

Educational Research on the Technological Dimension of Private Life

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Abstract:

The goal of this study consists in analyzing the technological dimension of private life in school. It deals with an observational research on curricula documents and the perception of high school teenagers and teachers of this dimension as developed in the Romanian educational system. The main objectives of this research aim are: a) the identification of the specific aspects of the technological dimension as reflected in textbooks and school curricula, and b) defining the level of openness of teachers and high school pupils towards the technological dimension of private life. Firstly, we used content analysis upon the school documents, taking into account specific themes and categories. Secondly, we conducted a survey that tested the way in which 1456 high school students and 890 teachers perceive the technological dimension of the Romanian educational system. The results are distinguished using frequencies of specific themes structured on a technological dimension at the level of school documents, and on the opening level of high school pupils and teachers.

Keywords: privacy, technological dimension, curricula documents, opening level

1. Expanding the meaning of the concept of privacy

Traditionally, the privacy concerns come from the sphere of sociology focused on social issues as accessibility (phenomena such as confidentiality and privacy) and only recently have been extended so that they now include some aspect of spatial privacy such as private space [1]. The relation between private life and time has rarely been considered. Time acts as a major dimension of social organization, defined in modern society with privacy and membership roles. E. Zerubavel argues that time separates the private sphere from the public sphere of life. Human life is socially and temporally organized so that there are periods of time that must be available to others (during office hours or at parties) and time periods in which man is inaccessible legitimately (for instance, when meditating or when sleeping).

The dichotomy between public and private sphere was often associated with the boundary between family and the outside world, although recent research has shown that privacy units or areas often cross the border [2] to allow access to other people than family members, such as work colleagues [3]. Therefore, the concept of privacy extends to relationships with close people who are part of the primary groups, according to the significance of the concept. While psychologists and sociologists seek to formulate general features of the concept, everyone believes that privacy is made up of different elements and different things classified as private [4].

In conclusion, the concept of privacy can not be defined precisely. It is a contingent concept, whose content varies according to the time, the environment and the society in which the individual lives. In addition, the progressive secularization of Western societies has contributed to expanding the scope of privacy, which nowadays contains acts considered as contrary to social morality in other times [5]. Therefore, we need a holistic vision, which integrates approaches from different fields.

As a result of the extension of the meaning of privacy, a variety of elements which represent it occurs. In order to offer a complete representation of the concept of private life in today's context, there are two aspects that need to be taken into consideration: the component elements of private life and their characteristic dimensions. The component elements of private life are: *the private Self, the private space - time background, the primary groups*. The

private Self is operational according to the internal organization and to the component elements of the concept of Self [6]: *The Material Self* (somatic and possessive), *The Personal Self* (the image and identity of the Self), *The Adaptive Self* (the values and the activities of the Self). The private space – time background integrates the two dimensions, which assure the personal protection and the establishing of the borders between personal and private: *private space* and *private time* [7]. The primary group is characterized by direct relations (face-to-face) and relatively stable ones, which are long-lasting and full of affection [8]. In the category of primary groups there are: family, groups of friends from school or from the work place.

At the level of each component element there are ten principal/main dimensions: objective, biological, psycho-social, esthetic, religious, technological, economical, historical, cultural - political, juridical. The analysis of all the aspects presented above offers a holistic view on the concept of private life, a view that allows a complete representation of all the components. We plot the dynamic structure of the components of privacy by means of two axes, in which the vertical scale is characteristic and essential elements horizontally (Figure 1).

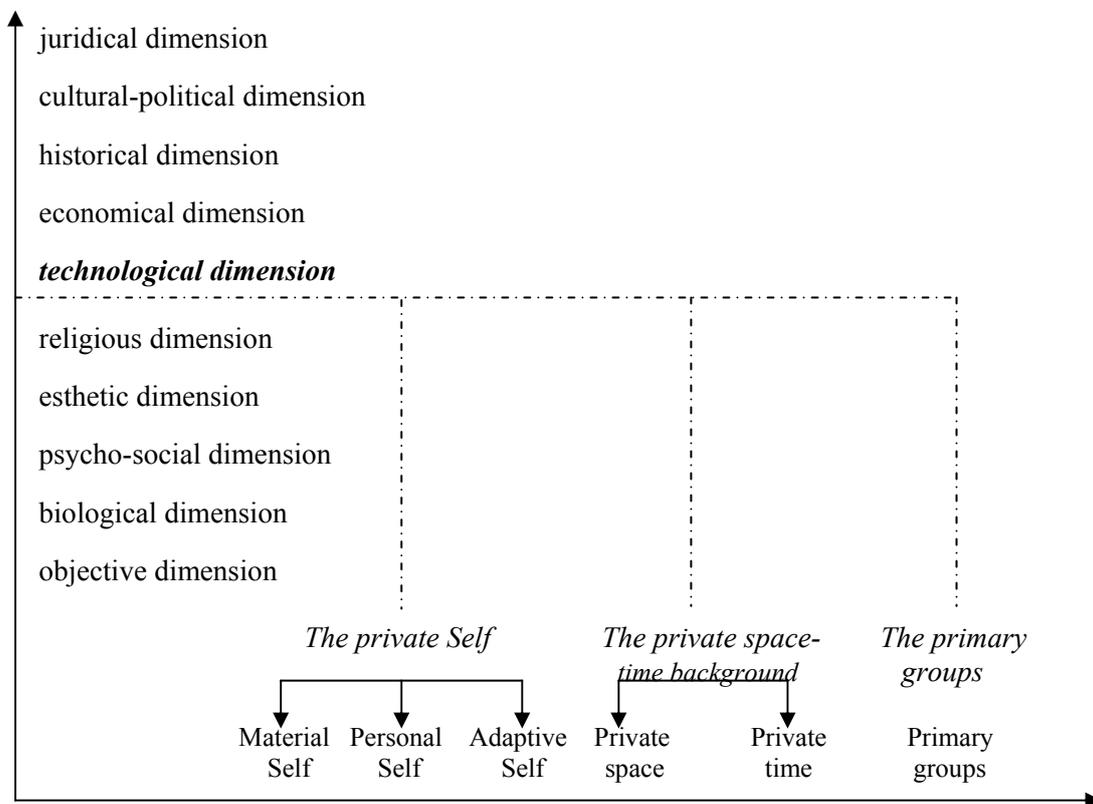


Figure 1. The component elements and technological dimension of private life

It follows a systemic approach to privacy that allows dynamic and full representation of its structure, in conjunction with the expansion of conceptual meanings. The basic concepts are established according to the dimension of each component. In agreement with the requirements of a systemic approach, we need a continuous adjustment of the structural elements and of the dimensions of privacy according to the restructuring from the various fields of knowledge. This study deals only with the technological dimension of private life.

2. Analysis of the technological dimension of privacy

The algorithm for the identification of the specific aspects of privacy requires completion of some separate stages such as: selecting specific concepts or issues which are representative for each component of privacy, the graphical representation of the structure size, definition of the concept and establish specific issues for each component. Finally, the implications are highlighted for the specific elements of each dimension both in personal appearance and social.

Following the development of new technologies in recent decades have been a number of innovative, but also privacy threats, elements: bank cards, personal computers, communication networks, internet, digital signature, email, surveillance systems for children. The structure of the technological dimension of private life can be represented by the following elements (Figure 2): personal objects technology (material itSelf), electronic identity, personal blog (personal Self), specific values of technological progress, technological activities of private (Self-adaptive), electronic devices for the organization of space (private space), electronic devices for the organization of time (private time), private communication (primary groups).

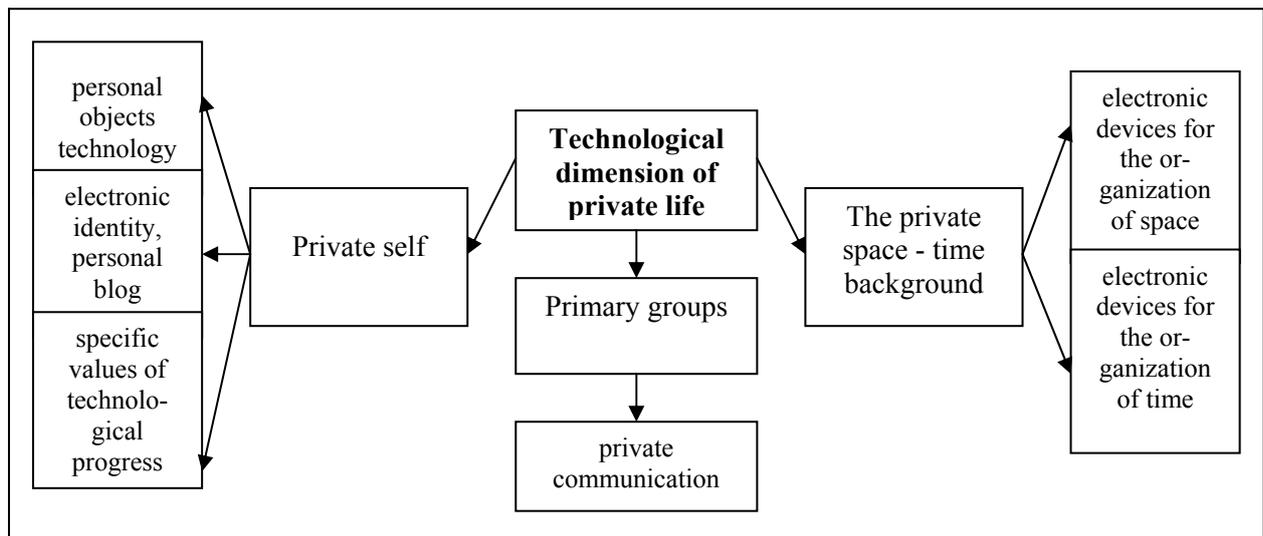


Figure 2. Representation of the technological dimension of privacy

At the level of the *material Self* there can be identified a number of specific elements, such as personal technological objects that we refer to as Self possession. These objects are increasingly varied: personal computer, laptop, personal mobile.

The *personal Self* is well set up by the concept of electronic identity, as a subcomponent of itSelf and what is further called personal blog regarding Self-image. The identity of a person is transformed into an electronic identity, following the development of procedures for rapid recognition of a person with technology: biometry, digital signature, Smart Card. The science called Biometrics has recently developed automated methods for uniquely recognizing persons, using the latest computer technology [9]. Whether they are fingerprints, retina or iris map (purely physical characteristics) or the signature, gait or voice (mixtures of physical and behavioral), biometry makes use of human parameters difficult to forge, if not impossible, given the uniqueness of each human being. Biometrics offers several ways to use its features [10]. Fingerprints are the most commonly used as a biometric. Modern electronic systems turn the conventional features of fingerprints into numeric codes.

Another biometric means, with a growing popularity, is hand geometry. Hand geometry identification involves scanning the shape, size of part or the whole hand or certain features (finger length). Hand geometry system is already used for access control and identity verification at some airports, offices, factories, schools, hospitals, nuclear plants and government buildings. He uses clocking in systems to prevent card fraud caused by sites of entry / exit from the unit cards that could be introduced and colleagues. Another way is the biometric eye scan system. Scanning fiber, wrinkles, spots on the iris with a video camera provides enough information to identify anyone. Another means of measuring biological is facial recognition technology that has gained ground in recent years due to the decreasing prices of computers. The system works by analyzing a video image or photograph and identifying the positions of some nodal points on the face. These, especially the forehead and upper lip, are not affected by expression or facial hair. Facial recognition is used mainly to verify identity. Another form of biological measurements, which does not require expensive equipment is a voice recognition system which works by analyzing the fundamental characteristics of the voice. A signature by hand can also be a means of biometric measurements. Stylus is becoming increasingly popular and signature capture hardware skills are becoming more visible. There are plenty of other biological measurement technologies, such as body odor recognition, facial temperature and acoustic resonance of the head. The digital signature stores a unique key of identifying the sender of the proper message. The private key is "a digital code unique character, generated by a hardware device or software specialist" [11]. Smart Card can be a storage device for other authentication information, but also for other information such as a secured card, which in addition to authentication information may include emergency information related to the medical history of the insured. With the help of new technologies, one can also create a Self image from a technological perspective. This is what is called personal blog, a new image built for each person depending on preferences, interests, aspirations, and their activities. Personal blog is one of the main types of blogs that are of the type of journal entries. Some people focus their blog on some hobby: sports, technology, education, news, music, pets.

The *adaptive Self* integrates *values characteristic of the technological progress* on an individual level if reference is made only to Self-worth and practical issues related to private technological activities when we are talking about the activity of the Self. Private technological activities may be: drafting the personal email, typing an individual project, developing a presentation. Technological competence concerns the skills of using computers, software, databases and other technologies to solve a variety of personal problems [12].

The private space - time background is represented in private practice for electronic devices at both components. For the private space, there are such devices as house intercom and surveillance for children (baby monitors). Communication systems of the house is based on a set of transmitters and transmitters which rely on electricity wires in home installation in two ways: turn carrier current and alternating current, while wires as the antenna are used to transmit messages from transmitter to receiver [13]. Intercoms supervision for children (baby monitors) are all independent devices that transmit signals outside the premises where they are located. The purpose of such devices is to alert parents when something happens in the children's play room, located in various parts of the house. Household appliances are also considered to be electronic devices because, according to the definition, they are "used in the household, being electrically operated" [14]. Regarding private time, there are two important variables in technological terms: computer programs and portable electronic agendas [15]. Persons who wish to use personal computers to manage time can choose a program that can do this which is known as generic personal information manager (PIM) or contact manager. If you need something portable, one of the best options is known as personal digital assistant (PDA).

Technological development also puts his stamp on *primary groups*. New networks and communication programs provide the opportunity of being with the dear ones in mobile and varied conditions. Thus, a new concept is emerging within their personal life to describe the conversation with one internaut, namely private communication [16]. It generally occurs in the text (as in a private conversation via IRC), but it is possible to communicate at the same time in audio and / or video mode. Audio communication requires a microphone and speakers (or headphones), both connected to the computer and video communication requires a webcam connected to a computer via USB or a camera (camcorder) connected to a video capture card.

Technological resources offer new ways of knowing electronic identity, of programming personal time with the help of electronic devices, of representing Self-image through personal blog, of using electronic devices in private space on a personal level, of communicating in private space as well as in virtual space with acquaintances, on a social level.

3. Educational research

3.1. The Objectives and the Hypothesis of the Investigation

3.1.1. The Objectives of the Investigation

The first objective of this study is the analysis of school curricula and textbooks for the primary, gymnasium and high school Romanian educational system. We analyze these aspects having in mind the technological dimension of private life.

The second objective is to determine the high school students' and teachers' level of openness towards the technological dimension of private life.

3.1.2. The Hypothesis of the Investigation

The first general hypothesis

The objectives and the contents included in school curricula and textbooks for the undergraduate educational system reflect, in a different manner, the technological dimension of private life, at the level of the three indicators: "Representations training", "Attitudes training" and "Behaviors training".

The second general hypothesis

There are major differences between teachers' points of view and students' points of view when it comes to the technological dimension of private life.

The third general hypothesis

Depending on the students' school year/grade variable, there are different points of view on the technological dimension of private life.

3.2. Variables

The concept of private life was developed, according to the holistic theory, into six categories: the material Self, the personal Self, the adaptive Self, the private space, the private time, and the primary groups. Each of these six categories is divided into specific subcategories, each linked to the ten dimensions.

In the case of the content analysis, the dependent variable is represented by the categories of indicators structured on those two levels, while the independent variables are: curriculum areas and school year/ grade.

In identifying the subjects' level of openness, the dependent variable used is the appreciation of the importance of the aspects concerning private life. In order to establish this variable, the subjects were asked to evaluate each dimension, according to its importance. The

following independent variables were taken into consideration: socio-professional group (high school students/teachers), gender (male, female), environment (urban/ rural), and the high school students' school year/grade (first year students, second year students, third year students, senior year students).

3.3. Subjects

2346 subjects were involved in this study; they were grouped according to the independent variables, as presented in Table 1.

Table 1. The distribution of subjects according to the independent variables

Socio-professional group	1456 high school students	According to the gender variable: 733 females and 157 males
		According to the environment variable: 456 from urban environment and 434 from rural environment
	890 teachers	According to the gender variable: 766 females and 690 males
		According to the environment variable: 1009 from urban environment and 447 from rural environment

3.4. Methodology

In order to identify the component elements of private life in school curricula, the content analysis [17] was used in order to distinguish the themes and the specific categories that correspond to each indicator. In the content analysis of the school curricula and the textbooks for the 9th – 12th grades, there were three types of categories that were taken into consideration: 1. Representations for private life training; 2. Positive attitudes for private life training; 3. Appropriate behaviors for private life training. These three categories correspond to the three major categories of educational objectives: cognitive, affective and psycho-behavior. The themes and the specific categories were analyzed at the level of the seven curriculum areas: Language and Communication (L.C.), Mathematics and Sciences (M.S.), Social Studies (S.S.), Arts (ART), Physical Education and Sports (PES), Technologies (TEC.), and Counseling (CO.).

The main instrument that was used for the establishment of the students' and teachers' level of openness for different aspects of private life was *summative assessment questionnaire (Likert scale)* [18]. Subjects were asked to evaluate 60 elements, having 5 choices: very low, low, medium, high, and very high. The subjects were reminded that there aren't right choices or wrong choices, but there are just personal choices. The research was conducted in 2009 in the northern regions of Romania.

3.5. Data presentation and Analysis

The data collected were statistically analyzed [19, 20] having in mind just the technological dimension of the private life. There are two analysis directions: a). the analysis of the themes and the technological dimension's specific categories at the level of school curricula and alternative textbooks and b). the identification of the subjects' perception on the representative elements of the technological dimension.

The first general hypothesis is confirmed. The objectives and the contents included in the school curricula for the undergraduate educational system reflect, in a different manner, the themes regarding the technological dimension of private life, at the level of the three indicators (Table 2). As the frequencies illustrated, in school curricula and textbooks, there are more themes regarding the technological dimension of private life at the level of behaviors training (16 and 41) and the level of representations training (13 and 43) (Appendix 1, Appendix 2). In Romanian pre-university education curricular documents there are no grounds for the formation of attitudes towards a technological dimension of privacy.

Table 2. The frequency of the specifications for the technological dimension in curricular documents

Indicators and curricular areas		School curricula				Textbooks			
		I-IV	V-VIII	IX-XII	Total	I-IV	V-VIII	IX-XII	Total
1. Representations	LC	0	0	0	0	0	0	6	6
	MS	0	0	1	1	0	1	6	7
	SS	1	0	0	1	1	0	1	2
	ART	0	0	0	0	0	0	0	0
	PES	0	0	0	0	-	-	-	-
	TEC	0	5	6	11	-	11	17	28
	CO	0	0	0	0	-	-	-	-
Total 1		1	5	7	13	1	12	30	43
2. Attitudes	LC	0	0	0	0	0	0	0	0
	MS	0	0	0	0	0	0	0	0
	SS	0	0	0	0	0	0	0	0
	ART	0	0	0	0	0	0	0	0
	PES	0	0	0	0	0	0	0	0
	TEC	0	0	0	0	0	0	0	0
	CO	0	0	0	0	0	0	0	0
Total 2		0	0	0	0	0	0	0	0
3. Behaviors	LC	0	1	0	1	0	5	6	11
	MS	0	0	1	1	0	2	5	7
	SS	0	0	0	0	0	0	2	2
	ART	0	0	0	0	0	0	0	0
	PES	0	0	0	0	-	-	-	-
	TEC	1	6	7	14	-	8	13	21
	CO	0	0	0	0	-	-	-	-
Total 3		1	7	8	16	0	15	26	41
Total		2	12	15	29	1	27	56	84

There are differences between school curricula and alternative textbooks regarding the curriculum areas. The frequencies obtained indicate the fact that, when it comes to school curricula and textbooks, most themes concerned with the technological dimension, can be found at subjects from the curriculum area of *Technologies*.

There are also major differences between schooling levels (Figure 3). In the gymnasium educational system (12) and high school educational system (15) there are more themes concerned with the technological dimension at the level of school curricula, as compared to the primary educational system (2). Also, in alternative textbooks, these themes are predominant in the high school educational system (56) and the gymnasium educational system (27), as compared to the primary educational system (1).

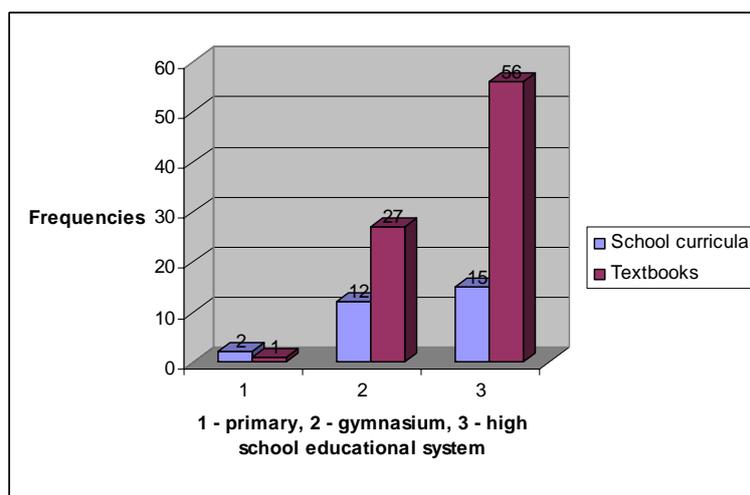


Figure 3. The graphic representation of the frequencies of the specifications for the technological dimension in curricular documents

The second hypothesis is confirmed. There are differences between teachers' and students' representations on the technological dimension of private life. Test t results show that teachers have a more positive perception than students for the next component of technological dimensions: Personal Self [$t(2344) = 4,446, p < 0,05$], Adaptive Self [$t(2344) = 2,757, p < 0,05$], Primary groups [$t(2344) = 3,192, p < 0,005$] (Table 3, Figure 4).

Table 3. The results of the environmental comparison test for the technological dimension variable according to the group variable (teachers versus students)

Variables	N	Mean	Std. Deviation	t	df	Sig. (2-tailed)
Material Self				-1,833	2344	,067
	Teachers	890	3,68	1,063		
	Students	1456	3,77	1,196		
Personal Self				4,446	2344	,000
	Teachers	890	3,45	1,163		
	Students	1456	3,22	1,256		
Adaptive Self				2,757	2344	,006
	Teachers	890	3,40	1,029		
	Students	1456	3,27	1,164		
Private space				,301	2344	,763
	Teachers	890	2,81	1,299		
	Students	1456	2,79	1,353		
Private time				,304	1938,614	,761
	Teachers	890	3,13	1,117		
	Students	1456	3,22	1,242		
Primary groups				3,192	2344	,001
	Teachers	890	3,48	1,109		
	Students	1456	3,32	1,206		

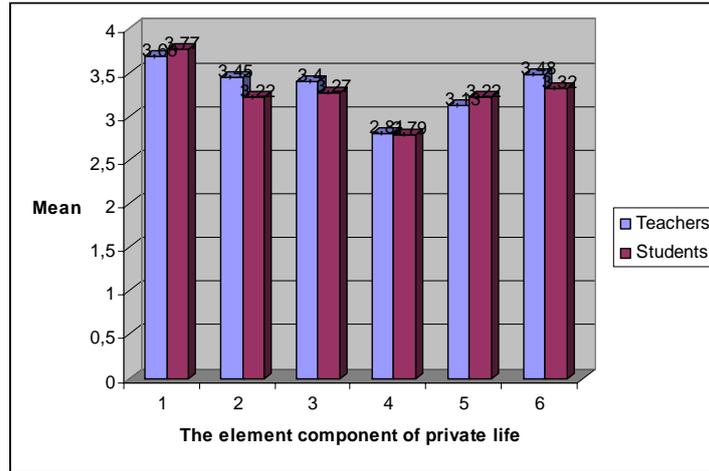


Figure 4. The graphic representation of the means for the elements component of the technological dimension variable according to the group variable (teachers versus students)

The third hypothesis is confirmed. There are major differences between students' perception on the technological dimension according to their school year. The ANOVA One-Way results show that there are major differences between groups, when it comes to the students' perception (Table 4).

Table 4. The results of the ANOVA One-Way test for the technological dimension at the level of students' perception

		Sum of Squares	df	Mean Square	F	Sig.
Material Self	Between Groups	15,244	3	5,081	3,570	,014
	Within Groups	2066,508	1452	1,423		
	Total	2081,752	1455			
Personal Self	Between Groups	38,399	3	12,800	8,238	,000
	Within Groups	2256,147	1452	1,554		
	Total	2294,547	1455			
Adaptive Self	Between Groups	14,256	3	4,752	3,527	,014
	Within Groups	1956,205	1452	1,347		
	Total	1970,462	1455			
Private space	Between Groups	42,467	3	14,156	7,841	,000
	Within Groups	2621,477	1452	1,805		
	Total	2663,944	1455			
Private time	Between Groups	27,502	3	9,167	6,001	,000
	Within Groups	2217,916	1452	1,527		
	Total	2245,418	1455			
Primary groups	Between Groups	18,035	3	6,012	4,159	,006
	Within Groups	2098,954	1452	1,446		
	Total	2116,989	1455			

The results of the Post Hoc Test as well as the arithmetical mean of table 5 illustrate the fact that first year high school students (grade IX) perceive the technological dimension of *Material Self* and of *Adaptive Self* in a more positive way, as opposed to the third year students (grade XI). Senior year students (grade XII) perceive the technological dimensions of *Personal Self*, of *Private space*, of *Private Time* and of *Primary Groups* in a more positive way, as opposed to the second year (grade X) and the third year (grade XI) (Table 5).

Table 5. The arithmetical mean and the standard deviations in the case of the technological dimension, according to the school year variable

The school year	n	Material Self	Personal Self	Adaptive Self	Private space	Private time	Primary groups
Grade IX	454	3,89	3,16	3,36	2,85	3,31	3,34
Grade X	292	3,66	3,21	3,32	2,76	3,13	3,25
Grade XI	369	3,66	3,04	3,11	2,54	3,03	3,20
Grade XII	341	3,83	3,49	3,29	3,02	3,38	3,50
Total	1456	3,77	3,22	3,27	2,79	3,22	3,32

4. Conclusions

After analyzing the results of the statistical data, the following general conclusions can be stated:

- There are themes regarding the technological dimension of private life at the level of *behaviors training* and the level of *representations training*.
- Most themes concerned with the technological dimension, can be found at subjects from the curriculum area of *Technologies*.
- Most themes regarding the technological dimension of private life are found in *gymnasium educational system* and in *high school educational system*, as opposed to the primary educational system, where these themes are almost inexistent.
- *Teachers* perceive the technological dimension in a more positive way than students.
- *First year high school students* and *senior year high school students* perceive the technological dimensions in a more positive way, as opposed to second year high school students and third year high school students.

Having in mind the results, it becomes clear that actions are needed in order to unify the contents and the objectives regarding the technological dimension in the Romanian educational system. This work is intended as a starting point, a benchmark for further studies in education for privacy.

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Appendix 1. Themes relating to technological dimension in the curricula of the Romanian pre-university education

Indicators	I-IV	V-VIII	IX-XII
Representations	<ul style="list-style-type: none"> - Private space - The near horizon housing plan (<i>Geography</i> - 4th grade) 	<ul style="list-style-type: none"> - Adaptive Self - selection for the personal use of information from various sources for communications and transport (<i>Technological education</i> - 8th grade); turning the specific technological terms and symbols into a proper message (<i>Technological education</i> - 8th grade); - Private space - identify materials needed for implementation of a building and objects of housing (<i>Technological education</i> - fifth grade); Energy at home (<i>Technological education</i> - 8th grade) 	<ul style="list-style-type: none"> - Material Self - identifying hardware and software components of a personal computer; description of a personal computer (<i>Information and Communication Technology</i> - 9th grade); - Personal Self - the description of security measures in use of the Internet: digital signature (<i>Information and Communication Technology</i> - 9th grade); - Adaptive Self - description of facilities to use electronic mail, Internet listing services and their description: E-mail (<i>Information and Communication Technology</i> - 9th grade); - Private space - identify the characteristics of a household appliance after plate (<i>Physics</i> - 10th grade); - Primary groups - the list of Internet services and their description: Chat (<i>Information and Communication Technology</i> - 9th grade)
Attitudes	<ul style="list-style-type: none"> - Private space - using appliances (<i>Technological education</i> - 3rd grade) 	<ul style="list-style-type: none"> - Adaptive Self - achieving a case study on the influence of modern communications and transportation on quality of life, sending a resume, letter of intent, satisfaction, sending an e-mail (<i>Technological education</i> - 7th grade); writing functional texts - email (<i>English</i> - 8th grade); - Private space - making measurements and drawing up of the room, dwelling, establishment of small projects really interested in redevelopment according to destination and/ or special occasions, eg. My room, house of the future (<i>Technological education</i> - fifth grade); reading circuit diagrams of energy in housing (<i>Technological education</i> - 8th grade) 	<ul style="list-style-type: none"> - Personal Self - security measures in use of the Internet: digital signature (<i>Information and Communication Technology</i> - 9th grade); - Adaptive Self - application procedures for using server-perk up the e-mail, organizing applications made in its own directory structure, drawing up a personal web page (<i>Information and Communication Technology</i> - 9th grade); - Private space - using a household appliance (<i>Physics</i> - 10th grade); - Primary groups - conversation using the service: Net-meeting, proper use of rules of behavior in the Internet (<i>Information and Communication Technology</i> - 9th grade)
Behaviors			

Appendix 2. Themes relating to technological dimension in the textbooks of the Romanian pre-university education

Indicators	I-IV	V-VIII	IX-XII
Representations	- Private space - Plan Board and Housing (<i>Geography</i> – 4 th grade)	- Material Self - private transport - 4 (<i>Technological education</i> – 7 th grade); PC (<i>Technological education</i> – 8 th grade); - Personal Self - credit card (<i>Technological education</i> – 6 th grade); How to use the cash dispenser - placing personal identification number PIN (<i>Technological education</i> – 8 th grade); - Adaptive Self - definition and examples email address (<i>Technological education</i> – 7 th grade); - Private space - recognition of appliances image (<i>Physics</i> - 6 th grade); Functional scheme of housing, housing plan (<i>Technological education</i> - fifth grade); Electric lighting indoors - in homes (<i>Technological education</i> – 8 th grade)	- Material Self - Discussion about PC (<i>French</i> - 10 th grade); Mobile phone components (<i>Physics</i> - Class XI); Structure of personal computer (<i>ICT</i> - 9 th grade); - Personal Self - credit card (<i>English Language</i> - tenth grade); The importance of fingerprint (<i>Biology</i> - 11 th grade); Fingerprinting-mark hand, DNA fingerprint (<i>Biology</i> - 12 th grade); identification data - user name, password, digital signature, digital signature definition (<i>ICT</i> - Ninth grade); Individual databases (<i>ICT</i> - 11 th grade); - Adaptive Self - E-mail (<i>English Language</i> - 10 th grade); The influence of technology on privacy, ID cards influence on privacy (<i>English</i> - 12 th grade); E-mail, defining an e-mail, explaining how the functions of the e-mail, defining a box of e-mail address book definition (<i>ICT</i> - 9 th grade); How to prepare their presentations using a computer (<i>ICT</i> - 10 th grade); - Private space - Electricity in home (<i>Physics</i> - tenth grade); Electrical installations in dwelling (<i>Physics</i> - 11 th grade); - Private time - New technologies and leisure (<i>History</i> - 11 th grade); - Primary groups - Chat-room (<i>English Language</i> - tenth grade); Direct talks - chat, instant communication language, application NetMeeting, definition and enumeration of instant communication features, the list of facilities offered by NetMeeting application (<i>ICT</i> - 9 th grade)
	Behaviors		- Material Self - composition of boards with components of a technological object and formulating rules for use of his (<i>Romanian language</i> - 6 th grade); Using your staff to communicate (<i>English</i> - 7 th grade); presentation of personal technology devices (<i>French</i> - 8 th grade);
Indicators	I-IV	V-VIII	IX-XII
		writing private transport (<i>Technological education</i> – 7 th grade);	- Personal Self - Self expression through technological means (<i>English</i> - 12 th grade); presentation of advantages

Behaviors

- **Adaptive Self** - writing a text about the influence of technology on privacy (*French* - 8th grade); writing the e-mail (*Technological education* - 7th grade);
- **Private space** - voltage measurement at the terminals of outlets in dwelling (*Physics* - 6th grade); specifying bodies of dwelling that can be noise (*Physics* - 7th grade); achieving personal plan of study room, drawing up of the kitchen, carrying out the plan of a housing with educational software (*Technological education* - fifth grade);
- **Primary groups** - contacting people online (*English* - 6th grade); sending an email friend, using a mobile phone message to give a relative or a friend, use communication nodes of communication networks in the near environment (*Technological education* - 7th grade)
- of e-mail (*French* - 10th grade); making fingerprint (*Biology* - 11th grade); personal voice recording and recognition of its many voices (*Physics* - 11th grade); arguments importance in establishing the Internet connection password; achieving an HTML document illustrating composition favorite football team (*ICT* - 9th grade);
- **Adaptive Self** - building personal arguments on technological innovation (*History* - 11th grade); construction of an invitation to his birthday with the computer, developing a curriculum vitae document type using the computer, creating a personal phone books (*ICT* - Ninth grade); description of how the PC influence of personal activities, presentation of activities they can do with personal computer (*ICT* - 11th grade);
- **Private space** - identification of electronic devices used in the dwelling, the dwelling electric meter reading, reading its manual refrigerator (*Physics* - 11th grade);
- **Private time** - implement a program for leisure time with computer (*ICT* - 11th grade);
- **Primary groups** - presentation of advantages of a chat room (*English* - 9th grade); to exchange e-mails with a friend on personal preferences, sending a personalized greeting online, create personal photo albums merged (*ICT* - 9th grade)