

Effects of the Spatial Arrangement of the School Class on Verbal Communication between Teacher and Students

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Abstract

The article deals with a comparison of the influence of functional distance on verbal communication in school lessons. To measure the functional distance, we used a measuring tape. The verbal communication was being noted in a scoreboard as the number of reactions to the teacher's lecture during the lesson. The research sample was made out of high school pupils. Besides the linear-column arrangement of class, a semi-circular arrangement was used. A negative influence of the functional distance on verbal communication was found. We suggest that the teachers walk among the benches in their class, or, alternatively, that they use a semicircle organization of the benches. Our suggestion regarding the research would be involving personality factors introversion – extraversion and dependence – independence from the field.

Keywords:

School class

Functional distance

Verbal communication

School lesson

Teacher

Student

1 Introduction

Psychological distance between people includes functional distance (Rim et al. 2009). The functional distance is defined as „the probability, that two individuals come into contact“ (Bell et al. 2005: 413). In most cases, it is possible to associate the functional distance with the physical distance measured in the units of length (Kiesler & Cummings 2002).

The adaptive functional spatially dispersed teams model assumes that functional distance has an influence on social-psychological phenomena (Jett et al. 2004). We decided to prove the hypothesis based on the phenomenon of the verbal communication of the pupils with their teacher, which we consider very important since it is essential for success in the profession (Phillips et al. 2001).

The research on verbal communication is mostly focused on personal characteristics, such as extraversion, self-esteem, or fear of communication (Brewer 2006; Phillips et al. 2001; Richardson 2003; Sallinen-Kuparinen et al. 1991). In the previous research, we found a positive relation of extraversion and the verbal communication of the pupil with their teacher (Belovičová, 2015, 2011a,b). A negative relation of functional distance to remembering the stuff from the lecture (Pease & Pease 2006), to the concentration of pupils (Everston and Weistein 2006), to teacher's making contact with the pupils (Sommer 1969 in Everston and Weistein 2006) was found. Also, research was conducted, that revealed a negative relation of functional distance and verbal teacher-pupil communication, but we cannot talk about a real influence here, because the research was conducted without any experimental design (McCorskey & McVetta 1978).

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Our research problem is to find the influence of functional distance on verbal teacher-pupil communication. Three hypotheses have been set. **H1:** The functional distance has a negative effect on verbal teacher-pupil communication. **H2:** Pupils in the front rows in the class assign a higher number of reactions compared to the students in the back of the class. **H3:** In a semi-circular arrangement will be no differences between randomly divided probands.

The Independent variable of functional distance was operationalized as the physical distance of the pupil from the teacher, measured in units of length. The dependent variable of verbal communication was operationalized as a number of pupils' reactions to the teacher's lecture during one lesson.

2 Method

2.1 Experimental plan

First, correlation pre-research on a sample of 32 students was conducted. It was found relation between functional distance and verbal pupil-teacher communication. Relation of functional distance and verbal communication was negative ($r = -0.389$, $p < 0.01$). It is noted that the results of the pre-research indicate support for the research hypotheses.

Subsequently, an inner subject experiment was planned. The Independent variable was functional distance, the dependent variable was verbal communication. In the first stage, the individual influence of functional distance on verbal communication was investigated. In the second stage, the linear-column and semicircular arrangements of the school class were compared.

2.2 Methodology

Arrangements vary by the equivalence of functional distance of the pupils from their teacher. In the linear-column arrangement of the class, the pupils are at a different functional distance from the teacher, in the semi-circular arrangement, they are at an equal distance from the teacher (figure 1).

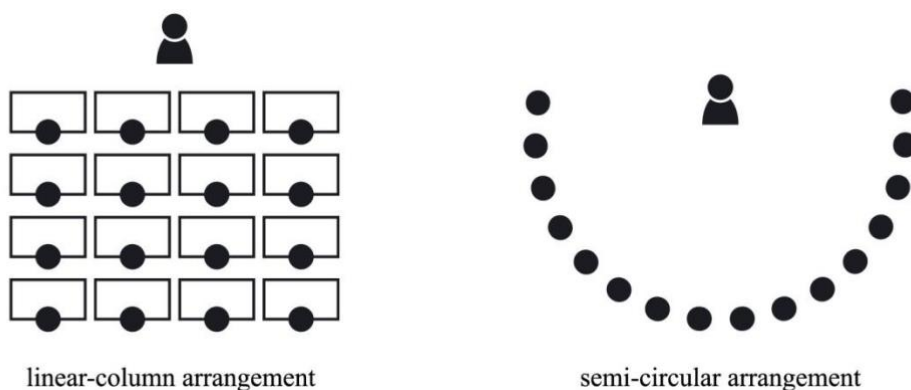


Fig. 1: Class arrangements.

To measure the functional distance between the teacher and the pupils, we used a measuring tape. Verbal communication between the pupils with their teacher was observed from the back of the class during a real lesson. The pupils' reactions were noted in a recording sheet.

2.3 Research sample

The experiment was conducted under the participation of 100 probands, students of three graduating classes of St. Cyril and Methodius upper-secondary school in Nitra. In terms of gender, 62% of girls and 38% of boys were represented, and the average age was 18.6 years. High school students were selected for the sample because of the significance of verbal communication in university studies.

The choice of the school subject was considered in relation to various cognitive requirements on students, and also in relation to various possibilities to communicate with the teacher. We decided on the subject of Christian ethics because there are problematic social topics discussed, from the psychological, social and spiritual points of view. This we consider a possibility for the students to express their opinion in a wide range of discussed circuits (such as drug addiction, abortion, human rights, death penalty etc.)

We compiled an experimental timetable that followed the real timetable of the students and we conducted our research according to it. The subject of Christian ethics was taught by the same teacher, which eliminated an unwanted variable of a different personality and different approach of the teacher. External variables were checked: teacher's movement in the class, picking the students by their names and topic for discussion (political systems: socialism and liberalism).

3 Results

3.1 Nonparametric analyses

With the variable number of reactions, some deviations from the Gaussian curve were recorded (skewness: 1.519, kurtosis: 2.156), which is why nonparametric tests were used in the statistical analyses (Table 1).

	skewness	kurtosis	nonparametric analyses
number of reactions	1.519	2.156	Mann-Whitney test

Table 1 Verbal communication in the linear-column arrangement.

3.2 Linear-column arrangement

In the linear-column arrangement, it was found that the students in the front rows in the class assign a higher number of reactions compared to the students in the back of the class. This result was significant at 1% of the significance level (Table 2).

	front rows in the class			back of the class			Mann-Whitney test (n = 100)	
	Mdn	Mean Rank	Sum of Ranks	Mdn	Mean Rank	Sum of Ranks	U	p
number of reactions	1	53.79	2528.00	0	40.07	1843.00	762.00	.009

Table 2 Verbal communication in the linear-column arrangement.

3.3 Semi-circular arrangement

The semi-circular arrangement of the class was designed as a control group for the linear-column arrangement because, in the semi-circle, students sit at an equal distance from the teacher. This is why no differences between randomly divided probands were anticipated (Table 3).

	1. group			2. group			Mann-Whitney test (n = 100)	
	Mdn	Mean Rank	Sum of Ranks	Mdn	Mean Rank	Sum of Ranks	U	p

number of reactions	3	49.61	2331.50	1	44.34	2039.50	958.500	.340
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Table 3 Verbal communication in the semi-circular arrangement.

4 Discussion

In the research we found a negative effect of functional distance between the teacher and the pupil and of verbal teacher-pupil communication, this is why **the hypotheses H1, H2 and H3 were accepted** (table 2, table 3). The result was discussed with psychological theories.

A person who is close to another person can find it harder to focus their attention on some other sphere (Milgram 1974). In accordance with this, we found that the proximity between the teacher and the pupil encourages their verbal communication. On the contrary, with a bigger functional distance, there are more stimulants having an impact on the pupils, which can distract them (classmates, surroundings...), which have a negative influence on the communication with the teacher.

The consequence of big functional distance is a lower frequency of interpersonal contact, which has a negative impact on the formation of a friendly relationship (Ebbesen et al. 1976). In the situation of verbal pupil-teacher communication, we consider it significant, how high frequency of contact is made by the pupil with their teacher during the lesson. Eye contact between the teacher and students is the biggest when the pupils are closer to the teacher, thus producing more reactions.

Small functional distance is a precondition for perceiving visual aspects of the conversational partner, which influences cooperation (Drolet & Morris 2000). Pupils at a smaller functional distance from the teacher have more opportunities to perceive mimics and gestures of the teacher, which complements the verbal communication with the non-verbal element, confirming the authenticity of the content. Mimics and gestures of the teacher emphasize the lecture and enrich it with emotional immersion, which motivates the pupils to participate in the lesson.

The triangular activation zone in the linear-column arrangement involves front rows of pupils and continuously narrows into one point. Pupils in this zone remember the most stuff from the lecture (Adams & Biddle 1970 in: Everston & Weistein 2006), their attention is more focused on the class and they are more engaged in the class (Everston & Weistein 2006). Pupils outside the activation zone are thus less focused on the lecture, which can be related to verbal communication. They often do not catch what their teacher is explaining at the moment and notice him only when he asks something. Because they have not been focused on the lecture, they do not know, what has been said in the previous minutes, which worsens their possibility to react appropriately.

During the experiment, we noticed that a pupil sitting in the back row of the school banks (i.e. the biggest possible distance from the teacher) tried to react to the lecture of the teacher more times, but her reactions were not noticed by the teacher. We think it is due to the greater distance as well as due to the barriers created by the school banks.

The teacher told us in a personal interview that for her it is better to communicate with the pupils sitting in the front rows in the class. Her reason to claim this is that the pupils in the front row tend to be "more focused". She further said that for her it is natural to walk in the class during the lesson. During our research, she held onto our instruction to remain in the front part of the class, but otherwise, she prefers walking among the banks, because she has "better contact with the individual pupils".

In the application to the school practice, we propose two measures that could reduce the negative impact of functional distance on verbal pupil-teacher communication. First, in the linear-column arrangement of the class, we suggest that the teacher walks among the pupils because this is how the functional distance keeps changing dynamically. Then every pupil is several times in the smallest functional distance when the conditions to communicate with the teacher are the best, and several times in the biggest functional distance when the conditions for the communication are less favourable. Second, we suggest using a semi-circular arrangement of the class, where the functional distance pupils-teacher remains the same. By unifying the functional distance the opportunities to verbally communicate even out.

Situational factors of verbal communication in the school class are thus complemented by personal factors. In further research, we suggest planning a multivariate inner subject experiment with functional distance and introversion – extraversion, dependency – independency from the field as the dependent variable. We suggest

splitting the experiment into two stages. In the first stage, to investigate individual relations of functional distance and personal factors in verbal communication. In the second stage, the focus can be on their common influence. Next, we suggest including social factors in the research.

A major research limit is that we use a nonstandard sample and only one subject was investigated. We suggest finding the effects of the spatial arrangement of the school class on verbal communication between teachers and students on more probands and subjects.

Conclusions

The aim of the research was to find the effects of functional distance between the pupil and the teacher as the main component of psychological distance on verbal communication. We found a negative impact of functional distance on verbal communication in linear-column and semi-circular arrangements. We conclude that functional distance has a significant influence on the social-psychological phenomena, for example in school practice.

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