

21. MUSIC AND CLASS CLIMATE IN LOWER SECONDARY EDUCATION

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Abstract: *The authors focus on positive improvement of class climate by using musical activities as educational tool in another school subjects. The use of musical activities in educational process contributes to positive class climate in lower secondary education, mainly to better relationships between pupils and the other participants of educational process, to their social integration, contentedness, co-operation, communication, and success. The study introduces the research results of how music affects the class climate in 11-12 year old elementary school pupils. A seven-month intervention programme consisting of music activities was integrated in English lessons and background music in art lessons at an experimental class of tested group of pubescents.*

Key words: *class climate, musical activities, musical ability and aptitude, lower secondary education*

Introduction

Climate is one of the biotic factors¹⁶¹ that affect children, their quality of life and survival in specific cultural and social conditions. In school education it is important to provide positive class climate for pupils and teachers. According to Rosa (1999) the quality of educational process can be assessed by the following criteria:

- a) School evaluation criteria in general – pedagogical staff, personal and social development, and orientation of education for pupils.
- b) Criteria for classroom processes evaluation – time as the source for learning, teaching pupils and of their learning, and supporting pupils with educational problems.
- c) Criteria for the processes around the school – school and family, school and community, school and labour market.

Music and musical activities are important means of cultivating children throughout the process of their personality development. In this process, it is important to respect and follow the regularities and patterns of children's physical and mental development, understand the psychological features and the development of basic musical skills. Teenagers regard music to be a value (Klimas-Kuchtowa, 2000, p. 156) and an object of particular interests. According to Rogalski (1992, p. 103), the research on teenagers' musical interests is vital due to its role in the process of musicality. The level of musicality of the teenagers can be treated as the indicator of effectiveness of functioning of institutions of popularising music in the system of parallel education.

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¹⁶¹ Environment is understood as: „a) (...) a complex of physical, chemical and biotic factors such as climate, native land and living beings that affect individuals and community and determine its survival and form; b) a summary of social and cultural conditions that influence the life of an individual and community.“ (Agnes and Guralnik, (ed.), 2002, p. 476).

*Lower secondary education*¹⁶² relates to pupils aged 11-15, which is the developmental stage of puberty¹⁶³. In Poland primary schools are attended by pupils aged 10-12 and junior-high schools by pupils aged 13-16. The New School Reform of 2008 has had quite a negative impact on music education in school subjects *Music Education* and *Education by Art* at elementary schools. It resulted in the reduction of these subjects to one lesson a week and in 8th and 9th grade it was reduced to 0.5 lesson of a school subject *Education by Art*¹⁶⁴ per week. This impact concerns music education at comprehensive schools, both at primary and lower secondary education (table 1). In the organisation of Slovak and Polish educational process, every lesson lasts 45 minutes, however, there are still some schools with music teachers without any musical skills, who are not competent to teach the subject.

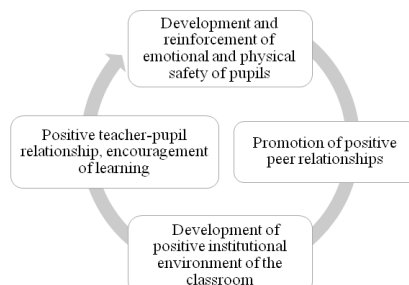
Table 1. Music Education in Educational Field Arts and Culture in the 1st and 2nd Stages of Elementary School¹⁶⁵

ISCED 1, 2 General Curricula											
Educational Field	School Subject/ Class	1.	2.	3.	4.	5.	6.	7.	8.	9.	Total
Arts and Culture	Music Education	1	1	1	1	1	1	1			7
	Education by Art								0.5	0.5	1
											8

Class Climate and Music in Lower Secondary Education

Class climate is based on the patterns of students', teachers' and school personnel's experience of school life and it reflects norms, values, aims, interpersonal interactions, teaching and learning practices, examining and organisational structures¹⁶⁶. Safe climate and enjoyment of school are considered essential conditions for good learning environment (Rosén M. et al., 2005). Some authors compare climate to weather, because, as they state, it can be felt everywhere, but is difficult to get a handle on (Winter, Sweeney, 1994). Class climate includes norms, values and expectations that promote all partakers feeling socially, emotionally and physically safe. All of them, pupils, families and educators work together to contribute and live to a shared class, and school vision (Ma, Willms, 2004).

Figure 1. Four Dimensions of Positive Classroom Climate



¹⁶² *National educational programme*, ISCED 1, ISCED 2, [online]

¹⁶³ The girls begin puberty at the ages of 10-11 and end it at the ages of 15-17. The boys begin it at 11-12 and end at 16-17 (Kail, Cavanaugh, 2010).

¹⁶⁴ The new subject *Education by Art* integrates art education, music education, drama education and it is usually taught one class every other week.

¹⁶⁵ ISCED 1, ISCED 2, [online]

¹⁶⁶ National School Climate Center. *School Climate*. 2014a. [online]

Each of the participants makes a contribution to the efficacy of classroom, the care of physical environment, and thus to the positive development of the four *dimensions of school climate*:

- *Safety*: refers to the emotional and physical safety of pupils, to the techniques and rules in classroom.
- *Relationships*: pupils get social support from their parents and educators, however, they should have respect for others.
- *Teaching and Learning*: a positive and competent pupil and teacher classroom relationship, social and emotional skills, positive encouragement for learning.
- *Institutional Environment*: the physical school environment¹⁶⁷ (figure 1).

From the factors that have been found to relate to pupil achievement are a calm class climate, teachers' mastering of pupils' disturbing behaviour and pupils' safety in school (Ma, Willms, 2004). In the research of Králová and Král (2011) the safe relationship, safe teaching climate and also feeling of not being endangered outside of the classroom, have been also reported as important for pupil's learning in school. School that seeks equal opportunities for pupils tries to use various intervention aimed at:

- a) Support and prophylaxis at the occurrence of problems,
- b) Immediate response from the teachers to the problems as soon as they arise,
- c) Specialized, professional help in cases of serious, chronic problems (Center for Mental Health in Schools, 2011)

In the school environment of lower secondary education, *music and musical activities* can be successfully used as a tool to positively influence a social climate in classroom or at school that finally can bring inspiration, motivation and joy to children and school personnel. The sustainable, positive climate that has been built up in the family and at school, promotes healthy child development and learning, which is essential for productive, profitable and satisfying life. Such climate includes norms, values and expectations that contribute to the fact that the pupils feel socially, emotionally and physically safe.

Based on the theoretical background and our research results we believe that adequate amount of musical inputs of high quality for pupils from the side of parents and pedagogues and designate it a "*musical climate*" (Králová, in Králová et al., 2015, pp. 9-11). Since early childhood musical activities can enter the consciousness of a pupil. They can be an important harmonizing means of a child's personality, prophylaxis and higher quality of life, if professionals respect the patterns of physical and mental development, the development of basic musical skills. Strenáčiková (2012, p. 36) believes that every child contains "musical capacity" that determines his or her experience with music. This capacity cannot be experimentally measured, nor statistically evaluated, because it is not a general musical factor in the sense of general music ability. The authoress defines it as the complex of bio-psycho-socio structures which

¹⁶⁷ National School Climate Center. *School Climate*. 2014a. [online]

bound to experiencing music. It is true that for a particular child in a particular situation these structures occur at different hierarchical order.

Family is a group of people related to one another with special and close bonds. The interactions among its members are based on deep relationships and the quality of bonds between particular members affects family life. Its main purpose, as a group, is not only sharing life experiences or spending free time together, but also *sharing life in all its shades* (happiness, elation, troubles, purposes, intentions, life plans, interests), which is indirectly linked to the developmental changes of pubescents. Parents in caring families pay attention to primary needs and stimulation of development and learning habits since early childhood of their children, which develops individual activity and conditions such high accomplishments (not only musical). In the above meaning the family environment fulfils a fundamental role in the *development of musical audiation* (musical thinking and musical aptitudes), interests, intelligence, competence or fondness (Kołodziejski, 2011). Pubescents are in the very centre of interactions of macro-system, ecosystem, mesosystem, and micro-system. The environment in which a young person grows can be common – interacting with all family members in the same way; and specific – interacting only with one person (Nęcka, 2003, p. 60).

In the Encyclopaedia of Music by PWN (Polish Scientific Publishers) there are found the following definitions musical potential, musical abilities and aptitudes. *Musical abilities* are defined as “(...) individual abilities of a human being which condition the acquisition of experiences and skills in the area of creation, performance and perception of music (...)” (Chodkowski, 2001, p. 970). *Musical aptitudes* re defined as “(...) a set of mental characteristic which condition the speed of music learning and the acquisition of particular skills in selected discipline of musical activity: performing, composing or theoretical-research (...)” (Chodkowski, A., 2001, p. 91). We should add, that musical abilities are treated as single structure constituting aptitude, i. e. tonal, rhythmical, harmonic, and musical aptitudes is a set of musical abilities or another name for special abilities and musicality. However, musicality is musical aptitude with emotional factor (Kołodziejski, 2011). Exceptional musical abilities are called *talent* (Strelau, 1997, p. 58) and talented children are the ones with high intelligence quotient (Gardner, 2002, p. 87.)

Thanks to cognitive changes pubescents can understand the goals of musical activities. Based on their creative activity with musical material they can penetrate into semantic-thematic layer of musical expressions; they can express their opinion on performance and they intensively develop music-creative thinking in them (Holas, 2004). There are differences between boys and girls in *musical preference*. The girls give preference to whole musical genre spectra, chiefly from popular music that are oriented at mood with significant musical expression. On the other hand boys prefer technical aspect of music and they tend to favour harder and louder genres of music what is a consequence of their thinking and more materialistic outlook on life. According to Abeles (In Abeles, Harold, 1980) music preference is the liking of certain music at a given point in

time. However, the research around music preference is either out-dated or does not focus on how these preferences reflect an individual's psychological well-being and vice versa. Musical preferences of the teenagers can relate to the following types of music formed due to man's culture-making activity (table 2).

Table 2. Musical Genres, Mechanisms and Performance Styles, that Define Them

Musical genre	Brief description
Hip-hop	A rhythmic vocal style commonly called 'emceeing' backed by music made by synthesizers, drum machines, a DJ or live band.
Rap	Chanted (originally improvised) rhyming words commonly with a social or political message to a heavily rhythmic musical accompaniment
Jazz	A strong, prominent meter, improvisation, distinctive tones and performance techniques with dotted or syncopated rhythmic patterns commonly containing blue notes, poly-rhythms and swung notes. Can be purely instrumental or have accompanying vocals.
Blues	Uses the blues chord progression and the blue notes. Several chord progressions exist but a twelve-bar blues chord progression is most frequent. Blue notes are performed at a lower pitch than the major scale to increase expressiveness. Can be either instrumental or with vocals.
Rhythm & Blues (R & B)	A Jazz and Blues influenced style, with typically a four-beat measure and back-beat (beats number two and four accented) produced by a drum machine supporting a smooth vocal style (often using melisma). The use of less gritty hip-hop/Rap beats are common as is the occasional guitar riff.
Dance	Music created by computers, synthesizers, sound cards, samplers, and drum machines interacting with each other and achieve the full synchronization of sounds with a 4/4 beat typically ranging from 120 beats per minute (bpm) up to 200 bpm. Can be mixed with other genres, and some sub genres have vocals.
Drum and Bass	Characterized by fast break-beats of typically between 165–185 bpm, with heavy sub-bass lines
Rock	Typically has a strong and heavy back-beat laid down by a rhythm section of a lead and bass guitar (usually heavily amplified) and drums accompanying an uncomplicated melody, harmony, a 4/4 beat and adolescent sympathetic lyrics.
Reggae	Based on a rhythmic style with accents on the off-beat or second and fourth beat on each bar. Commonly has a highly tuned snare drum to give a timbale-like sound, a two bar riff and lyrics that deal with a plethora of subjects.
Classical (in Poland Artistic and Serious)	Contains ensembles of instruments (e.g., violin, cello, flute, clarinet, bells, etc.) mostly invented before the mid-19th century with a complex arrangements. Commonly performed in concert halls as symphonies.
Disco	An eighth note or sixteenth note hi-hat pattern with an open hi-hat on the offbeat with soaring, often reverberated vocals over a steady 'four-on-the-floor' beat with a prominent, syncopated electric bass line.
Ska	A form that combines elements of Caribbean mento and calypso with Jazz and R&B. It is characterized a walking bass line and rhythms on the offbeat.
Punk	Fast, hard-edged music with stripped down instrumentation and anti-establishment lyrics. Punk songs tend to be shorter than other genres with

	faster drum and a traditional rock and roll verse-chorus form and 4/4 time signature. The vocals tend to be characterized by a lack of variety, shifts in pitch, volume and lyrics often shouted.
(Heavy) Metal	A thick, loud sound, characterized by amplified distortion, guitar solos, and emphatic beats. The main groove is characterized by short, two-note or three-note rhythmic figures—generally made up of eighth or sixteenth notes. These rhythmic figures are usually performed with a staccato attack created by using a palm-muted technique on the rhythm guitar. Lyrics and style are generally angry and commonly appeal to males.
Grunge	Characterized by heavily distorted guitars, a stripped down aesthetic, slower tempos, dissonant harmonies and complex instrumentals. Lyrics are apathetic or angst-filled and commonly deal with societal issues and alienation.
Country	Has a verse-chorus form and 4/4 time signature commonly accompanied by guitar, violin, or banjo. Lyrics vary but are commonly melancholy and dealing with common issues amongst those living rurally
Oldies	Music that was popular during the 1950's –1960's. Includes "Rock 'n' Roll".
Pop	Has a noticeable rhythmic element, a mainstream style, traditional structure, melodies and hooks. The chorus usually contrasts melodically, rhythmically and harmonically with the verse. Most songs are under five minutes long and have an adolescent appeal. Some argue that this genre is a diluted version of other genres (e.g., Rock, Rap, R&B).

Source: compiled according to Sigg (2009)

The *motifs of love* in music works can cultivate the development of emotional life and opinions of pubescents, their interest in music that becomes the form of exploration of their own behaviour and expressions, can increase. Here is only a little step toward artistic music that embodies the emotions of people who lived long time ago. The choice of music genre depends on internal world of pubescent, and also on up-to-date dynamic characteristics of his or her personality and on experiences gained from the environment (from their friends and age-mates).

Integrative Aspect of Musical Activities

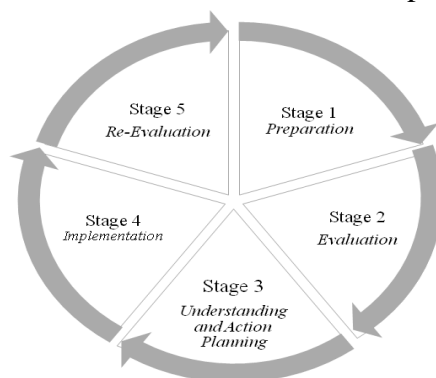
In Slovak and Polish comprehensive schools there is a possibility to use integrative aspects of musical activities and apply them properly by the teachers of school subject *Music Education* that are fully qualified to teach also another subject. To develop age and content appropriate music activities, teachers of various subjects such as Math, Science, Physical Education, Social Studies, Foreign Languages and Native Language, should mutually co-operate. The research results of Bennington (2004) indicate that it is important to continue in music activation on the level of pupils' present-day musical abilities and skills. The author selected the recordings of popular songs with positive lyrical messages which he used every day for two weeks. He found out that students of K-12 classrooms were happier, more co-operative, better behaved after listening to music in the breaks, before the classes started. However, the music seemed to

have a stronger effect on progressively younger students. Some teachers reported being in a more positive state when they began their day with music.

To enhance creative atmosphere with the positive impact on class climate that enhances self-esteem for all pupils, the teacher and pupils should work together. During the five stages process (figure 2), each pupil should be regarded valuable and respected, based on his or her individual abilities. In the first stage a music teacher looks for, selects and prepares appropriate musical activities for integration in the selected school subjects or breaks. The process of this stage should be consulted with other teachers and a class teacher of an experimental class. In the second stage the music teacher evaluates class climate before he or she starts musical intervention.

The questionnaire *My Class Inventory* (Lašek, 1991) can be used in the fifth grade and for older pupils can be applied *The Scale to measure social atmosphere in the class for lower secondary education and secondary schools* (Kollárik, 1990)¹⁶⁸ that verifies 10 dimensions: psychological atmosphere, relationships between pupils, maturity and development of a classroom, social integration, satisfaction, co-operation, communication, class leadership style, relationship to study and focusing on success. In the third stage of the process the teacher, together with other teachers, realises action planning, examines the musical skills and preferences of pupils in experimental class. Stimulation of pubescents' behaviour and relationships is vital for safe application of musical activities. In the fourth stage, the music teacher integrates music and musical activities in selected school subjects or school breaks. The musical intervention should last for at least 3 months, depending on the quantity and quality that they devote to musical activities every day. In the last, fifth stage, the music teacher re-evaluates the school climate of experimental class.

Figure 2. Process of Class Climate Improvement



Potency of Musical Activities on Class Climate

Research sample: The terrain for music intervention was a big urban elementary school in central Slovakia. As it was not possible to carry out random selection of subjects, there was made a deliberate choice of the subjects. Two classes (experimental – Ex, and control – C) consisting of 11-12 year old pupils, were selected by the headmaster because of the highest homogeneity of

¹⁶⁸ The scale is known in Slovakia as ŠSAT “Škála na meranie sociálnej atmosféry v triede“

research sample. In the control class there were 20 pupils (N = 20) and in experimental class 22 (N = 22).

Organisation of the research: We followed the experimental design¹⁶⁹ with use of pre-test, and post-test in the end of quasi-experiment. The quasi-experiment was realised in experimental group by manipulation with independent variable, applying the musical intervention in educational process with 11-12 year old pupils. We compared the results with the control group in which we did not intervene by music. The intervention lasted for 7 months. The authoress of the research design taught English language by means of musical activities three times a week and twice a week used background music in Art lessons.

Musical activities: vocal, listening (perception), music and movement, instrumental and drama, were in the classroom used in mutual determination. Thus pupils accompanied their singing (vocal) expression by “playing their body parts”, or by the accompaniment of musical instruments (Orff, elementary, flutes, piano and guitar). Listening musical activities were often accompanied by music and movement activities and so on. During 7 month intervention pupils learned 25 songs, many music and movement activities aimed at music and movement preparation and easy dances; they learned 2 dances with elementary choreography. However, during the intervention they used spontaneous music and movement expressions that they used in 5 themes during the intervention. Music perception was aimed at strengthening their emotional expression and relationship to music in genera. Pupils made their own musical instruments whose they enjoyed during melodic and rhythmic dramatization of texts. Music and drama activities were used as the output of projects after each lesson. In Art lessons we used various musical genres from pop classic, classical music, to instrumental compositions or their arrangements, popular, rock, folk, Celtic music, easy listening and soundtracks of film music. All musical activities were realised in classrooms and specialised classrooms. Pieces of artwork of experimental class pupils were exhibited in the area of school.

Aim of the research: *Verify the potency of music intervention to affect the perception of the social climate in 11-12 year old pupils.*

Hypothesis: *Differentiated use of musical activities in educational process will affect perception of the social climate more significantly by pupils in experimental class than by pupils without music intervention in control class.*

Research tool: We used standardised questionnaire *My Class Inventory (MCI)* by Lašek (1991) that enables to assess class climate and is divided in 5 variables: satisfaction, cohesion, friction, competitiveness and difficulty learning. Its authors are Australians Fisher and Fraser (1981)¹⁷⁰. It is designated for 9-12 year old elementary school pupils. We evaluated 84 questionnaires and used it in both the control and experimental group.

¹⁶⁹ In the research plan we adhered to Ondrejkoivič (2006, p.146-147) and Gavora (2008, p. 141-149)

¹⁷⁰ Czech version was prepared and used in the Czech Republic by Lašek (1991) with his colleagues in the research carried out in 1988 with 600 pupils (10-12 year old).

Research Results

Changes in the social climate were verified by comparing pre-test and post-test values of variables in the questionnaire *My Class Inventory (MCI)* and by their comparison in experimental (Ex) and control (C) class. The data obtained from the questionnaire *MCI* were subjected to statistical analysis in *Microsoft Excel 2003*. We assessed statistical significance of the differences in the two measurements, which followed one after the other in half-year interval. Statistical significance of differences was verified by using paired two-sample t-test with the same dispersal (two-sided alternative). Hypothesis was tested by an analysis of paired t-test because we compare two means and the test can be applied regardless of the size of the sample used. This test conforms therefore also for respondents who were dealing with the acquisition of foreign language. The data were mutually compared at the level of significance $\alpha = 0.05$, which means there is a 5% chance of making a type I error.

Table 3. Statistically Significant Differences in Social Climate in Experimental and Control Class (Source: own research)

Variables	Ex 1		Ex 2		t - test	C1		C2		t test
	m	σ	m	σ		m	σ	m	σ	
Satisfaction	9	2.6	12	2.1	0.004**	11	2	9.5	1.7	0.393
Tensions	11	2.9	8	2.6	0.002**	11	3.11	12	2.8	0.210
Competitiveness	11	2.7	8.5	3.2	0.023*	13	2.1	14	2.3	0.016*
Arduous curricula	9.5	2.2	9	2.1	0.13	9	1.7	11	2.5	0.119
Cohesion	5.5	2.6	9	2.6	0.0017**	5	2	7	1.7	0.314

Legend: m = median, σ = standard deviation, $p < 0.01$ *, $p < 0.05$ *, Ex1 – experimental class pre-test, Ex2 – experimental class post-test, C1 – control class pre-test, C2 control class post-test.

Research results (table 3) indicate that musical intervention positively affected the perception of social climate in the four variables in **experimental group**. The most significant was the perception of cohesion, then tensions, satisfaction and competitiveness. The values in experimental class that were significant at the level of 0.05 (were indicated as*), resp. 0.01 (indicated as**). In experimental group, the testing of statistical significance in variable *cohesion* ($t = 0.0017^{**}$) was in post-test, compared to pre-test, achieved statistically significant difference at the level of $p < 0.01$. In the variable *tensions* ($t = 0.0022^{**}$) the significant difference was achieved at the level of $p < 0.01$. In the variable *satisfaction* ($t = 0.004^{**}$) there was again achieved the significant difference at the level of $p < 0.01$. The difference of results is in all three dimensions statistically significant at the 99 % confidence level. In the last, fifth variable of the questionnaire MCI, *competitiveness* ($t = 0.023^{*}$), there was achieved statistically significant perception of social climate at the level of $p < 0.05$., at the 95 % confidence level.

Research results indicate that the perception of social climate was not statistically significant in **control group**. The data of post-test show that even if they were not significant, in the control group, there was slightly improved the

character of social climate in the variable of *cohesiveness* ($t = 0.3142$). However, in post-test it was not better. There were not achieved any statistically significant differences on the level of significance 5 %. Similarly in the other three variables *satisfaction* ($t = 0.3925$), *tensions* ($t = 0.2104$) and *arduous curricula* ($t = 0.1193$) in post-test compared to pre-test there were not achieved any significant differences on the significance level 5 %. In the variable *competitiveness* ($t = 0.0158^*$) there was achieved statistically significant worsening of class climate perception at the significance level of $p < 0.05$. The difference of results is statistically significant at the 95 % confidence level.

Based on research results gained in our quasi-experiment we state, that *differentiated use of musical activities in educational process affected perception of the social climate more significantly by pupils in experimental class than by pupils without music intervention in control class*. From the detailed analysis and interpretation of the results of the questionnaire *MCI* it follows that in a half-year interval there were achieved statistically significant differences in positive perception of social climate in pupils from ***experimental group*** at the significance level of 0.01 in the three variables (cohesion, friction, and satisfaction), and at the significance level of 0.05 in one variable, competitiveness.

In ***control group*** there were not achieved statistically significant differences in positive perception of social climate, conversely, in the variable of competitiveness there was achieved statistically significant impairment in the perception of social climate at the significance level of 0.05.

Concluding Remarks

The authors of the study indicate that musical activities properly selected and used in educational process can have the potency to change classroom climate at elementary school in a positive way. However, the quantity and quality of the time devoted to musical activities has to be taken into account. Music has been for a long time successfully used as a tool in therapy, and there is another possibility to use it in educational process for various didactic or research aims. A pupil and his or her experience with music is more important than music itself. Thus music teachers should devote adequate amount of time to the proper selection of a piece of music or musical activity for a particular class or pupil, according to their developmental stages and cultural specifics.

The research results show that musical activities and background music have the potency to affect class climate in lower secondary education, especially higher satisfaction, better cohesion, and lower tensions (at the level of significance 0.01). The competitiveness between pupils from experimental class were at the level of significance 0.05. Musical activities and background music contributed to more pleasant atmosphere, had more satisfactory relationships, fewer disagreements with classmates of pupils from experimental class who experienced greater contentment and joy of work than students from control class.

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