

The influences of teachers' communicational style upon the learning style of high school students

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Abstract

This study, conducted over 2 years (2019–2020), aimed to highlight how teachers' communication style influences the learning style of high school students. We used research methods of the S.C. Questionnaire (communication analysis), a questionnaire to identify students' learning styles, and guidance interview structured on 10 items. Both questionnaires were administered according to GDPR rules. We also used IBM Statistical Package for the Social Sciences 25 for statistical data processing. The outcomes of this research are as follows: (a) it allows a better understanding of the teaching–learning process in high school students; (b) it highlights how the teacher's communication style influences the learning style of high school students, in both face-to-face teaching activities and online teaching–learning activities; and (c) it highlights the methods that facilitate the analysed phenomenon.

Keywords: Teachers' communication style, student's learning style.

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1. Purpose of the article

The teaching–learning process is an extremely complex process that transcends the simple transmission of knowledge and formation of skills. Starting from the approach of learning on two fundamental coordinates: assimilation and accommodation (Piaget, 1965), the teacher has the role to contribute decisively to promote effective learning. And not just any effective learning, but a participatory, active and creative one (Neacsu, 1990, p. 12) in which the student learns to use different learning techniques and strategies so that the assimilated content becomes operational and transferable.

The analysis and use of learning styles seen as an individual way of the reaction of the student to the educational process are also important from the perspective of competence-based teaching.

Around the world, experts have conducted a series of research to offer some milestones that colleagues can use in the new approach of teaching and learning called: the contextual approach (Johnson, 2002).

This study aims at an analysis, beyond the first impression, of the influences of teacher communication style exerts on the learning style of high school students, in face-to-face and online teaching–learning activities. There is a real effervescence of critical analyses related to quality educational services provided, but also a real awareness of the community about the long-term implications of educational and social policy.

2. Introduction

The specialists in educational sciences had and continue to have an object of research, i.e., the act of teaching in close relationship with the one of learning and evaluation. In the current speech, the act of teaching is often assimilated with the instructive–educational process (Anthony, 2002).

At the level of specialised literature, we find numerous definitions of the teaching act. In essence, it involves a particular way in which knowledge, skills and experiences enabled by a qualified person (educator and teacher) are transmitted to a person who is involved in the learning process (student).

Considered as an act of communication, teaching has the following specific characteristics: (a) it is initiated and led by the teacher, who establishes the duration in time, the content and the norms with the preoccupation to progressively prepare the students to make decisions regarding these aspects; it has a formal characteristic and it is carried out by observing some rules inscribed in the regulations, because in school it is not communicated anyway and about anything; (b) its form and content are influenced by the specifics of the teacher–student relationship. It is not only a verbal exchange that engages partners only intellectually but also involves their emotional participation. The teacher cannot treat with indifference how the students managed to decode his messages, but he is concerned with finding the most efficient ways (he comes back with explanations, checks the understanding of the messages etc.); (c) its content is generated by the nature of the relationship of teachers and students with human science and knowledge in general. While the teacher has full access to human knowledge in a particular field, students have partial access. Teaching as an act of communication has the role of facilitating students' access to this knowledge, and this aspect constitutes most of the content of communication between teachers and students; (d) it is influenced in its efficiency by psychological and social factors (apud. http://mentoratrural.pmu.ro/sites/default/files/ResurseEducationale/63055_modul_3_stiluri%20invatare_final.pdf, p. 8–9).

During the communicational act of transmitting the knowledge, experiences and forming skills, abilities, based on purpose and educational objectives, each teacher shows, according to the contents, one of the four communication styles: non-assertive, aggressive, manipulative and assertive.

In the same process, each student reveals his/her learning style.

The learning style is the expression of strategic learning, specific to the learning activity. Unlike cognitive style, which refers to the organisation and control of cognitive processes, learning style refers to organisation and control of learning strategies and also to the acquisition of knowledge,

'Learning styles are defined as personal dispositions that influence a student's ability to acquire information, interact with colleagues and teachers, and participate in learning experiences. These personal dispositions are materialised in motives, perceptual capacities, ways of processing information, preferences for a certain sensory way, social relations and characteristics of the physical environment' (Grasha, 2002 cited by Moraru & Stoica, 2016, p. 55).

The learning style has three basic elements: '(1) the person's attitudes; (2) the learning models; (3) temperament' (Urea & Pirvu, 2020, p. 141), and involves two fundamental dimensions, respectively, a psychological dimension and an action one. The practical aspects of the students' activity are based on psychological mechanisms and reactions that become obvious through mediated behaviours that do not seem to be directly related to the exercise of the student's role (Paun, 2017).

The learning style was associated by Helffler (2001, p. 307) with 'four learning modes: concrete experience, reflective observation, abstract conceptualisation and active experimentation'.

In the procedural activity the following stages are distinguished: (a) perception of the material, (b) assimilation and understanding of knowledge, (c) fixation in memory, (d) application, (e) updating of knowledge and (f) the transfer of knowledge (Mayes & Moon, 2013).

Honey and Mumford (1986), researching Kolb's studies, among others, in 1986, developed and classified the four learning styles as follows: (a) active style; (b) reflective style; (c) theoretical style; and (d) pragmatic style.

Learning style is influenced by a lot of factors. Research carried out in 2009, by Joy and Kolb (2009, p. 69), pointed out that 'the variance in the preference for abstract conceptualisation was explained by culture, gender, level of education and area of specialisation. The variability in preference for active experimentation over reflective observation was accounted for by age and area of specialisation. The impact of culture was only marginally significant....., that individuals tend to have a more abstract learning style in countries that are high in in-group collectivism, institutional collectivism, uncertainty avoidance, future orientation and gender egalitarianism. Individuals may have a more reflective learning style in countries that are high in in-group collectivism, uncertainty avoidance and assertiveness'.

3. Methods

3.1. Methods

In our investigation, we used a mixed method. Our option for using mixed methods was dictated by the dimensions of our research.

'The S.C. Questionnaire (communication analysis)' was created by Marcus for adult and reveals the types of communication style: non-assertive, aggressive, manipulative and assertive style. The questionnaire features are internal consistency = 0.804 and fidelity index = 0.787.

'Students' learning styles' questionnaire', a questionnaire adapted from Honey and Mumford (1986) for high school students, aimed to reveal the student' learning style: active style; reflective style; theoretical style; and pragmatic style. The questionnaire features are internal consistency = 0.776 and fidelity index = 0.731.

We also used in our research directive and structured interviews.

In our investigation, to analyse the collected data, we used IBM Statistical Package for the Social Sciences 25 software.

3.2. Participants

We carried out our research on a group of 245 high school students, 42% boys and 58% girls, aged between 16 and 18 years ($M = 17.4$, $Std = 3.44$), and on 81 teachers, 38% male and 62% female, aged between 30 and 51 years ($M = 39.6$, $Std = 3.89$). Both students and teachers were from urban environment.

3.3. Procedure

In our research, we respected the General Data Protection Regulation (GDPR) of UE. Each parent of investigated student was informed about the aim of the research, the tasks that the child has to fulfil during the research, about our intention to publish an article (by respecting the code of ethics) related to the aspects that we investigated and about our intention in sharing the collected data with third parties. We asked and obtained the parents' consent for collecting the data, for processing and analysing it and for publishing the article. We did not obtain their consents for sharing the collected data with third parties (only the researcher had access to the collected data).

We also informed each investigated teacher about the aim of the research, the tasks that he/she has to do during the research, about our intention to publish an article (by respecting the code of ethics) related to the aspects that we investigated and about our intention in sharing the collected data with third parties. We asked and obtained the teachers' consent for collecting the data, for processing and analysing it and for publishing the article. We did not obtain their consents for sharing the collected data with third parties (only the researcher had access to the collected data).

Our research had two stages. The first stage, between October 2019 and January 2020, when the teaching–learning activities were face-to-face, had an initial testing procedure on 32 high school students and 15 teachers, and the obtained Cronbach's alpha indexes ($\alpha_1 = 0.664$) allowed us to extend the research on stage one. The testing procedure on stage one was on 132 high school students and 42 teachers and was focussed on (a) revealing the teachers' communication style; (b) revealing the high schools' students learning style; and (c) revealing the methods that facilitate the student' learning style.

The second stage of the research carried out between May 2020 and November 2020, when the teaching–learning activities were carried out online, also had an initial testing procedure on 38 high school students and 18 teachers and the obtained Cronbach's alpha indexes ($\alpha_2 = 0.629$) allowed us to extend the research on stage two. The testing procedure on stage one was on 123 high school students and 39 teachers and was focussed on the same aspects as stage one.

4. Results

The major goal of this research was to reveal differential influences of teachers' communication style on students' learning style with the teaching–learning environments.

4.1. Investigation of teachers' communication style

The first objective of the research was aimed at revealing the specific communication style used by our investigated teachers in face-to-face teaching–learning activities and in online learning activities.

The data analysis process pointed that the distribution was uniform: (a) at the face-to-face teaching–learning activities of the skewness index values from 1.248 to 2.501 and with the standard error of skewness from 0.768 to 1.411, and kurtosis index values from 1.127 to 1.638, respectively, and the standard error of kurtosis from 0.917 to 1.579 and (b) at online teaching–learning activities of the skewness index values from 0.899 to 1.225 and with the standard error of skewness from 0.728 to

1.151, and kurtosis index values from 1.228 to 1.833, respectively, and the standard error of kurtosis from 0.924 to 1.622.

We further present the data related to the answers analysed on the four communicational styles: non-assertive, aggressive, manipulative and assertive in both research stages (see Table 1).

Table 1. Teachers' communication style – revealed in both research stages.

Indicators	Types of teachers' communication style							
	Non-assertive style		Aggressive style		Manipulative style		Assertive style	
	Face-to-face teaching-learning activities	Online teaching-learning activities	Face-to-face teaching-learning activities	Online teaching-learning activities	Face-to-face teaching-learning activities	Online teaching-learning activities	Face-to-face teaching-learning activities	Online teaching-learning activities
Mean	5.6167	5.2401	5.9430	6.1670	8.6480	7.9810	10.6000	11.4280
Std. error of mean	0.43440	0.36890	0.35471	0.37791	0.32150	0.28801	0.26913	0.24615
Std. deviation	3.12044	2.70258	2.74757	2.71462	2.23095	2.45618	2.08465	1.96426

4.2. Investigation of students' learning style

4.2.1. Investigation of the typology of students' learning style

The second objective of the research was aimed at revealing the specific learning used by our investigated students in face-to-face and online teaching-learning activities.

The data analysis process pointed that the distribution was uniform: (a) at the face-to-face teaching-learning activities of the skewness index values from 1.332 to 2.204 and with the standard error of skewness from 0.825 to 1.524, and kurtosis index values from 1.238 to 1.729, respectively, the standard error of kurtosis from 1.045 to 1.404 and (b) at online teaching-learning activities of the skewness index values from 0.883 to 1.379 and with the standard error of skewness from 0.731 to 1.112, and kurtosis index values from 0.995 to 1.533, respectively, and the standard error of kurtosis from 0.906 to 1.487.

We further present the data related to the answers analysed on the four learning styles: active, reflective, theoretical and pragmatic in both research stages (see Table 2).

Table 2. Student' learning style – revealed in both research stages

Methods	Face-to-face teaching-learning activities			Online teaching-learning activities		
	%	Ma	Std	%	Ma	Std.
Lecture	25	4.02	0.5972	15	3.45	0.4863
Exercises	12	3.12	0.5476	10	2.98	0.4524
Problematisation	18	3.61	0.6281	21	3.95	0.5175
Problematic situations similar to those in everyday life	5	1.02	0.3412	7	1.44	0.3781
The portfolio	11	3.02	0.3867	15	3.45	0.4925
Centred debate	5	1.02	0.3766	2	.84	0.2764
Argumentation	2	.89	0.3584	2	.84	0.2547
Team work (team of 3–5 members)	8	1.77	0.4623	3	.92	0.2644
Project' partnership	5	1.02	0.3826	8	1.62	0.3439

Role-playing games	3	0.92	0.3761	5	1.30	0.3697
Simulation games	3	0.92	0.3775	5	1.30	0.3662
Narrative essay	2	0.89	0.3617	5	1.30	0.3558

4.2.2. Investigation of the methods that facilitate the construction of the learning style

The third objective of the research was aimed at revealing the specific methods that facilitate student' learning style in face-to-face and online teaching–learning activities.

The data analysis process pointed that the distribution was uniform: (a) at the face-to-face teaching–learning activities-the skewness index values from 0.957 to 2.541 and with the standard error of skewness from 0.705 to 1.962, and kurtosis index values from 1.085 to 2.361, respectively, the standard error of kurtosis from 0.945 to 1.852 and (b) at online teaching–learning activities of the skewness index values from 0.862 to 1.883 and with the standard error of skewness from 0.695 to 1.773, and kurtosis index values from 0.992 to 1.995, respectively, and the standard error of kurtosis from 0.906 to 1.887.

We further present the data related to the answers analysed on the methods that facilitate the students' learning style (see Table 3).

Table 3. Methods that facilitate student' learning style

Indicators	Types of students' learning style							
	Theoretical style		Active style		Reflexive style		Pragmatic style	
	Face-to-face teaching –learning activities	Online teaching –learning activities	Face-to-face teaching –learning activities	Online teaching –learning activities	Face-to-face teaching –learning activities	Online teaching –learning activities	Face-to-face teaching –learning activities	Online teaching –learning activities
Mean	6.3187	5.8454	6.2780	6.6745	8.4225	7.9960	10.6000	11.4280
Std. error of mean	0.47630	0.45390	0.38575	4.2644	0.29684	0.34350	0.27458	0.22461
Std. deviation	3.48497	3.30638	2.94759	2.70456	2.36235	2.68561	2.29762	1.98531

5. Discussions

5.1. Investigation of teachers' communication style

From the data collected in Table 1, we found that according to the investigated teachers, the dominant communication style is the assertive one, both in face-to-face and in online teaching–learning activities. In the same context, we noticed that teachers had an increase in the assertive communication style in online teaching–learning activities that compensated direct consequences of the lack of continuum feedback that teachers received during the face-to-face teaching–learning activity from the non-verbal and paraverbal behaviour of the students. In this situation, the teachers have had to use differential communicational strategies to facilitate the teaching contents (highlighted in 48% of structured and directive interviews): short statements with arguments from previous students' learning experiences (highlighted in 51% of structured and directive interviews), relevant information to sustain a certain solving problems paths (highlighted in 34% of structured and directive interviews), specific demands and criteria for assessing the learning outcomes (highlighted in 41% of structured and directive interviews); and strategies that reshape their professional brand.

From the same table, we notice also an increase in the presence of some teachers' aggressive style in online teaching–learning activities and it can be explained by the impersonal, static approach of online learning activities, by problems related to the internet connection, the delays that occurred in students' responses – all of that have diminished the level of tolerance of teachers to students'

mistakes and increased the gap between the teachers' level of expectation (expressed by teachers in aims and operational objectives of each teaching activities) and the students' level of operational acquired knowledge.

Based on statistical data analysis (*t*-test for independent sample), we found that the data analysed are significant for the investigated teachers (Table 4).

Table 4. The *t*-test on teachers' communication style.

Types of teaching–learning activities		Test value = 0				95% confidence interval of the difference	
		<i>t</i>	df	Sig. (2-tailed)	Mean difference	Lower	Upper
Face-to-face teaching–learning activities	Non-assertive style	6.225	42	0.000	2.200	4.471	6.729
	Aggressive style	6.174	42	0.000	3.400	5.109	8.644
	Manipulator style	4.356	42	0.000	3.240	6.647	9.951
Online teaching–learning activities	Assertive style	4.111	42	0.000	3.100	8.891	11.995
	Non-assertive style	5.842	39	0.000	3.300	4.082	7.418
	Aggressive style	6.981	39	0.000	3.800	5.087	8.813
	Manipulator style	4.162	39	0.000	3.050	6.70	9.78
	Assertive style	4.775	39	0.000	3.600	9.221	12.900

Considering all the findings we can say: (a) there are differences between the teachers' communication style used in face-to-face and online teaching–learning activities and (b) since in online teaching–learning activities, the continuum feedback usually received by teachers through non-verbal and paraverbal students' behaviours were diminished, the teachers had to used differential strategies in communicational teaching act for reaching the teaching aims.

5.2. Investigation of students' learning style

The data synthesised in Table 2 allowed us to see that at the investigated high school students the dominant learning style is the pragmatic one, in both face-to-face teaching–learning activities and online teaching–learning activities. In the same context, we noticed, at investigated students, in online teaching–learning activities, an increase of the pragmatic learning style which means that based on the need for personal affirmation, our high school students become in online teaching–learning activities more eager to try ideas, theories and techniques to see if they work in practice, more eager to explore the opportunity to experience them in practice,

From the same data (Table 2), we also noticed at our investigate high school students, an increase in the active learning style in online teaching–learning training activities which signified that the teaching–learning activities in online environments better satisfy the student' need for valorisation and continuous development of their potential, allowing them in facile ways to try new experiences, without prejudices.

Based on statistical data analysis (*t*-test for independent sample), we found that the data analysed are significant for the investigated high school students (Table 5).

Considering all the findings we can say: (a) there are differences between the high school students' used in face-to-face and online teaching–learning activities and (b) the investigated students dominantly using the pragmatic learning style, try to find more the utility of the acquired knowledge, skills during the online teaching–learning activities and also establish a particular personal meaning of learning as a process.

Table 5. The t-test-on high school students' learning style

Types of teaching–learning activities		Test value = 0			95% confidence interval of the difference		
		t	df	Sig. (2-tailed)	Mean difference	Lower	Upper
Face-to-face teaching–learning activities	Theoretical style	7.435	132	0.000	2.540	5.071	7.729
	Active style	6.704	132	0.000	3.300	5.205	8.544
	Reflexive style	4.778	132	0.000	3.500	6.270	9.751
Online teaching–learning activities	Pragmatic style	4.311	132	0.000	3.210	8.550	11.770
	Theoretical style	5.682	123	0.000	3.250	4.210	7.462
	Active style	6.288	123	0.000	3.400	4.680	8.083
learning activities	Reflexive style	4.498	123	0.000	3.280	6.550	9.830
	Pragmatic style	5.275	123	0.000	3.800	9.221	12.800

Regarding the methods that facilitate students' learning style we notice the following, from Table 3:

- *in face-to-face teaching–learning activities, the dominant method used was the lecture. In online teaching–learning activities, students used for learning as a method problematisation which signifies that learning is associated with understanding (of concepts, of path procedures etc.) and with a quick finding of solutions to problems; solutions that can be transferred/ used in situations that can occur in daily activities.*
- *portfolio become a better method that stimulates online teaching–learning activities because allows students to reveal their potential and personal brand.*
- *project partnership becomes a method that facilitates students' learning style in online teaching–learning activities and also contributes to the development of objective selection criteria (based on qualities and skills) of team partners to achieve a higher level of performance.*

The correlational analyses data revealed significant influences of teachers' communication style on high school students' learning style (see Table 6)

Table 6. Correlational relationship between teachers' communication style and student' learning style

Teachers' communication style	Student' theoretical learning style	Student' active learning style	Student' reflexive learning style	Student' pragmatic learning style
Face-to-face teaching–learning activities				
Non-assertive style	Direct, significant correlation, $r = 0.774, p = 0.05$	$r = 0.321, p = 0.09$	$r = 0.521, p = 0.11$	$r = 0.121, p = 0.17$
Aggressive style	$r = 0.075, p = 0.09$	Direct, significant correlation, $r = 0.802, p = 0.01$	$r = 0.301, p = 0.14$	$r = 0.601, p = 0.21$
Manipulator style	$r = 0.221, p = 0.14$	$r = 0.065, p = 0.09$	Direct, significant correlation, $r = 0.604, p = 0.05$	$r = 0.321, p = 0.17$
Assertive style	$r = 0.589, p = 0.11$	$r = 0.621, p = 0.12$	$r = 0.271, p = 0.19$	Direct, significant correlation, $r = 0.842, p = 0.05$
Online teaching–learning activities				
Non-assertive style	$r = 0.411, p = 0.12$	$r = 0.701, p = 0.17$	Direct, significant correlation, $r = 0.765, p = 0.01$	$r = 0.201, p = 0.07$

Aggressive style	$r = 0.277, p = 0.09$	Direct, significant correlation, $r = 0.790, p = 0.05$	$r = 0.401, p = 0.12$	$r = 0.303, p = 0.14$
Manipulator style	Direct, significant correlation, $r = 0.708, p = 0.01$	$r = 0.308, p = 0.12$	$r = 0.401, p = 0.09$	$r = 0.561, p = 0.12$
Assertive style	$r = 0.528, p = 0.14$	$r = 0.606, p = 0.11$	$r = 0.177, p = 0.09$	Direct, significant correlation, $r = 0.851, p = 0.05$

6. Conclusion

This research had the goal to reveal specific influences of teachers' communication style on high school student's learning style in the face-to-face teaching–learning activities and online teaching–learning activities. In our investigation, we used specific and adapted instruments.

With the help of statistical analysis, we found that Cronbach's alpha index is 0.828.

We also found the following:

- *The increase in assertive communication style in online teaching–learning activities compensated direct consequences of the lack of continuum feedback that teachers received during the face-to-face teaching–learning activity from the non-verbal and paraverbal behaviour of the students.*
- *Teachers used different communicational strategies to facilitate the teaching contents: short statements with arguments from previous students' learning experiences relevant information to sustain a certain solving problems paths specific demands and criteria for assessing the learning outcomes and strategies that reshape their professional brand.*
- *The teachers' aggressive communicational style is an expression of the gap between the teachers' level of expectation (expressed by teachers in aims and operational objectives of each teaching activities) and the students' level of operational acquired knowledge.*
- *The students who are dominantly using the pragmatic learning style try to find more the utility of the acquired knowledge, skills during the online teaching–learning activities and also establish a particular, personal meaning of learning as a process.*
- *Learning is associated with our investigated subjects with an understanding and quick finding of solutions to problems that can be transferred/used in situations that can occur in daily activities.*
- *The portfolio becomes a better method that stimulates online teaching–learning activities because allows students to reveal their potential and personal brand.*
- *Project partnership becomes a method that facilitates student' learning style in online teaching–learning activities and also contributes to the development of objective selection criteria (based on qualities and skills) of team partners to achieve a higher level of performance.*

7. Recommendations

Our findings (implications of the research) can be useful for teachers to:

- *develop a secure learning /educational climate for students;*
- *create an efficient learning team for acquiring functional knowledge skills for coping with current daily activities;*
- *develop efficient strategies and role-play games to increase the efficiency of student' learning style.*

Our conclusion has the following theoretical implications:

- *A better understanding of the teaching–learning process of high school students;*

- *Better use of methods and strategies to stimulate students' learning style.*
- *Improve the quality of the relationship between teachers and students in the teaching–learning process*
- *Use the student potential for improving the efficiency of his/her learning style in developing his/her future career.*

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