

Is autonomy in learning a key for motivation? Differences between age category depending on autonomous learning

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Abstract

Autonomy in learning is obtained through an active process, in which students set learning objectives, monitor, regulate and control their knowledge, motivation and behavior, guided by the characteristics of the educational environment. We chose this topic because we believe that one of the objectives of universities is to train autonomous, emotionally and psychologically mature students, prepared for all the problems encountered in all areas of life. University lays the foundations for life skills. The purpose of the present study was to investigate the differences between the ways of self-regulation in learning depending on age. An instrument for measuring controlled regulation was applied, namely the SRQ-L questionnaire, which refers to the reasons why people learn. 144 female high school students and college students, aged 15 and 16, respectively 20 and 21 years old, both categories following a humanistic profile. The results showed statistically significant differences between the means of the groups of 15, 16, 20 and 21 years. Our results can be used in the education system in the teaching-learning process based on the students' needs.

Keywords: autonomy, learning, students.

1. Introduction

Autonomy is a concept that many researchers have studied and tried to define. Thus, Benson (2007) states that autonomy is the ability to detach from the environment, to critically reflect, to make decisions and to act independently. It also assumes that the student will develop a certain type of psychological relationship to the learning process and content.

Learner autonomy is defined as the ability to take control of one's own learning. The ability is not innate, but acquired either through natural means or through formal means of education and taking control over one's own learning refers to the assumption by students of some responsibilities for all decisions related to all aspects of this learning

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(Kvetenska, Myska, 2017; Little, 1994; Matei, Lincă, 2019; (Lincă, Budişteanu, Popovici, Cucu, 2022).

Autonomous learning, on the other hand, means critical thinking, planning and evaluating learning, and reflection, a conscious effort on the part of the learner to continuously monitor the learning process from beginning to end (Benson 2001).

So, the autonomy of students becomes a major element for adult education in order to ensure assets in participation through learning processes (Breen, Mann, 1997; Sinclair, 1999; Dam, Legenhausen, 1996; Matei, 2022; Matei, 2021).

In the specialized literature, there are also studies that take into account the autonomy of the high school/college student as an effective factor of academic success. Aaaa found a positive, statistically significant relationship between student autonomy and academic success (Benson, 2007; Henri, Morrell, Scott, 2018).

The ability to be autonomous is reflected in the way the student learns and in the way he uses the learning content in a wider context. (Negovan, 2010, Bound, 2013).

Benson (2007), also provides an extremely useful definition of what autonomy is not. He argues that autonomy: a) is not a synonym for self-education; b) it is not a matter of letting students do as they can best; c) it is not a teaching method; d) it is not a single behavior that is easy to describe; e) it is not a state of equilibrium.

The concept of autonomy has new meanings through Piaget's studies on the moral development of the individual. Piaget, observing children during play, identified, in relation to the rules of the game, two types of phenomena: the practice of the rules - expresses the way in which the rule is applied; rule consciousness - the way in which "the mandatory, sacred or decisive character, heteronomy or autonomy of the rules of the game" is represented (Piaget, 1980, apud Negovan, 2010, p. 16).

Piaget (1980, ibidem) discovers four successive stages in the practice of rules by children, in the development of their attitude towards rules:

1. The motor and individual stage (regulated motor) in which, in fact, children do not comply with the rules;
2. The egocentric stage, corresponding to the period of 2-5 years when children seem to imitate the codified rules of adults but without caring about their partner, or as Piaget says "even when they play together, each one plays for himself (all children win in the same time)" (Piaget, 1980, apud Negovan 2010, p. 23);
3. The stage of early cooperation, placed between 7-8 years, in which children play according to the rules even if they do not understand them;
4. The rule codification stage where the rules of the game are strictly followed.

Based on these delimitations, Piaget (1980, apud Negovan, 2010) claims, deepened the research on the presence of the ideas of correctness, violation of rules and sanction for their violation. Trying to find out how the child represents his rules, Piaget (1980) comes to the conclusion that he unconsciously likens them to the rules he has to follow. And as far as the consciousness of the rule is concerned, the development occurs gradually:

1. In the first stage - approximately around the age of 4, the rules have no meaning, and therefore, there is no awareness of their violation;
2. In the stage of heteronomous morality/moral realism, which begins after the age of 4, the child begins to believe that the rules are sacred, unchangeable. They come from an authority (educator, parents, God) and must be respected without comment, the sanction for not respecting them being immanent. The stage of moral realism involves respecting the letter and not the spirit of the rule as well as an objective conception of responsibility;
3. In the stage of autonomous morality or the morality of reciprocity that starts from the age of 10, "so from the second half of the stage of cooperation and throughout the stage of codification of rules, the consciousness of the rule undergoes a total transformation. The place of heteronomy is taken by autonomy: the rule of the game no longer appears to the child as an external, sacred law, because it is imposed by adults, but as the result of a free decision and as something worthy of respect to the extent that it is accepted on basis of reciprocity" (Piaget, 1980, apud Negovan 2010, p. 46). At this stage, the child understands that social rules are formulated by the individual and as such can be changed, he believes that the punishment for breaking the rules depends on the intention of the one who does it (the one who breaks 5 cups without wanting to should not be punished but the one who breaks one on purpose yes). In conditions of cooperation and mutual sympathy, a morality of reciprocity and subjective responsibility develops.

Therefore, Piaget (1980) associates rule compliance with autonomy. He distinguishes between the autonomy of conscience and the consciousness of autonomy. The autonomy of conscience is linked to the type of respect that characterizes relationships between people: "By studying the rules of the game, I came to the hypothesis that there are two types of respect and therefore two morals: a morality of coercion or heteronomy and a morality of cooperation or autonomy" (Piaget, 1980, apud Negovan, 2010, p.128).

Coercion, unilateral respect and egocentrism maintain heteronomy and cooperation, reciprocity and mutual respect lead to the autonomy of conscience. The consciousness of autonomy is acquired based on the individual's competence for cooperation and reciprocity (Piaget, 1980, *ibidem*).

The author equates the unconscious egocentrism of the small child with the coercion exerted by an older person on the child: "Egocentrism in the sense of confusing the ego with the outside world and egocentrism in the sense of lack of cooperation, thus constitute a single phenomenon. As long as the child does not dissociate his ego from the suggestions of the physical world and the social world, he cannot cooperate, because to cooperate you must be aware of your ego and situate it in relation to common thinking. However, in order to become aware of his self, the child must free himself from the thinking and will of another" (Piaget, 1980, apud Negovan, 2010, p .64; Budd, 2016).

The assertions that even the above-cited author regards as hypotheses regarding the establishment of moral autonomy, contain extremely productive suggestions for understanding and explaining the lack of autonomy in academic learning, for

understanding the (sometimes exaggerated) demand from many students of guidance and supervision throughout the course of their learning/study activities.

A personal experience in which coercion (on the part of adults) prevailed, relationships based on unilateral respect (only on the part of the child towards the adult), and cooperative relationships were limited, perhaps, by a delayed egocentrism in the personality that normally evolves towards allocentrism, they can explain the inability of many individuals to assume and honor the responsibilities specific to the academic environment.

Piaget (1980, *ibidem*) appreciates the transition from heteronomous morality to autonomous morality, from rules of conduct and moral evaluation imposed by others to self-imposed rules, from objective responsibility based on coercion to subjective responsibility based on reciprocity, as a great gain in the "flow" to the moral development of the individual. The concept of moral autonomy has also received attention from Kohlberg (1984), who places its installation in level III of post-conventional moral development, which begins approximately around the age of 13. At this level, the individual no longer automatically accepts the rules established by others, but builds a personal moral code based on moral values defined in his own terms and the self-judgment that prevails in comparison with the judgment coming from the outside.

Personal identity gives the individual the feeling of unity, continuity and coherence of his being, the feeling of the unity of the self, the feeling of being identical in time and of autonomy (Negovan, 2010; Lincă, 2019b; Lincă, 2016).

The issue of personal identity, of its construction, is very important for autonomy in academic learning, because only an individual with a clear identity can become autonomous, can perceive himself as a promoter of decisions regarding his own life. In opposition to essentialist interpretations of identity, in which it is linked to a unique essence that remains unchanged throughout the individual's life, the psychodynamic and sociological theories of identity affirm its constructed character. Dynamic theory emphasizes identification by which external persons or objects (especially the parent's Superego) are assimilated or introjected (Macaskill, Taylor, 2010; Lincă 2019a, Lincă, 2018).

Laplanches and Pontalis (1994) define identification as a psychological process through which a subject assimilates a characteristic of another and transforms based on the respective model. In the initial phases of personality development, identification takes the form of imitating parental models, but later it extends to models outside the family and finally to general models of social-human behavior (as the individual has access to social experiences in the family, school and community).

From a more pronounced psycho-pedagogical perspective, Ausubel formulated since 1952 (apud Negovan, 2010) says, the opinion based on empirical research, that through social interactions the identification of the dependent part with the superordinate part of man is born. The author distinguishes 2 types of specifically human identification: satellization and nonsatellization. Satellization, specific to the early child-parent

relationship, implies: the child's acceptance of the dependent situation and the parent's acceptance of the child's submission (on the basis of an indisputable right). Nonsatellization implies the acceptance by the child of his dependence on the parent only as a transitory situation and on the part of the parent the non-acceptance of the child's dependence on him (whether he simply rejects him or accepts him for reasons extrinsic to the child).

Another scientist who based his theory on Piaget's was Sweller (1988). Cognitive load theory, using our knowledge of the relationships between working memory and long-term memory, has been able to generate hypotheses that can be tested experimentally and, if supported, can lead to new effects and new training procedures (Sweller, Ayres & Kalyuga, 2011). Comprehension of educational content is considered to be affected, not only by the cognitive demands of the educational content itself, but also by the demands of the surrounding material in which the educational content is embedded. Therefore, learning management is the responsibility of the degree of autonomy that the subject has in the learning process.

We can talk about autonomy in learning in the context of learning foreign languages. High school/college students must build the system of the target language as a system for understanding and reproducing its meanings, a process that involves a certain degree of memorization and processing of the content (Matei, Lincă, 2019). Thus, autonomous language learning is by definition equivalent to effective language learning.

2. METHODOLOGY

Objectives

O₁. Investigating the differences between the ways of self-regulation in learning according to age category.

Hypotheses

H₁. There are differences between the ways of self-regulation in learning according to age category.

Instruments

The SRQ-L questionnaire (Brown, Miller, & Lawendowski, 1999) was used to measure controlled regulation. This questionnaire refers to the reasons why people learn. The answer to the items is predetermined, being expressed on a Likert scale from 1=never to 5=always. After calculating internal consistency, a Cronbach alpha coefficient of 0.75 was obtained for the proactive attitude scale.

Sample

144 high school and college students participated in the study (72 high school students and 72 female college students). Of these participants, 15 are 15 years old, 57 are 16 years old, 19 are 20 years old, and 53 of the participants are 21 years old. The mean of the ages is $m = 18.26$ and the standard deviation $SD = 2.51$ (table 1).

Table 1. Demographic characteristics of the participants

Age					Total
	15 years	16 years	20 years	21 years	
High school students	15	57	0	0	72
College students	0	0	19	53	72
Total	15	57	19	53	144

Also, the 15- and 16-year-olds are high students in the 10th grade, humanities profile, majoring in social sciences, and the 20- and 21-year-olds are college students majoring in psychology, the second year of undergraduate study.

Regarding the selection principles of the participants, they were the specialization in the case of female high school students, and the profile in the case of female college students, so, in both cases, humanities subjects are treated. On the other hand, another principle of inclusion was the year of study: the second year of high school studies - the 10th grade and the second year of college. Thus, the homogeneity of the samples was ensured.

Description of data collection procedures

The application of the questionnaire was carried out in a high school and a faculty, to 10th grade students and, respectively, to second year students, humanities profile. The participants were provided with information related to the study and how to complete the questionnaire, being available for questions throughout its completion, but also after, for additional clarifications. The duration of completing the questionnaire was about 10-20 minutes. They were also informed that their responses were confidential and were asked to rate as honestly as possible the degree to which they identified with the respective items to ensure valid results. In advance, the participants agreed to take part in the research, most of them being volunteers eager to get to know themselves better, as we also offered the interpretation of the results to those who wanted this. Before being tested, they also signed the informed consent.

3. Results

Comparison of the average scores obtained by male and female students on the SRQ-L questionnaire. A one-way ANOVA was performed, taking age with 4 categories (15 years, 16 years, 20 years, 21 years) as the independent variable and controlled regulation as the dependent variable. The results showed statistically significant differences between the means of the groups of 15, 16, 20 and 21 years, having the means ($m_1 = 2.82$ $m_2 = 2.86$ $m_3 = 2.46$ $m_4 = 2.45$) and standard deviations ($SD = 0.64$ $SD = 0.92$ $SD = 0.62$ $SD = 0.55$) in the case of controlled adjustment ($F(3, 140) = 3.39$, $p = 0.020$, $p < 0.05$; $\eta^2 = 0.07$), which leads to the confirmation, acceptance of hypothesis I1 (Table 2, 3).

Table 2. Indices of the descriptive statistics of the controlled regulation variable

Score - controlled regulation								
	N	m	SD	SE	95% CI		Minimum	Maximum
					Lower	Upper		
15	15	2.82	0.65	0.16	2.46	3.18	1.00	4.00
16	57	2.86	0.92	0.12	2.61	3.10	1.00	5.00
20	19	2.46	0.62	0.14	2.16	2.76	1.00	4.00
21	53	2.45	0.55	0.07	2.30	2.61	1.00	4.00
Total	144	2.65	0.75	0.06	2.53	2.78	1.00	5.00

Table 3. ANOVA Test

	df	m	F	p.
Between Groups	3	1.865	3.395	0.020
Within Groups	140	0.549		
Total	143			

The dispersions within the 4 groups are heterogeneous, a fact highlighted by the significant result of the Welch test ($F(3, 44,51) = 3.42, p = 0.025, p < 0.05$) (Table 4).

Table 4. Test for nonhomogeneous variants of controlled regulation and age variables

	Statistic	df1	df2	p
Welch	3.42	3	44.51	0.025
Brown-Forsythe	3.90	3	92.11	0.011

This fact led to the application of the Tamhane test.

Table 5. Tamhane Test

The dependent variable: score_controlled_regulation						
Tamhane						
(I) age	(J) age	Meandifferences (I-J)	SE	p	95% CI	
					Lower	Upper
	16	-0.04	0.20	1.000	-0.62	0.54
15	20	0.35	0.22	0.525	-0.26	0.98
	21	0.36	0.18	0.321	-0.17	0.90
	15	0.04	0.20	1.000	-0.54	0.62
16	20	0.39	0.18	0.222	-0.12	0.91
	21	0.40*	0.14	0.037	0.01	0.79
	15	-0.35	0.22	0.525	-0.98	0.26
20	16	-0.39	0.18	0.222	-0.91	0.12
	21	0.005	0.16	1.000	-0.45	0.46
	15	-0.36	0.18	0.321	-0.90	0.17
21	16	-0.40*	0.14	0.037	-0.79	-0.01
	20	-0.005	0.16	1.000	-0.46	0.45

*. Differences in means are significant at a $p=0.05$.

The post-hoc analysis with the Tamhane test (Table 5) highlighted the existence of a significant difference between 16- and 21-year-olds in terms of controlled regulation in learning ($p = 0.037$, $p < 0.05$), having the difference in means -0.4 and standard error 0.14 . So, it can be said that 21-year-old girls are more autonomous in learning than 16-year-old girls.

At the same time, it can be said that there are no significant differences in terms of controlled regulation in the other age categories. This result is also supported by the graphical representation of the differences between the averages of the 4 groups (Graph 1).

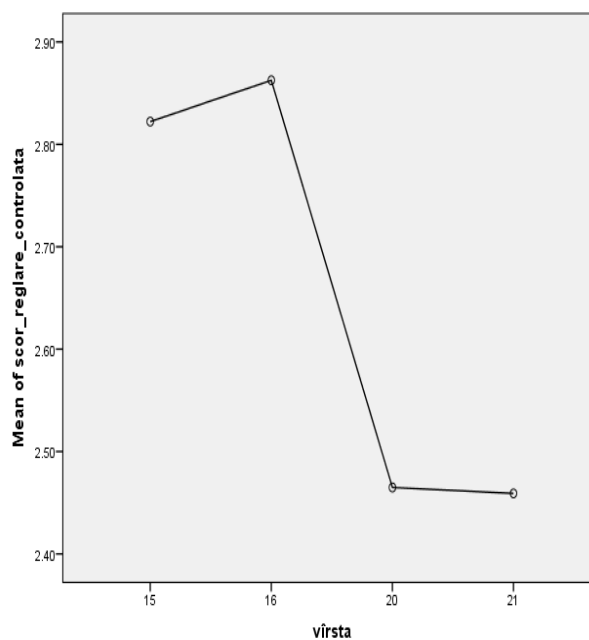


Figure 1. Mean scores for the controlled regulation scale

Graph 1 illustrates the increase in the degree of controlled regulation between the ages of 15 and 16, and after this age a decrease until the age of 20, but the sharp decrease is observed between the ages of 16 and 21.

Conclusions and discussions

In conclusion, all the objectives were achieved. The results showed statistically significant differences between the means of the 15, 16, 20 and 21-year-old groups in terms of controlled regulation, a fact that leads to the confirmation, acceptance of hypothesis I1.

The post-hoc analysis with the Tamhane test highlighted the existence of a significant difference between 16- and 21-year-olds in terms of controlled regulation in learning.

So, it can be said that 21-year-old girls are more autonomous in learning than 16-year-old girls. At the same time, it can also be said that there are no significant differences in terms of controlled regulation in the other age categories.

This situation can be explained by the fact that autonomy in learning is an evolutionary process. It develops along with the receptivity of the individual to take over the responsibilities related to learning (Rossi, 2002).

The characteristic of the autonomous student is that they frequently turn to the guidance of teachers but, unlike the one with less autonomy, they ask for help depending on their own needs and the difficulties they face in carrying out the learning tasks. This fact can only be realized when man has reached a high level of brain development. Similar results were also found by Yurgelun-Todd.

In a 2002 study, the American researcher studied the brain activity of teenagers while they identified the emotions expressed by faces on a computer screen. Those in early adolescence (age 14) tended to use the amygdala nucleus, a small, almond-shaped structure deep in the temporal lobe and strongly embedded in emotional and instinctual reactions. Older teenagers (17 years) showed similar patterns to adults, using the frontal lobes, which are involved in planning, reasoning, judgment, emotional regulation and impulse control, and thus enable more accurate, rational judgments to be made.

The post-hoc analysis with the Tamhane test highlighted the existence of a significant difference between 16- and 21-year-olds in terms of controlled regulation in learning. So, it can be said that 21-year-old girls are more autonomous in learning than 16-year-old girls. At the same time, it can also be said that there are no significant differences in terms of controlled regulation in the other age categories.

This difference may explain unwise choices in early adolescence, such as substance abuse. Immature brain development can allow feelings to override reason and prevent some teens from heeding warnings that seem legitimate to adults. Underdevelopment of frontal cortical systems associated with motivation, impulsivity, and addiction may explain in part why adolescents tend to seek thrills and why many find it difficult to focus on set goals for long periods of time (Bjork et al., 2004).

A limitation of this study is the relatively small number of participants in each category.

In the future, we propose to test autonomy in learning on a larger group and to consider all aspects of autonomy in learning for a more detailed look at the problem.

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