

## INTONATION AND CHILDREN WITH EMOTIONAL AND BEHAVIORAL PROBLEMS

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**Abstract.** The study analyzes the role of intonation in communication with children with emotional and behavioral problems. Usually the intonation is identified with one of its elements – the tone of the speech. It is considered how the change in the volume of the tone (intonation) affects the perception of information and how intonation can be used to achieve different goals in communication. The possibility for realization of the communicative intention through the use of different tone (volume) of the verbal message for children with behavioral and emotional disorders has been traced. An individual case study of a child with emotional and conduct disorders has been developed within intervention experiencing anxiety and aggression by using four strategies of interaction: normal tone of voice/positive message; increased tone of voice/positive message; normal tone of voice/negative message and increased tone of voice/negative message. Results reaffirm the inadequate interpretation of language messages among children with emotional and behavioral disorders and outline the influence of intonation on the behavior of children as phrases uttered with increased tone raise the aggression and anxiety of children with emotional and behavioral disorders.

**Keywords:** prosody; intonation; emotional disorders; behavioral disorders; communication

### 1. Introduction

Intonation as a part supersegmental units system is one of the main elements of communication in order to achieve communicative goal of the speech (message, question, order, etc.), as well as to emphasize different moments of the phrase (by changing the logical emphasis) or to express a certain emotion (surprise, indignation, diffidence). Very often the supersegmental level of oral speech is identified with prosody. Initially, the term “prosody” (from the Greek prosodia – accent, melody) referred to the rhythmic and melodic scheme of the poems. Later, this term has been used by linguistics to denote the whole spectrum of rhythmic-intonational elements that realize the communicative

function of speech, because the speaker not only transmits information but also expresses his emotional state.

The prosodic level in phonetics covers accent, intonation and rhythm, which are synchronously expressed in speech, but the accent forms the phonetic integrity of the word, intonation refers to the phrase, and the rhythm expressions are applied mainly in poetry. Intonation is defined as a “complex sound phenomenon” (Tilkov 1981, p. 15) in phonetics researches, as well as part of the system of supersegmental units, which is “a system of operational rules through which segmental units are developed at different language levels” (Misheva 1991, p. 30). In addition, intonation is “a set of sound characteristics that are perceived as pitch, volume and duration of tone” (Penchev 1982, p. 257); prosodic language tool (Solntsev 1977, p. 152), prosodic element (Asano & Gubian 2018, p. 183), prosodic function (Nance, Kirkham & Groarke 2018, p. 279), etc.

A close connection between prosody and intonation has been identified, so L. Kanter defines intonation as a set of prosodic element of speech, and as a basic tone frequency ( $F_0$ ), intensity and duration, which are acoustically perceived as melody, volume (loudness) and effect of sound (Kanter 1988, p. 17). P. Tsonev defines these elements as “complex functioning in the flow of speech, but they can have different workload depending on the function of the communicative act features” (Tsonev 2007, p. 278). Many linguists accept that there is a similarity between some prosodic phenomena and paralinguistic means, e.g. the volume of the voice can be seen as a prosodic element featured to intonation, as well as a paralinguistic tool that follows a means or change the meaning of speech (Fox 2002, p. 10).

It could be assumed that intonation and prosody are two different systems that have common elements. The main components of intonation are 1) melody; 2) pauses; 3) intensity (volume) and pace (Tilkov 1981). According to J. Penchev, the intonation has the following characteristics: 1) height; 2) register; 3) emphasis; 4) volume; 5) length (duration); 6) pace and 7) pause. (Penchev 1982, p. 257). They form two groups of features that have different functions in language: 1) syntactic and 2) attitudinal groups. Attitudinal signs, including volume (loudness), show the speaker's attitude to speech. Intonation plays a crucial role in conveying messages between people. It makes possible to decipher the intention or attitude of the speaker, such as to show surprise, sarcasm, categoricalness, or to state a fact and ask a question (Marinov 2018). Very often the intonation is identified with one of its components – the melody. St. Stoykov outlines that “melody of the sentence or intonation is changes and movement of the basic tone within a sentence” (Stoykov 1966, p. 155).

J. Brown (1984) outlines that even changes in tone (melody) can be defined as “intonation”, and other characteristics of sound, such as volume, duration and more are rather paralinguistic elements (Brown 1984, p. 84). Changes in tone of voice have been shown to influence human behavior from an early age and emotional

prosody sensitivity improves in early childhood (Wang & Tsao 2015). G. Padareva-Ilieva summarizes that “intonation” carries purely linguistic meanings, but also in the communication process, given its dependence on the context and specific situation, these meanings are often intertwined with the so-called extra-, para- or even non-linguistic meanings, which, however, are realized in the same way, ie. with the same acoustic parameters, and more importantly, which contribute to the communication process” (Padareva-Ilieva 2013, p. 90).

The present study traces how one of the elements of intonation - intensity (volume of tone), affects certain behavioral manifestations of children and especially in children with emotional and behavioral problems. The influence of the tone of oral speech in relation to children with emotional and behavioral problems is studied by M. Friend and J. Bryant, who research the interpretation of inappropriate and undiscovered messages within children with emotional disorders, and found that the interpretation of messages is based primarily on verbal rather than paralinguistic content. Other studies follow children's interpretations of the messages throughout the verbal content and tone of the voice channels (Friend & Bryant, 2000), as well as emotional signals from others can influence children's compliance with and interpretation of adults messages (Dahl & Tran 2016). Researchers have concluded that the effect of semantic meaning of words is more pronounced in children with emotional and behavioral disorders, and this effect is significant only for messages with positive messages (Kalathottukaren, Purdy & Ballard 2017; Armstrong et al 2018; Friend & Bryant 2000; Matthews 2014).

## 2. Methodology

The purpose of the present study is to trace the influence of the volume of the tone in the intonation of certain phrases on the aggression and anxiety of children with emotional and behavioral disorders. The work hypothesis of the study is that phrases uttered in a strong tone increase the aggression and anxiety of children with emotional and behavioral disorders.

The study tracks and analyzes an individual case of a child at risk raised outside the family in a residential care home, who has been diagnosed with “Other mixed disorders of conduct and emotions”, F 92.8 according to ICD 10. Choosing this case is motivated by the presence of emotional and behavioral disorders examining the manifestations of aggression and anxiety in the child who is one of the participants in a previous study reporting an intervention with 40 children raised outside the family which monitors the influence of verbal messages on their levels of aggression and anxiety (Zlatkova-Doncheva 2020).

Semantically, the verbal messages used in the intervention can be classified into two groups: **positive language** (affirmative, stimulating), e.g. Well done! You're doing well! etc., and **negative language** (negative, demotivating), e.g. You are not doing well! You can't do it! They are realized with different volume of tone,

as a result of which four strategies of interaction can be differentiated: 1) normal tone of voice/positive message, 2) increased tone of voice/positive message, 3) normal tone of voice/negative message and 4) increased tone of voice/negative message. An independent participant recorded the data from the surveillance of the child's reactions from the presented case (as well as the other 39 participants) as a result of the four strategies (dependent variables). The data has been recorded in a pre-standardized checklist using the Bus-Durky classification of aggression, and the subject of surveillance (dependent variables) are five of the eight Buss-Durky indicators of aggression: *physical aggression, verbal aggression, indirect aggression, aggressive irritability and hostility*.

The second part of the checklist is developed based on the classification of the Russian researcher A. M. Prihozhan (Prihozhan 2000), and the criteria are structured in 10 indicators - *diffidence, dependence, dissatisfaction, reliance, insecurity* (for self-assessment anxiety); *inadequacy, inactivity, non-communication, inability to seek help and lack of empathy* (for interpersonal anxiety). The results of the examined child are compared with the previously measured and analyzed results of the 40 children by the same methodology with the same indicators and criteria.

Verification of the aggression and anxiety has been examined using a scale for measuring the assessment of specialists of the same indicators of aggression and anxiety, that has been measured during the previous intervention with 40 children. The objective presentation of the results is realized through a detailed assessment by all specialists. Additional variables have been researched to determine the correlation between aggression and anxiety with other behaviors as *applied educational measures for asocial behavior, negative influence of friends, low academic grades and runaway from school*.

### **3. Results**

Case study description: A 17-year-old female child was living with her parents until the age of 4, when the mother was killed by the father, who has been in prison ever since. The child has been placed in a residential care home and since then has been raised outside the family. The child has problematic behavior, aggressive behavior and has a diagnosis of F 92.8 according to ICD 10 "Other mixed disorders of conduct and emotions", and before the age of 14 she has acquired another diagnosis – F 31.0 Bipolar Affective Disorder – depressive episode.

The child demonstrates very high values of aggression and self-esteem anxiety compared to the intervention group, but interpersonal anxiety registered identical results as the other children.

Mean values for *verbal aggression* as well as *hostility* demonstrate values to a great extent ( $M = 4.00, SD = 0.00$ ) with a zero standard deviation which shows

an absolute coincidence between the specialist's assessment. However, the child registers significantly lower values for physical aggression ( $M = 2.00$ ,  $SD = 0.63$ ) compared to the intervention group ( $M = 2.10$ ,  $SD = 0.84$ ). The indicators for *aggressive irritability* ( $M = 3.83$ ,  $SD = 0.40$ ) and *indirect aggression* ( $M = 3.66$ ,  $SD = 0.51$ ) also demonstrate higher values for the case study compared to the intervention group *aggressive irritability* ( $M = 3.08$ ,  $SD = 0.72$ ) and *indirect aggression* ( $M = 2.83$ ,  $SD = 0.72$ ).

The results for self-esteem anxiety of the child demonstrate higher values than interpersonal anxiety, and self-esteem anxiety has higher values than the mean for the intervention group. The indicator for *dependence* on external stimuli has maximum value ( $M = 4.00$ ,  $SD = 0.00$ ) and highest values compared to the *dependence* of intervention group ( $M = 3.19$ ,  $SD = 0.45$ ). However, the child from the case study demonstrates lower values for *diffidence* ( $M = 3.16$ ,  $SD = 0.40$ ) and *insecurity* ( $M = 2.33$ ,  $SD = 0.51$ ) compared to values of *diffidence* ( $M = 3.19$ ,  $SD = 0.45$ ) and *insecurity* ( $M = 2.68$ ,  $SD = 0.60$ ) of the intervention group. The results of the indicators for *dissatisfaction* ( $M = 3.66$ ,  $SD = 0.51$ ) and *reliance* ( $M = 3.00$ ,  $SD = 0.00$ ) are also higher than values of intervention group for *dissatisfaction* ( $M = 2.85$ ,  $SD = 0.54$ ) and *reliance* ( $M = 2.83$ ,  $SD = 0.43$ ).

The lower results of the interpersonal anxiety indicators have been objected, except for the *inadequacy* ( $M = 4.00$ ,  $SD = 0.00$ ), which again registers the maximum mean values compared to the whole study group ( $M = 2.92$ ,  $SD = 0.88$ ). In other indicators the child from the case study registered lower values than intervention group. At the same time the child demonstrated higher *empathy* ( $M = 2.33$ ,  $SD = 0.81$ ) compared to the intervention group ( $M = 2.53$ ,  $SD = 0.48$ ), which is an interesting phenomenon.

Assuming that the lack of empathy correlates with the insecurity that provokes aggressive behavior, and since the child's indicators of *diffidence*, *insecurity* and *lack of empathy* are lower, but aggressive behavior, especially verbal, is strongly expressed, it could be assumed that the destructive manifestations are not a projection of internal insecurity, but rather of dependence on external stimuli case study are preceded and caused by high personal anxiety as a personality, as in other cases, and emotional disorder preceded the development of other affective disorders (bipolar disorder and depression). It can be assumed that extremely high levels of hostility in the child are provoked by his strong dependence on the evaluation of others and each encounter with them leads to a risk of negative feedback or rejection. The child finds it difficult to process negative experiences as situations are interpreted more negatively due to his emotional and behavioral disorders, and tries to establish his identity through destructive behavior as a protective mechanism to cover up his vulnerability.

Repeated measures of correlation between indicators of anxiety and aggression with other behavior manifestations outline a negative relationship between

*inactivity and negative influence of friends* ( $r\tau = - .80$ ;  $p <.05$ ), as well as *applied educational measures for asocial behavior* ( $r\tau = - .75$ ;  $p <.05$ ). Similar results show correlation between *diffidence and runaway from school* ( $r\tau = - 1.00$ ;  $p <.05$ ), and between *insecurity and low academic grades at school* ( $r\tau = .85$ ;  $p <.05$ ). Data analysis outline that the influence of the negative social environment is probably hindered by the child's passivity - the less active it is in various activities and interactions, the less likely it is to be influenced by external negative stimuli and anti-social actions. At the same time, it has been established that internal insecurity and diffidence embarrasses the connection between the child and school community.

The intervention with the four strategies of interaction demonstrated different results for the case study and the whole group. Raised tone of voice and negative message provokes more aggression and anxiety among the child from the case study which is typical for children with emotional and behavioral disorders, but on the other hand the child demonstrates aggressive and anxious reactions also when normal tone of voice and positive message has been applied. The results for aggression, self-assessment anxiety and interpersonal anxiety variables are 0.00 when *increased tone of voice and positive message* has been applied. The results of the intervention with *increased tone of voice and negative message* for the child ( $M = 2.35$ ;  $SD = 0.42$ ) are higher than the mean for the whole group ( $M = 2.35$ ;  $SD = 1.56$ ). Meanwhile, the results for same variables are lower when the child from case study experienced *normal tone of voice and negative message* ( $M = 2.00$ ;  $SD = 0.51$ ) compared to the whole intervention group ( $M = 2.48$ ;  $SD = 1.32$ ).

Increased tone of voice and negative message intensifies almost all manifestations of aggression and anxiety. However, the results outline that positive message with a normal tone of voice increase verbal aggression, diffidence, inadequacy and inactivity of the child.

#### **4. Discussion**

These results confirm the strong depressive symptoms (especially the desire to passivity and avoidance), but also reaffirm the inadequate interpretation of language messages among children with emotional and behavioral disorders. The child in the case study perceives more negative meaning of the situation than it actually has as a protective mechanism and tries to escape from a possible source of negative experiences even when there is no threat. Therefore, when the child fails to escape, aggression has been expressed because the child does not know other ways for reaction. However, completely different results in positive messages with increased tone of voice (the child does not show any of the indicators of anxiety and aggression), could lead to the assumption that the child is accustomed to the increased tone (screaming) in his usual environment,

but there is not enough data to prove this hypothesis, as the whole intervention group of children (N = 40) live in identical environments and such a trend hasn't been registered among them.

Expressed behaviors of the child from case study confirms the anxiety origin of behavior disorder and is essential for clarifying the hypothesis in the study – the influence of language and voice on the behavior of children with emotional and behavioral disorders and phrases uttered with increased tone raise their aggression and anxiety. Children with emotional disorders meet extreme difficulty to interpret the language messages adequately (Friend & Bryant 2000), but the research brings out a more specific element – the combination of the volume of the tone (intonation) for the message and its semantic meaning. The child's results confirm the hypothesis that the use of phrases with increased tone (screaming) is completely ineffective and even more destructive in children with emotional and behavioral disorders, which could be explained by their inability to interpret situations and signals from external stimuli adequately including language messages.

## 5. Conclusion

It can be summarized that the tone and message in the specific situation are important in communicating with children with emotional and behavioral problems. Therefore, traditional educational approaches whether in terms of their upbringing or training, would be ineffective, as long as they do not affect the influence anxiety of the child with emotional and behavior disorders. It is important that professionals working with such children to take into account the role of all components in the communicative act – both verbal and nonverbal.

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