

TEACHING AND LEARNING ORIENTED AND IN FUNCTION OF STUDENTS' LEARNING STYLES

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Abstract

The purpose of the study can be defined as an attempt to establish whether there is a relationship between teaching, learning and learning styles and to provide a defining and stimulating framework for learning and teaching in the secondary and higher education system.

The research was conducted on a sample of 276 subjects out of which 245 students and 31 teachers. Students aged between 15-23 years of age, of whom 85 are high school students and 160 are social studies students. The Learning Styles Questionnaire (Honey & Mumford, 1986) was used to measure learning styles, which measures four distinct styles (pragmatic, reflective, activist, and theorizing) consisting of a total of 40 items (out of ten for each style in particular).

The results provide considerable pragmatic findings. Teachers and students develop reflective (33.85%) and theoretical (29.81%) learning styles. 17.44% of students are classified without a predominant style. From the obtained correlation coefficients, we conclude that there is a statistically significant correlation between teacher and student learning styles (0.72). The research did not identify differences in the context of learning styles between the dominant styles in secondary and higher education as well as gender differences in contexts of learning styles. Theoretical and reflective learning styles remain dominant learning options throughout the studies.

Keywords: Learning styles, pragmatist, reflective, activist, theorist, reliability.

Introduction

There have been many theorists that discussed various learning styles of pupils. Knowing the importance of learning styles understanding can not only help the student but, before all, it can help teachers be more effective in their teaching environment. However, the assessment of students' preferences regarding learning requires a great amount of time and it is considered as a difficult process. Nevertheless, it is certain that defining the ''s learning style can help them in later life phases and in the development of self-cognition in order to become successful now and in the future.

The learning process quite often depends on students' perception related to learning process, as a process which is conditionally challenging/annoying, or as a motivating/discouraging process. Likewise, the lack of teachers' as well as students' competence to adapt the teaching material according to the personal learning style, also the not/developed learning habits are considered as challenges to be addressed in different empirical studies.

The origin of the first ideas on learning styles awakened ever more inclusive interest which resulted in many definitions, theories, and classifications. Nowadays, we can find numerous theories that put efforts, each from its own point of view, to illuminate the learning styles mechanisms and contents. The most prominent among these theories is considered the theory according to which individual experience should be placed at the center of learning, according to which the individual develops a proactive approach to learning i.e. the individual actively participates in the creation of the system of personal knowledge.

The teaching process is qualified as an interconnecting factor to learning since through which individuals acquire new knowledge about themselves and the world around them. Teaching, regarded from the didactic perspective, both theoretically and practically, relies on many factors and processes such as: teaching factors, didactic principles, teaching methods, teaching tools, forms of teaching work, material content of the activity, etc. (Musai, 1999)

Learning styles

The dominant learning style became known in the studies around 1892 and was initially used by Thelen (Fatt, 2000). But relevant studies begin with the theories of David Kolb (Fatt, 2000) which inspires Peter Honey and Alan Mumford who have identified four learning styles: activist, theorist, pragmatist, and reflector. Students who adapt their learning style to the tasks presented are considered to have a versatile learning style (Fatt, 2000), and each student must understand their own learning style and seek for learning opportunities using that style.

Learning styles refer to cognitive, affective, and psychological processes that serve as a relatively stable indicator of how a learner perceives, interprets and responds to the learning environment (Zarghani, 1988; Swanson, 1995). The dominant learning style can be also determined through the process of evaluating student achievement. When student achievement is assessed through activities which are related to their preferred learning style then the students achieve higher results than when assessment is done by ordinary assessment methods (according to Jensen, 2003).

The model on learning styles is conceptualized by Rita and Kenneth Dunn (Dunn, 1983) and serves to recognize the dominant individual learning styles. There are other taxonomies on learning styles where substantial similarities between styles and models can be noticed. Based on another categorization, there is the so-called wholist-analytic and verbal-imagery style (Riding and Cheema, 1991). According to the categorization's authors, the styles are independent. As per Willis and Hudson (Willis & Hudson, 2004) learning styles can be: a) convergent style and b) divergent style.

In another note, Silver, Strong and Perini (1997) share the opinion that the learning style theory began with the psychoanalysis representative Carl Jung in 1927, who noted major differences in the way people perceived, the way they made decisions and how active or reflective they were while interacting with others (Silver et al., 1997). Learning-style theorists believe that "learning is the result of a personal, individualized act of thought and feeling" (Silver et al., 1997, f.22).

Different scholars emphasize the importance of recognizing the preferred learning style, the students' knowledge of, both, the learning process and the teaching process in general. They emphasize the importance of matching learning style to teaching styles in function of developing students' attitudes as well as for better learning achievements (Romanelli, Bird, & Ryan, 2009).

Literature Review

Literature review (at least the consulted literature) in the Albanian speaking learning context suggests that there are efforts of certain researchers (Osmani et al., 2016, Osmani&Mehmedi, 2017; Osmani&Spahiu, 2017) related to the role of learning styles in function to oriented learning and teaching. There have been many theorists who have discussed various student learning styles. While foreign scholars absorb with studies and generalizations about the role and importance of learning styles, teachers are left to speculate on the conceptualization of the classes based on individual attributes deriving from learning styles. Studies prove the presence of individual differences in styles. In this context, the researchers have confirmed the existence of differences between gifted (talented) students and their non-gifted peers regarding learning styles (Milgram & Dunn, 1993), respectively, gifted students use different learning abilities and channels while learning (Dunn, 1983). Other studies have confirmed the existence of a relation between individual independence, self-control and learning styles (Stewart, 1981)

Methodology

The research problem can be formulated as follows: if learning styles have a correlative relation with learning and school/academic achievement. In accordance to the paper title, the study was intended to answer the question of whether there is a linear relation between pupil/student learning styles and perceived teachers' learning styles. The research question on whether learning styles differ depending on the level of education (high school/university) is of equal importance as well.

Sample. The research is applied on a sample of 276 subjects, of which 245 students and 31 teachers. The students' age group was 15-23; while 85 were high school students and 160 social department students from Kosovo and North Macedonia. The research was conducted by the authors of the paper during 2018.

Research variables and instruments. The research examined the interaction effect of the two categories of research variables: a) the four learning styles (pragmatist, theorist, activist and reflector), b) academic success and socio-demographic.

Learning styles refer to cognitive, affective, and psychological processes that serve as a relatively stable indicator of how a learner perceives, interprets and responds to the learning environment (Zarghani, 1988; Swanson, 1995).

Learning styles are measured through Learning Styles Questionnaire (Honey & Mumford, 1986). The instrument consists of four structural components: a) the subscale for measuring activist style b) the subscale for measuring theoretical style c) the subscale for measuring reflector style and d) the subscale for measuring pragmatist style. The scale averages are of Likert-type obtained in a 4-interval scale, where 1 determines the disagreement with the statement scale and 5 determines the complete agreement with the statement. The individual learning style is obtained by comparing the achieved averages in each subscale separately. The highest average in a subscale defines the dominant style. The research also examined the fifth style, which is defined as a combined learning style. This style is treated as categorical product, respectively the same averages obtained in two or more subscales examine the combined style.

The dominant style of teachers is obtained as a product of students' perception of the dominant learning style the teacher possesses. The internal consistency of the scale, expressed through Alpha Cronbach, is $\alpha = 0,78$.

The second group of variables included education level and academic achievement.

Results

The original purpose of the study was to determine the learning styles representation in the sample in general, including teachers, high school students and university students. The subjects are classified based on their dominant style, whereas subjects who have the same mean in more than one style are classified as subjects with a combined learning style (Ronan, 1996; Zoriah, Tey et al., 2013).

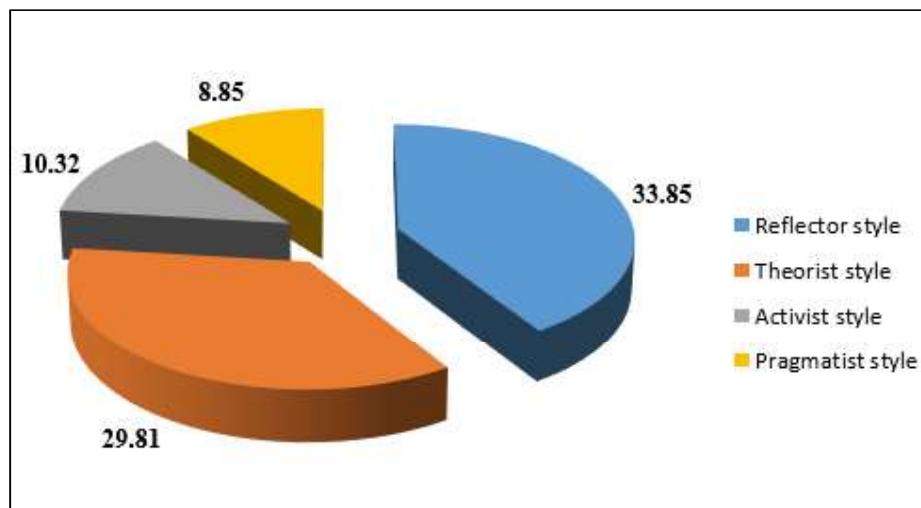


Figure 1. The distribution of learning styles in the sample in general

Seen generally (Figure 1), the reflector style is examined as the dominant learning style (33.85%), followed by theorist style (29.81%), activist (10.32%) and finally pragmatist (8.85%). About 17.44% of the sample subjects use substantial elements of two or more learning styles (more often a combination of reflector and theorist or reflector, theorist and activist styles).

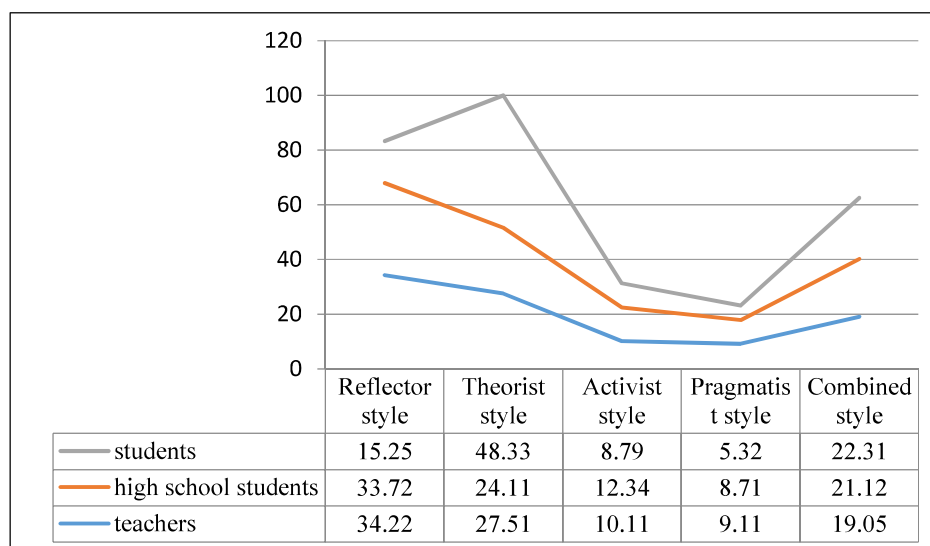


Figure 2. The distribution of learning styles in the sample in general

Figure 2 provides answers about the distribution of learning styles depending on the subsample: teachers, high school students and students. The value of $\chi^2 = 9.98$ $p < 0.01$, which is considerable and statistically significant, shows that learning styles are not evenly distributed in the three subsamples: teachers, high school students and students. The chart illustrates that the learning style distribution lines are very much alike and follow one another: the reflector style significantly dominates in teachers (34.22%) and high school students (33.72%), followed by the theorist style in teachers (27.51%) and high school students (24.11%). The theorist style dominates in students (48.33%), followed by combined style (22.31%) and reflector style (15.25%). In all three subsamples, the pragmatist style is less represented in teachers (9.11%), high school students (8.71%) and students (5.32%).

Table 1. Correlation coefficient between student learning styles and perceived teacher learning styles

		Students				Perceived teacher learning styles			
		1	2	3	4	1	2	3	4
1	Theorist	1				0.56**			
2	Activist	0.42**	1				0.68**		
3	Reflector	0.38**	0.31**	1				0.71**	
4	Pragmatist	0.17	0.39**	0.45**	1				0.32**

** $p < .01$ (2-tailed)

The results presented in the table above show interesting correlations depending on the sample. Positive correlations, although not very high but yet significant, are examined between learning styles. The correlation analysis confirmed the existence of correlations with mainly positive and significant algebraic mark between the learning styles of students themselves and between learning styles and perceived teacher learning styles. The high school theorist style significantly correlates with activist style ($r=0.42$; $p<0.01$) with reflector style ($r=0.38$; $p<0.01$) but it does not correlate with pragmatist style ($r=0.17$; $p>0.05$). The activist style significantly correlates with reflector style ($r=0.31$; $p<0.01$) while with

pragmatist style ($r = 0.39$; $p < 0.01$). The reflector style significantly correlates with pragmatist style ($r = 0.45$; $p < 0.01$).

The correlation analysis suggests interesting correlations between students' personal learning styles and their teachers' perceived learning styles. The high school students' theorist style correlates significantly with the perceived teachers' theorist style ($r = 0.56$; $p < 0.01$). Their reflector style correlates significantly with the teachers' perceived reflector style ($r = 0.761$; $p < 0.01$). The students' activist style correlates significantly with the teachers' perceived activist style ($r = 0.68$; $p < 0.01$), just as their pragmatist style correlates with the teachers' perceived pragmatist style ($r = 0.32$; $p < 0.01$).

The correlation analysis (Table 2) was used to prove the interrelation between the learning styles and the level of education, namely academic achievement. The analysis proved that there is no multi-correlative issue between the included variables in the analysis.

Table 2. Correlation coefficients between learning styles and level of education respectively academic achievement

		Theorist	Activist	Reflector	Pragmatist
1	Level of education	-0.18	-0.31**	-0.10	-0.14
2	Academic achievement	0.01	0.09	0.35**	0.09

** $p < .01$ (2-tailed)

The table presentation shows the correlations with different algebraic signs and the lack of high correlations. The correlation analysis confirmed the existence of correlations with different algebraic signs between the learning styles and the demographic characteristics of the subjects. The correlation analysis did not confirm a correlation between the level of education and the remaining three learning styles; the theorist, reflector and pragmatist style. The only significant correlation was registered with the activist style ($r = -0.31$; $p < 0.05$). The academic achievement correlates statistically significant only with the reflector style ($r = 0.35$; $p < 0.01$).

Table 3. Post hoc analysis on the differences between academic achievements of high school students and university students depending on the dominant learning style

Style	style	M
Reflector M= 4,62	Activist	4,23; $p < 0.05$
	Theorist	4,30; $p < 0.01$
	Combined	4,10; $p < 0.01$
Pragmatist M= 4,61	Combined	4,10; $p < 0.05$

Post hoc comparisons (Table 3) from the comparative analysis between groups confirmed significant differences ($F = 6.28$, $p < 0.01$). Significant differences in terms of academic achievements are noted between subjects with reflector style ($M = 4.62$, $DS = 0.64$) on one hand, and subjects with emphasized activist style ($M = 4.23$, $DS = 0.81$), theorist style ($M = 4.30$, $DS = 0.79$) as well as combined style ($M = 4.10$, $DS = 0.68$), on the other. In other words, high school students/university students with an emphasized reflector style have, at the same time, more emphasized academic achievements compared to their peers with

activist, pragmatic and combined style. Moreover, the post hoc analysis confirmed significant differences between the pragmatic style subjects ($M=4.61$) and their combined style peers ($M=4.10$, $DS=0.68$).

Table 4. Descriptive statistics and ANOVA Test in context of subjects' level of education and depending on their dominant learning style

	High school		University		t	p
	M	SD	M	SD		
Theorist	37.92	4.66	37.12	3.11	0.89	0.312
Activist	39.96	3.14	37.98	2.86	3.76	0.016
Reflector	35.87	3.55	35.51	3.52	1.01	0.303
Pragmatist	33.16	4.89	33.43	3.89	0.99	0.405

The comparative analysis (Table 4) between high school students and university student learning styles confirmed the existence of only one significant difference and it is in the context of activist style in favor of high school students ($M=39.96$; $DS=3.14$) compared to university students ($M=37.98$; $DS=2.86$). The comparative analysis did not confirm statistically significant differences between students in terms of theorist, pragmatist and reflector style.

Discussion

This study discusses learning styles and how learning styles relate to the educational process. There are many imperative things to know regarding why teachers need to understand the children's learning style. Knowing and understanding the use of specific learning styles, such as the theorist, reflector, pragmatist and activist learning styles, can help the teachers give their best for their students. When it comes to learning styles, it is important to include the use of didactic tools such as technological tools in the classroom, due to the fact that technology is more used out of education and classrooms than inside.

The obtained correlation between the personal and perceived learning styles of teaches suggest that the teachers are a source, or rather, a significant representative model from whom the personal learning style is acquired. This is more than expected since both theorists and empirical studies assert the important role teachers have in transmitting and reinforcing students' learning styles. The mechanisms through which transmitting and reinforcing are conducted are students' exposure to lecturing forms practiced by the teacher during lectures. If the teacher used reflection during lectures, students will, undoubtedly, not only learn the reflective forms but also internalize them as personal.

Another finding that stands out, not only in this study but subsequently in other studies as well (Osmani at al., 2016, Osmani&Mehmedi, 2017; Osmani&Spahiu, 2017), is the fact that students don't use a pure learning style but also parts of other styles. Many learning styles theorists believe that people develop and practice a mixture of learning styles while they grow up and learn (Silver, 1997). By assessing students at specific points in time, teachers can teach students what they need to maximize their potential.

In addition, the charts related to the distribution of styles suggest that learning environments such as high schools and higher education institutions favor one learning style, respectively one "learning student modality". High schools favor reflector style while universities favor theorist style. On the other hand, high school students/university students highlight the personal model of learning and approach to different learning content (Romanelli, Bird, & Ryan, 2009; Silver, 1997; Osmani at al., 2016).

Learning and teaching are treated as interactive and interdependent process. Successive student rankings in Pisa and other relevant indicators suggest that the current

status and positioning of the constituent elements of the teaching process in schools and faculties fail to achieve their defining goal, both academic and legal, which is “that students/university students develop concrete skills and competences along with knowledge”. In other words, the teaching process must also accomplish its psychosocial role alongside the cognitive one (Osmani et al., 2016, Osmani&Spahiu, 2017) which means that it should be open and “student-centered” oriented. Is such a re-composition of the teaching process in Albanian-speaking schools possible? The realistic answer would be yes. The information deriving from the learning content are processed, internalized by the students in accordance with cognitive, affective, and psychological processes (Zarghani, 1988; Swanson, 1995). In line with this, using technology in classroom nowadays can increase students’ performance (Naimie et al., 2010). Technology and Internet sources are considered as the primary information source used by students now. We believe that comprehensive e-learning inclusion in different educational environments would help many students become “more active” and “pragmatic”.

The study provides findings that touch the segment of student achievement assessment. Different learning styles require appropriate forms of assessment which would enable students to continue their achieving performance in learning. The assessment system should be adapted to the individual learning styles. Knowledge tests, other forms of assessment should not only assess simple information memorization but, above all, individual capacities for application, critical thinking (Osmani et al., 2016, Osmani&Mehmedi, 2017; Osmani&Spahiu, 2017).

The absence of correlation between the three learning styles and academic achievement can be explained by the fact that the learning contents taught to students are far more complex than one of the three learning styles being sufficient to achieve good results. The reflector style significantly correlates to the academic achievement, which suggests that students are stimulated by the teachers to reflect on what is taught. The presence of the high correlation between the student reflector learning style and the teachers perceived reflector style ($r=0.17$).

After studying learning styles and why learning styles are necessary in education, the study findings conclude that if learning styles are not properly assessed, schools will not fulfill their mission completely. A welcomed first step is to use tests to assess students’ learning preferences, not only can it advance the way a student learns, but it also helps teachers realize the learning process more efficiently and effectively. Although most of the learning styles we discussed refer to Honey and Mumford theory (theorist, reflector, activist, and pragmatist), there are many other theories of learning styles (visual, auditory and kinesthetic) that can be compared with the styles included in this study.

The difference in the degree of style dominance between the two levels of education (high school and university) indicates that the styles are not consistent. Even in previous studies (Osmani et al., 2016, 2017) we have found that the dominant styles in high school education are reflector and activist styles which are replaced by theorist style in university education. This finding correlates to the theoretical conceptualizations (Silver et al. 1997) which recommend that learning styles should be assessed from an early age, continuous assessment should be used for student success. According to Silver, “Learning styles are not fixed throughout life, but develop as a person learns and grows” (Silver et al. 1997, p. 23).

The insights deriving from this research (on the dominant reflector, respectively, theorist style in students) as well as the lack of correlation between learning styles and academic achievement suggests enclosure of this knowledge in the development and design of curricula that would be in function of student learning.

Conclusions

Knowing how students learn can help both students and teachers. By encouraging different forms of curricular inclusion of learning styles, as well as using appropriate forms to assess learning styles in schools, students will be encouraged to adapt learning styles to the specifics of the learning materials they are required to learn. This way, students will simultaneously perform better inside and outside the school.

In terms of learning styles, statistically significant differences between groups are found. The reflector, pragmatist and activist style in high school students were more emphasized than in their university peers (university students). On the other hand, university students manifest clearly the theorist and combined learning style. No significant correlations were found between styles and academic achievement.

The goal of this study is limited since it focuses mainly on the relation between learning styles and academic achievement. Therefore, further research studies should consider the learning style detailed review, internal and external motivation as well as other determining variables of the relation. On the other hand, many studies are conducted related to university students; more studies should include elementary and high school level in order to help determine the children's learning style and create quality learning experience which would help them with learning in general.

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