased the reliability and reduced the subjectivity by increasing the number of the evaluators and expanding their profession. In the first phase of our investigation, we were able to request nine evaluators.

Similarly to the previous aspect, the assessment also shows good stability in the case of personal and professional changes. This means, whether the evaluators experienced a *noticeable, persistent and decisive change* in their personal and professional life or did not, they had similar opinion of the solutions of the students' emotional signals after time passing. According to *Jenning and Greenberg* (2009), the social-emotional well-being of a teacher can be adversely affected by the professional burnout and stress in the private life. These factors influence the teacher-student relationship and the students' assessment. Therefore it was important to demonstrate that the students' evaluation was not influenced by these considerations.

The *stability of the students' response in time* was also justified. It means, when the students completed the test for the second time, there was no significant change in the evaluation of their responses. According to *Halberstadt, Denham and Dunsmore* (2001a), the emotional signals operate more and more automatically in consequence of the increasing social experiences. Therefore, when we perform direct improvements, it is important to determine the spontaneous degree of the development. The result of our test measurement regarding the training indicates a spontaneous development in some but not significant degree.

The comparison of the evaluation of the *main and control questions* did not reveal any significant difference. In the case of the main questions, the students had to send, receive and regulate the emotional signals from their own point of view, as though they had been István the protagonist of the test. This is the test method of *Halberstadt, Denham and Dunsmore* (2001a). In the control questions, the students had to send, receive and control the signals from István's point of view.

In the course of the test of the internal consistency, the relationship between the emotional factors was detectable within each dimension. It supports *Halberstadt, Denham and Dunsmore* (2001a), *Eisenberg* (2001) and *Saarni's* (2001) theory of the affective social competence, which declares a dynamic and transactional relationship between the elements. Among them, the control seems the most decisive element, which initiates, maintains, or interrupts the sending and receiving process, according to *Eisenberg's* research (2001) too.

The *comparison of the Affective-Social Competence Test with other devices measuring already operating* and affective constructions (Social Behavioural Inventory (Clark, 1996), Emotional Competence Inventory (Boyatzis and Sala, 2004)) revealed that they also examine the operation of the emotional factors by judging the reactions appearing in a presumed situation.

Summarizing the results of the test, the Affective-Social Competence Test seems effective since it includes the listed test criteria specifying both the solution and evaluation of the test situations but not to an exclusive extent.

The measuring results of the questionnaire examining the musical factors

The second table summarizes the results of the measurement of the questionnaire.

Table 2. The results of the Musical Attitude to Music Therapy Questionnaire

The independence of the musical attitude to music therapy from specialization	$\chi^2=0.04-2.31$, Cramer-V ≥ 0.10 , p>0.05
The stability of the attitude to music in time	<i>Cronbach-$\kappa=0.87-1.00$, %$=90-100$</i>
The independence of the musical attitude to music therapy from (the) negative musical experiences	$\chi^2=12.5-35.3$, Cramer-V ≥ 0.69 , p<0.01
The test of the Internal consistency of the questionnaire	$\chi^2=18.1-20.9$, Cramer-V ≥ 0.66 , p<0.01

The questionnaire measuring the musical attitude to music therapy first examined the independence of the musical factors from the specialization. Then the examination of the stability of the musical attitude to music therapy and finally the examination of the independence of the attitude to music from the perceived crucial negative musical experience followed. In addition, the internal consistency of the questionnaire was examined and the characteristics of the questionnaire were compared with other devices measuring already operating similar constructions.

The questionnaire described the operation of the specified elements through self-characterization. The students had to choose the answer the most typical of them on the multiple-choice questionnaire. They repeated filling the questionnaire three times, in the autumn of 2012, in the spring of 2013 and three years later.

The musical attitude to music therapy did not show a significant correlation with the *specialization*. Our findings support the hypothesis that the experiences, sound complexes experienced through music therapy and the applied method and goals of it differ from the ones typical of music education. To sound an instrument, thus performing a musical goal, necessitates musical skills and abilities (Szabadi, 2012), which is not decisive in music therapy (Missura, 2005).

The musical attitude to music therapy did not change with the *progress of time*. Our results coincide with the view that the sound effects of music therapy can be experienced in this therapeutic form, and after a while, they change only in the case of participating in it. As music therapy is not equal with the relaxation or increase of musical knowledge (Lorz, 1984; Buzasi, 2006).

The musical attitude to music therapy did not alter by noticeable, realized and continuous *negative musical experiences*. Our results are in line with Howe and Davidson's (2003) music-pedagogical findings, which declare that the negative musical experiences and poor music teacher-student relationship or parental pressure on playing the instrument modify the attitude to music in negative direction. In contrast, the experiences of music therapy are not modified by these factors. Since the previously mentioned experiences of the professional musical education do not appear in the methodology of music therapy (Buzasi, 2006).

During the analysis of the connection between the musical factors, we demonstrated the connection and the dominant musical factors in each dimension. These are: (1) the need for music in terms of musical intensity, (2) the love of music concerning the musical activity, (3) the expressive power of the music regarding the musical experience and (4) the perception of the sounds in terms of handling the sounding environment. These factors also appear in *Bruscia* (1987); *Buzasi* (2003); *Vas* (2005) and *Wigram*'s tests (2004) as essential component.

Comparing the Questionnaire of the Musical Attitude to Music Therapy with other devices measuring already operating music constructions (Musical Data Sheet (*Losonczy*, 1969), Aesthetic Judgment Test (*Kyme*, 1954)), the following two measurement methods were revealed. (1) The experimentee has to describe the personal characteristics of the practice of singing, playing and listening to music, as it happens in the case of our device. (2) The professional musical tests expect instrumental improvisation and aesthetic judgment from the experimentee. These tests require musical knowledge, musical skills and abilities, which are not included in our case.

The *adequacy* of The Musical Attitude to Music Therapy Questionnaire declares that the examination aspects do not change the musical attitude to music therapy.

The development experiments and their results

The development program took place at the Primary and Preschool Teacher Training Faculty of ELTE in 2016. The program continued six occasion, 24 hours altogether. The author of the thesis, a professional therapist performed the development. Originally, she qualified in piano teaching and mental health and works as an assistant lecturer of the Department of Singing and Music at the faculty. Besides the obligatory training, she received her music therapy experience at a neuropsychiatric institute (under the supervision of Zoltán Janka and Zoltán Kovács, Ambrus Kovács) as a therapist and at an art school as a creative music instructor. Empathy and congruence dominates her pedagogical attitude. In order to reduce the chance of subjectivity in the course of the examination, she did not create personal relationships with the students, and did not teach or knew them previously. However, she knew their training program, their methodological curriculum, and the general, annual course and routine of the faculty. The location of the program (a separate clubroom) was also different from the everyday environment of both the students and therapist. The devices (musical instruments and audio-visual aids) were provided by the Department of Singing and Music. The students were invited to the program by the teachers of the department lecturing on methodology. In addition, the demonstrators also encouraged the students to participate in the program. The science and music experimental groups received the same program material at different times. The development material completely differed from the obligatory methodological material of singing and music.

The development exercises adjusted to the students' age group were created by the experimentalists themselves relying on *Bakó*'s (2003), *Wigram*, *Pedersen* and *Bonde*'s work (2002).

The structure of the sessions was the following. The active (improvisation) or receptive (listening to music) forms of music therapy provided the tuning in. This was followed by the development situation and dramatized exercises. The settling of the exercises was again provided by the active and receptive forms of music therapy.

Examples of development exercises:

To send emotional signals:

Let us think about the emotional state we have at the moment. Let us select an instrument and try to play it expressing the present emotional state.

To receive emotional signals:

Let us sit down in pairs with the back to each other. Let us select an instrument or use our own voice to answer each other's sound signals.

To experience emotional signals:

We are sitting in a circle. Someone is standing in the middle of the circle and expressing an emotion with a posture while uttering a sound. For example, sadness: bent posture and sighs. The next member of the group is joining him, responding to what he has seen. For example, he/she can straighten the posture of the groupmate and lift his hands cheering him. The chain continues this way until we go around the circle.

Exercises of developing music experience:

Listening to music governed by imagination. In the course of listening to music, we write a story in our imagination. We consider the related emotions then compressing them into an image, we communicate it to the members of the group in an oral way.

Exercises of developing musical intensity and activity:

Let us take an instrument in your hand. Let us try to sound it the way we should not think it could sound.

The elements of *group dynamics*: couples developing, enriched musical instruments, volume increase, deepened experiences, enriched gestures.

The students in the first, second and third year participating in teacher training created the example (N=120). Experimental arrangement of control groups was applied for examining the effect of the development. Forty-four students attended the experimental group and seventy-four the control one. The students volunteered to be the sample. The students did not participate in music therapy training previously. The students specialized in singing, music, and possessing musical grounding created the musician part sample. The identity, in the aspect of music therapy, of the musician part sample derived from the fact that they dealt with music uniformly in a higher interval touching the same areas. The students specialized in science - natural science, informatics, mathematics and environmental education – created the science part sample. The identity, in the aspect of music therapy, of the science part sample arose from the fact that they dealt with music uniformly in the same length of time and area. The results of the measurement preceding the main measurement produced the experimental and control group of the students specialized in the same subject and year providing the equal level of the starting-point.

The measurement preceding the main measurement took place before the development, while the post-measurement happened after the development. The students of the experimental and control group had one hour uniformly to fill in the questionnaire under the same circumstances. Meanwhile they were informed on the aim and method of the filling in and the specification of the elements to be measured.

Two independent teachers specialized in the arts and science evaluated the answers of the instrument measuring the operation of the emotional factors on a special code sheet prepared for this purpose. The sheet involved the method of the filling in and the specification of the types of the answers. *They were requested because the previous evaluators refused to work any longer.* The unanimous opinion of the judges gave the results. Both of them participated in a test-evaluation in the course of the measurement, where they were informed on the classification of the answers and were given examples

of previous fillings in. The common feature of the new and former evaluators was that they all were the representatives of the helping profession and knew the university's annual routine and timetable.

The results of the development of the emotional factors and of the change in the attitude to music in music therapy

The third and fourth table summarize the results of the development.

Table 3. The results of the development of the emotional factors

	<i>creative answers</i>	<i>emotional, intellectual answers</i>	<i>conventional answers</i>
experimental group of musicians	+20,8-36,4% *	+-4,1-12,5%*	-16,7-33,6%*
control group of musicians	+4,1-12,5%**	+-0-4,1%**	-4,1-8,3**
experimental group of science	+20,8-36,4%**	+-4,1%*	-18,2-36,4*
control group of science	+4,1-12,5%*	+-0-4,1%**	-4,1-12,5%**

Comment: *Krippendorff- α =0.04–0.28, ** Krippendorff- α =0.77–1.00

Table 4. The results of the change in the basic attitude to music

	intensity	activity	experience	perception of the surrounding acoustic world
experimental group of musicians	16,7-20,8%*	8,3-16,7%*	8,3-16,7%*	8,3-70,8%**
control group of musicians	2,7%**	2,7%**	2,7%**	2,7%*
experimental group of science	9,1-22,7%*	9,1-22,7%*	9,1-22,7%*	9,1-45,5%*
control group of science	2,7%**	2,7%**	-***	-***

Comment: *Krippendorff- α =0.18–0.37, **Krippendorff- α =0.91–1.00, -=there is no change

The change in the categories of the answers (conventional, intellectual, emotional and creative) prepared beforehand and demonstrating the fact of being transferred to an answer category enriched by creative features expresses the development of the emotional factors. The creative answers also appeared before the training and their continuance indicates the quality of the routine.

Examining each dimension, we found the following changes in the distribution of the responses after the experiment. When sending emotional signals, the creative values of the experimental groups increased by 20.8% and 22.7%, while the same values of the control groups were 2.7% and 4.7%. The solutions bearing conventional features decreased by 16.7% and 29.2% in the experimental groups while the same values of the control groups were 2.7 and 9.1%. The solutions carrying emotional and intellectual features moved by 4.2% to 12.5%. In terms of receiving emotional signals, the solutions enhanced by creative features increased by 16.7% and 33.3% in the experimental

groups, while the control groups had the values of 4.2% and 9.1%. The solutions carrying conventional features decreased by 16.7% and 31.8% in the experimental groups, while the control groups had the values of 4.2% and 13.6%. Changes in the emotional and intellectual features varied between 4.2% and 18.2%. In the dimension of experimenting and controlling the emotional signals the solutions enhanced by creative features increased by 25% and 36.4 % in the experimental groups, while the same values of the control groups were 4.2% and 9.1%. The solutions regarding the conventional features decreased by 20.8% and 31.8% in the experimental groups, while the same values of the control groups were 2.7% and 13.6%. The changes in the solutions concerning the emotional and intellectual features varied between 4.2% and 8.3%.

The degree of the connection between the pre-experimental and post-experimental responses appears high in the control groups with a little change. ($Kippendorff-\alpha = 0.77-0.96$). In the experimental groups the degree of this connection seems low, which means a significant change ($Krippendorff-\alpha = 0.04-0.28$). The percentage values represent a shift in a creative direction. The common change expresses a dynamic correlation between sending, receiving and experiencing the signals, a phenomenon expounded also in *Halberstadt, Denham and Dunsmore's* (2001, b) and *Booker, Dunsmore's* (2016) theory. According to *Eisenberg* (2001) and *Blair* and his colleagues (2004), controlling plays the most decisive role in this process. It is demonstrated by the highest values represented in the dimension of experiencing.

The change concerning the experimental groups and proceeding in the direction of solutions enhanced by creative features exceeds the spontaneous development values of the control groups. The tendency seems true regarding both the musical and science part-sample of the development experiment.

Practically, more and more students appeared to give solutions enhanced by creative features and to prove the decrease of solutions demonstrating conventional features. Interjections, verbs expressing actions, attributes and different punctuation marks occurring in the responses indicated the characteristics of the reply categories.

Our results harmonize with the experiences of the previous trainings organized for teachers and aiming at affective domains (expressing, interpreting, and controlling emotions), according to which the teachers reacted more sensitively to their students' frustrated situations, offering alternative solutions to them. In the course of our program when the students reflected on emotionally burdened social situations, the solutions concerning the handling of the emotional signals became more and more enhanced by creative features (H_1).

A deeper musical attitude to music therapy was expected as a direct effect of the training. The percentage increase of the distribution of the answers illustrating the deepest attitude to music indicated the development in this area.

The necessity for *musical intensity* deepened with 16.7% and 22.7%, while its awareness with 16.7% and 18.2%, its choice with 20.8% and 18.2%, the degree of its lack with 9.1% and 16.7%, finally its quantity with 20.8% and 22.7% in the experimental (musical and science) groups. The responses concerning the degree of the deepening reveal that the students feel the daily music routine necessary in a greater percentage. They seem more conscious to choose the possibility of playing music in consideration of its quantity, too. If it is not the case, they feel the lack of realization in an increasing number. A deepening of 2.7% regarding the necessity, choice and quantity appeared in the control (musical and science) groups.

The love of *musical activities* grew with 9.1% and 16.7%, while the routine with 8.3% and 13.6%, the knowledge with 8.3% and 12.5%, the mode with 8.3% and 9.1%, the occurrence with 12.5% and 18.2% in the experimental (musical and science) groups. The responses demonstrate that an increasing number of the students love and exercise singing and musical activities as routine. The way and occurrence of the musical activities widened since they expanded the students' knowledge and completed it by new aspects. To achieve this, we did not focus on the musical skills, abilities and knowledge but we called the students' attention to some other musical aspects, motivating them to produce a sound more skilfully. We experienced a development of 2.7% and 4.2%, concerning the love, knowledge and mode in the control (musical and science) groups.

The expressing effect of the *musical experience* improved with 13.6% and 16.7%, its negative experience with 16.7% and 18.2%, its cathartic effect with 13.6% and 25% and on its deepening psychophysiological level with 8.3% and 9.1% in the experimental (musical and science) groups. The responses demonstrated that an increasing number of the students manage to handle both the decisive musical experience and the realized negative musical experience of lasting effect. In the latter case, they succeeded in handling the unpleasant experience in its proper place and succeeded in returning to their usual well-tried musical routine. All these deepened their psychophysiological reaction to music. A change of 2.7% appeared concerning only the expression in the control groups.

The responses regarding the conscious handling of the *sounding environment* indicate that the students manage to exclude the disturbing sound effects and to focus on their own inner world to greater extent. Listening to the silence implied the development. A development of 16.7% and 20.8% appeared in the control (musical and science) groups. A change of 2.7% concerning only the perception occurred in the control (musical and science) groups.

The degree of the connection between the pre-and post-experimental responses seems high in the control groups which expresses little deepening (Krippendorff- α =0.91–1.00). The degree of the connection of the responses looks low in the experimental groups which means large deepening (Krippendorff- α = 0.18–0.37). The percentage values demonstrate a growth in the direction of more considered responses.

Summarizing the results, the characteristics of a deeper musical attitude to music therapy appeared in greater relation in the experimental groups than in the control groups without the development process (H_2). This tendency seems true considering both the science and musical part-sample of the development experiment. It is not accidental, since according to the idea of the former theoretical works (e.g. *Missura*, 2005) the music therapy relies on a system of aims and devices different from the musical aims and methods applied in musical pedagogy. Our results support the theory of music therapy (e.g. *Buzasi*, 2006; *Wagner*, 2006; *Wigram*, 2004) which offers the musical activities in different ways and forms with a wider set of devices and sound complex to the participants than the musical pedagogy and general artistic pleasure. Meanwhile it teaches us to interpret the musical experiences through a personal story.

Summary, the possibilities of further researches

The present development experiment appears original since a program developing the emotional components of the social competence via the means of music therapy has not

occurred yet. The importance of the examination is proved by the fact that the students experienced the effect and efficiency of the exercises as their own experience, consequently their interest in their application increased to a great extent and their attitude to dealing with others became more colourful. They obtained unknown to them so far alternatives of resolving the problems and conflicts and had the possibility of practising them and operating them in an improved way. The possibilities of the original solutions appeared in the course of the exercises when the time came to evaluate the situation. Besides this, the student's positive opinions declared that the possible variations of using the means of music therapy provide the possibility of a serious development for teachers in the classroom.

The present development experiment can become the first stage of a series of experiments, which can explore further possibilities, methods and means developing the emotional factors on further levels and in different age and which can be measured more and more precise. The aim is to refine the evaluation system (conventional, emotional, intellectual and creative scales) concerning the emotional factors through extending their characteristics involving new items. To specify the items of the measurement instrument in newer aspects for examining further relations and to add to them other psychic components seems another further aim. The examinations of *Denham* and his co-workers (2003) and of *Blair* and his co-workers (2004) offer examples to demonstrate the connection of the operation of the social competence with/through self-image and temperament. In the author's opinion, the further development of the numbers and depth of the applied musical dimensions seems desirable to map and define the effect of transfer appearing in the course of the training (*Stachó* 2005, *Vist* 2011 and *Thorgesren* 2011).

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