**Rodica IANOLE**
Faculty of Business and Administration, University of Bucharest
**Camelia COJOCARU**
Faculty of Business and Administration, University of Bucharest
**Cătălin NEDELCEA**
Faculty of Psychology and Educational Sciences, University of Bucharest

# DRIVERS AND BARRIERS FOR VIDEO TECHNOLOGIES ADOPTION - AN EXPLORATORY ANALYSIS ON STUDENTS

Empirical study

---

**Keywords**
Adoption rate
Video technologies
Resistance to innovation
Mental representations

---

**JEL Classification**
C81, D03, 033

---

**Abstract**

*The paper aims to elicit and discuss upon the main factors influencing the process of adopting video technologies by employing a mix of qualitative and quantitative methods. In the first stage, a focus group research was implemented on four samples of subjects with different levels of resistance to the use of technology, generating a set of barriers and facilitators, classified by their nature and level of interdependence. The second part of the investigation consisted in the application of a supervised questionnaire, following an adapted version of the mental representation methodology of Svenson and Nilsson (1986), for economics (marketing specialization) and psychology students. The preliminary results are pointing out to a couple of significant differences in perceiving the influence of the analyzed factors, suggesting the need for a customized policy of minimizing resistance to innovation.*

## 1.    Introduction

The complex and widespread impact of technology in all areas of our lives may well be considered among the main research themes of this century [Wellman and Haythornthwaite, 2008]. While the literature is vast, covering insights from different points of view and multiple disciplines, it is yet far from acknowledging all the possible implications of interest.

Our paper narrows the focus by aiming to address the particular case of video technologies, respectively to identify and weight the factors generating a higher adoption and/or a higher resistance to these technologies. At a conceptual level we incorporate the opinion according to which resistance to innovation is not equivalent to non-adoption [Gatignon and Robertson, 1989; Herbig and Day, 1992; Ram and Sheth, 1989; Kleijnen et al., 2009], and we strongly believe that this difference must be examined in an appropriate manner.

Therefore, the nature of the investigation is mostly methodological at this first stage, testing a combination between the qualitative method of the focus group and a quantitative study designed in line with the structure of Svenson and Nilsson (1986) for eliciting mental representations (their original study being applied to the economic phenomenon of inflation). However, the exploratory importance of the paper surpasses the theoretical domain because it is positioned in a larger context of a research project that investigates the use of telepresence video technologies for the provision of long-distance educational services, in geographical isolated communities in Romania. This line of research contributes to the general international discussion and debates concerned with evaluating the influence of video technologies in delivering a better education [Strom, 2002; Anderson, 2008], offering a glimpse of the local understanding of this issue.

The paper is structured as follows: the second section briefly presents the two sides of the research methods employed and the type of data that was collected, while the third continues in a natural way with a description of the main results obtained and their relevance. We conclude by stressing out the need for a customized policy of minimizing resistance to innovation.

## 2.    Data and methodology

The research methodology was composed of two parts: a series of focus groups and a supervised survey. The focus groups, in number of four, were implemented by a market research organization, covering samples of subjects with different declared degrees of resistance to innovation (individuals from the public sector, individuals from the private sector, people from the age category over 50 years and young people). Their objective was to identify, in a realistic manner, the barriers and facilitators for adopting technology in general and video technology in particular. Beyond the multiple insights provided by such an inquiry, its role in the architecture of our research design was to offer a comprehensive reference point for the implementation of the quantitative study dedicated to mental representations. More precisely, based on the typology of the barriers (classified on their nature and intensity) and facilitators, we have made a conceptual aggregation of these variables, resulting into a set of nine operational factors considered as the main influences in the adoption of video technologies:

▪        V1=Personal income – a variable that did not appear explicitly in the results of the focus group (it does appear implicitly when mentioning the importance of costs and the financial situation of the individual) but was included given its incidence in different standard economics studies, into the category of economic/financial barriers. By taking it into consideration we want to verify if the determinants of a strictly economic nature have a significant influence for this adoption rate (the hypothesis is, in line with the qualitative research, that their impact is smaller compared to the influence of psychological and social barriers; this is an argument supported in general by a large body of experimental research in the field of behavioral economics).

▪        V2=Consumption expenses – a variable included in the set of relevant variables on the same basis as personal income. What we expect to be different here, in terms of rational expectations versus behavioral influences, refers to the level of proportionality between income and consumption.

▪        V3=The degree of self control  - a variable that usually has a very weak representation if it is elicited through a self reported measure, but a much higher importance when it is measured experimentally. The large literatures analyzing the way in which people cope with different temptations in making decisions in the present, with consequences in the future, justifies the presence of this variable in our set.

▪        V4=The price of the video technology – a variable that explicitly appears in the group of high intensity barriers (the subset of financial and valorigraphic ones), under the label „high purchasing costs": technology is considered necessary but the access profoundly depends on the financial possibilities of the individual and/or the society (this collective financial capability was particularly stressed out by the participants, pointing out the lack of access of our country to different technologies, or the delay in obtaining them, given its modest economic standing).

▪        V5=Technical/specific        knowledge regarding the video technology – a variable that incorporates three of the high intensity barriers

derived from focus groups - the fear to assume responsibility for using a certain equipment/machine, the fear of producing potential malfunctions (this is an aspect that also correlates with the risk of assuming supplementary costs) and the lack of information – along with two moderate barriers: a lack of awareness regarding the benefits and a lack of specialists in offering training for these areas.

▪ V6=Perception regarding technical risks – a variable that deals with some of the psychological aspects of the factors mentioned at the previous point (mostly captured by the fear of doing something wrong), to which we add a more substantive risk for the apparition of technical problems. This risk is analyzed in the sense that IT systems are considered very sensitive to a wide range of technicalities, among which the possibility of losing data without a clear solution for recovering them. This leads to a preference for maintaining the status quo and keeping the classical approach of storing information on paper. The variable includes also, as a time cost, the need for permanent learning and permanent updates.

▪ V7=Perception regarding personal risks - a variable defined through some deeper layers of psychological elements. The most frequent aspect mentioned here is the fear of developing addiction (more for the group of people with an age over 50 years), where addiction is defined by the use of virtual experiences for more than a couple of hours per day, in the detriment of real experience. We can interpret this as a defense mechanism, which also generates status-quo bias. Moreover, it is sometimes related to a fear of decreasing the role of the individual, particularly in the case of teleconferences where the individual contribution is perceived as being weaker in comparison to the technological inputs, and also deprived of the possibility of establishing an authentic emotional contact. The explanation touches even the valorigraphic perimeter, being argued that real, universal values are neglected in favor or superficial ones. A more pragmatic view underlines the negative effects on health (sedentary tendencies, permanent exposure to different types of radiation), a decrease in the level of engagement in conversations/lectures/shared experiences and a decrease in the degree of control that the individual has over her own environment.

▪ V8=Perception regarding the efficiency of the technology – a variable that resulted as an aggregation of different factors from the facilitators category: minimizing (or even eliminating) distances, saving time, helping to reach an equilibrium in the personal and professional live, reducing costs, increasing the level of comfort (and implicitly changing the lifestyle) and offering a higher level of information.

▪ V9=Social pressure – a variable derived also from the facilitators group but with a mechanism that mostly induces a certain negative motivation for the users, in the sense that it is often perceived as a major constraint: once technology has permeated the entire society (in some major areas), even the individuals without any type of technical abilities or the ones that are simply rejecting technology are somewhat forced to adapt in order to cope with the social requirements.

Having established this set of variables for further investigation, we have moved to the second part of the study. This being a pilot study, the target population was composed of students, bachelor and master level, from the age segment 18-26 years. While the choice may seem controversial from some points of view (arguing that at this age resistance to innovation is not high enough), we believe that this type of investigation is important also for this group in light of the path dependence theory (David, 2005). The reasoning behind it is a retrospective one, stating the impressive importance of past decisions on the current behavior.

The questionnaire (see appendix A for a sample) was applied during classes in October 2015. We opted for a physical implementation and not an online form due to the complexity of the questions. Thus, a small training session proceeded the completion phase, including a checking phase of these instructions and the meaning of the answers.

The sample was formed from two groups: one group of 79 students from an economic specialization (marketing) with an average age of 19.44 years and gender distribution of 60% females and 40% males, and another group of 70 students from a psychology specialization, with an average age of 21.07 years and gender distribution of 72.86% females and 27.14% males.

The first part of the questionnaire aimed to identify the relationship between the adoption rate of video technologies, at a personal level, and each of the nine variables determined from the focus groups. For this purpose, subjects were asked to indicate how they believe that the adoption rate will change (increase, decrease or remain constant) as a result of an increase in intensity of a certain variable. This increase in intensity was clearly expressed for each variable (for example: personal income increase, do you believe that your adoption rate of video technologies will increase/decrease/remain the same) and for coding purposes increasing tendencies were labeled as 1, decreasing as -1 and the constant was 0.

The second part of the study required the subjects to estimate the importance of a variable in determining a change in the adoption rate for video technologies. This was made possible by presenting all the variables in pairs of two and asking subjects to offer numerical estimations by looking only at

one pair at once: they should rate with a maximum value the most important variable in the pair, and with a smaller value, the other one, if it is considered less important by comparison. To illustrate the mechanism, we have also presented a clear example in the questionnaire: we analyze the pair composed of price and social pressure. If the subject considers price as being the most important influence in this pair, he should rate with a value of 100; if, by comparison to the price, social pressure is considered to have half the importance in making an impact on adoption rate, then the subject should rate it with a lower value, particularly half of 100, thus 50.

In the first stage of introducing data and making primary computation, we have chosen to work with the value equal to the ration of these two estimations made by the subjects. This procedure had in mind to determine a value scale $R_i$ for each variable i (where $i = \overline{0,9}$), computed as the sub-unitary ratio of the estimated values (in the example provided this ratio would be 0.7). The results were logically organized into a matrix defined by the set of the 9 variables, with the principal diagonal equal to 1 (representing the intersection of the same variables).

## 3.    Results and discussion

The results from the first part of the questionnaire are tables of relative frequencies for each group (table 1 – marketing and table 2 – psychology), showing their numerical inputs for the direction of the change envisioned in the adoption rate. Based on them, a graphical representation was constructed to show the differences in the assessment of the nine factors for the three potential case: decreasing influence (figure 1), neutrality (figure 2) and increasing influence (figure 3).

As it can be observed in figure 1, we have obtained a trend for each group: the blue line represents the summarized observations for marketing students, while the red line is associated to the psychology students. The highest differences in opinion are registered for variables 2 (consumption expenditures – they prove to be more important for the marketing subjects, which is an intuitive result taking into account their economic background), 3 (level of self control – this is a result that needs a more careful interpretation; in line with the predictions of standard economics, which usually confers a perfect degree of self control to its rational economic agents, we may have expected a reversed result. However, the specialization of the subjects is not pure economics, but marketing, which opens up exactly to this type of emotional/psychological influences), 6 (technical risks) and 9 (social pressure).

The second case, factors that exert no observable influence on the adoption rate, is depicted in figure no.2. This time the graphical representation

suggests two categories of influence: medium and strong. The medium differences are noticed for variable 1 (personal income), 2 (consumption expenditures) and 8 (efficiency). The role played by consumption expenditures seems to be ambivalent and one possible explanation may reside in the status of the subjects: being students, they have a relative narrow range of expenditures, compared to a household. This aspect may bring a certain bias to their estimation, since they are somewhat in a position of hypothetical choice and not a realistic former life experience. Looking generally at these medium differences, it is worthy to mention that for all of them, a higher assessment of neutrality comes from the psychology group. Confronting this fact with the observations from the economic literature, where these are probably the most objective economic factors accounted for in analyzing decision-making processes, we already see a first set of significant potential divergences between groups. On the hand, remaining in the same scenario, we also have a category of strong influences, highlighted for variables 5 (specific knowledge), 6 (technical risks), 7 (personal risks) and 9 (social pressure). For the last two, we see a weaker appreciation from the group of marketing subjects, pointing out a certain contradiction with the results from the first case, were self control was appreciated as being more important by the same group. We believe that the contradiction may also be apparent, expressing rather a lack of understanding regarding the actual meaning of the self-control concept (by excluding social influence and other external factors that may generate negative outcomes at an individual level).

The last case, illustrated in figure 3 (factors that generate an increase in the adoption rate of video technologies) is by far the one that shows the higher level of consensus. The differences between groups are small and they appear for the rather complex variables: 1 (personal income), 2 (consumption expenditures), 3 (self-control), 7 (personal risks) and 9 (social pressure).

The second part of the questionnaire aimed to continue these mapping of representation, by offering a more precise image of the results. The aggregated estimations for the pairs of analyzed variables were structured in a matrix for each of group, containing the average of the individual matrixes. Table 3 presents the results for the marketing group and table 4 for the psychology group. Moreover, in order to achieve to objective of building some coherent value scales, the methodology employs a modified version of these matrixes: an inversion of the elements above the principal diagonal was applied, generating two new work matrixes (table 5 and table 6).

Based on tables 5 and 6, we further computed the following values:

- The sum on the line i of the matrix $\Sigma_{ri}$ is

$$\Sigma_{ri} = R_i \left( \sum_{j=1}^{9} \frac{1}{R_j} \right)$$

- The sum on the column i is $\Sigma_{ci} = 1/R_j \left( \sum_{j=1}^{9} R_j \right)$

Therefore, an estimation of the value scale of variable j would be of the type $\sqrt{\Sigma_{rj} / \Sigma_{cj}}$.

The scales obtained through this algorithm are presented in table 7. A model of linear regression was run in the R software, considering as dependent variable the value scale of the psychology group. Table 8 indicates the main results of the regression.

The regression equation is $y = 1.00288 + 0.34966 * x$, where y is the dependent variable (value scale of the psychology group) x is the independent variable (value scale of the marketing group). The scatter diagram (figure 4) offers a graphical illustration of this relationship.

The model has an adjusted R-squared of 63.06%, suggesting a relative strong explanatory power, thus a good degree of the intensity between the two value scales. In the same time, it also indicates a rest of 36, 94% of unexplained variance between the group, symbolizing the source of the differences in the mental representations concerning the adoption of video technologies. The validity of the model is sustained also by the small standard error of the estimation, of only 0.0417 (for 7 degrees of freedom).

## 4. Conclusions

The paper presents a pilot replication of the methodology used to elicit mental representation, applied for the process of adopting new video technologies.

The comparisons between the two groups are pointing out the existence of a specific understanding of what generates adoption and resistance, differentiated significantly by the study specialization and mostly addressed in terms of economic and non-economic factors. Among the explored variables, price and consumption expenditures are the most visible (as variation) from the first category, while self-control, social pressure and personal risks are the idiosyncrasies spotted in the second one. Even if we do not highlight very much the idea of mental models in the theoretical body of the paper, these are actually the structures described by our data, with an insightful potential to expose possibilities (in our case drivers and barriers) grasped by different homogenous groups.

Naturally, a major limitation is represented by the sample size, which needs to be extrapolated to a more representative part of the population and eventually extended so that it may fit in the area of network analysis.

In the same time, this simple modus of approaching beliefs and perceptions can contribute, in this current, preliminary, stage at least at offering some guidelines for identifying sources of potential conflict and misunderstanding with regard to the policies and strategies formulated for increasing the rate of technological adoption.

**References**

[1] Anderson, T. (2008). Is Videoconferencing the Killer App for K12 Distance Education? *International Journal of E-Learning & Distance Education, 22(2).*

[2] David, P. A. (2005). Path dependence in economic processes: implications for policy analysis in dynamical systems contexts. The evolutionary foundations of economics, 151-194.

[3] Gatignon, H., & Robertson, T. S. (1989). Technology diffusion: an empirical test of competitive effects. *The Journal of Marketing*, 35-49.

[4] Herbig, P. A., & Day, R. L. (1992). Customer acceptance: the key to successful introductions of innovations. *Marketing Intelligence & Planning,* 10(1), 4-15.

[5] Kleijnen, M., Lee, N., & Wetzels, M. (2009). An exploration of consumer resistance to innovation and its antecedents. *Journal of Economic Psychology*,30(3), 344-357.

[6] Ram, S., & Sheth, J. N. (1989). Consumer resistance to innovations: the marketing problem and its solutions. *Journal of Consumer Marketing,* 6(2), 5-14.

[7] Svenson, O., & Nilsson, G. (1986). Mental economics: Subjective representations of factors related to expected inflation. *Journal of Economic Psychology*, 7(3), 327-349.

[8] Strom, J. (2002). Streaming video: Overcoming barriers for teaching and learning. Unpublished manuscript, Advanced Telematics Centre, University of Manchester, Manchester, UK.

[9] Wellman, B., & Haythornthwaite, C. (Eds.). (2008). *The Internet in everyday life*. John Wiley & Sons

## Appendices

*Appendix A. Sample of the questionnaire for the first variable, elicited differently in the two parts (in Romanian, without the full range of instruction presented in the original form, for space reasons)*

*Part I.*

| Nr.crt. | Factor de influență | Efect |
|---------|---------------------|-------|
| 1. | **Creșterea venitului personal** | Efect de creștere<br>Efect de scădere<br>Nicio influență asupra ratei de adopție a tehnologiilor video. |

*Part II*

| 1. | Variabila 1 | Variabila 2 |
|----|-------------|-------------|
| Apreciere numerică | **Venit personal** | Cheltuieli de consum |
| Apreciere numerică | **Venit personal** | Gradul de autocontrol |
| Apreciere numerică | **Venit personal** | Prețul tehnologiilor video |
| Apreciere numerică | **Venit personal** | Cunoștințe de specialitate/tehnice |
| Apreciere numerică | **Venit personal** | Percepția asupra riscurilor tehnice |
| Apreciere numerică | **Venit personal** | Percepția asupra riscurilor personale |
| Apreciere numerică | **Venit personal** | Percepția asupra eficienței tehnologiilor video |
| Apreciere numerică | **Venit personal** | Presiunea socială |

## Tables

Table No.1
*Relative frequencies – marketing group*

|    | V1 | V2 | V3 | V4 | V5 | V6 | V7 | V8 | V9 |
|----|----|----|----|----|----|----|----|----|----|
| -1 | 0,025316456 | 0,708860759 | 0,341772152 | 0,569620253 | 0,050632911 | 0,632911392 | 0,531645 57 | 0,088607595 | 0,177215 19 |
| 0  | 0,202531646 | 0,126582278 | 0,354430 38 | 0,227848101 | 0,063291 139 | 0,215189873 | 0,329113924 | 0,075949367 | 0,379746835 |
| 1  | 0,772151899 | 0,164556962 | 0,303797468 | 0,202531646 | 0,886075949 | 0,151898734 | 0,139240506 | 0,835443038 | 0,443037975 |

Table No.2
*Relative frequencies – psychology group*

|    | V1 | V2 | V3 | V4 | V5 | V6 | V7 | V8 | V9 |
|----|----|----|----|----|----|----|----|----|----|
| -1 | 0 | 0,471428571 | 0,242857143 | 0,6 | 0,028571429 | 0,5 | 0,557142857 | 0,042857143 | 0,071428571 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 0,257142857 | 0,171428571 | 0,371428571 | 0,2 | 0,157142857 | 0,414285714 | 0,185714286 | 0,128571429 | 0,271428571 |
| 1 | 0,885714286 | 0,357142857 | 0,385714286 | 0,2 | 0,814285714 | 0,085714286 | 0,257142857 | 0,828571429 | 0,657142857 |

Tabel No.3

*Average estimated ratio for the marketing group*

| | V1 | V2 | V3 | V4 | V5 | V6 | V7 | V8 | V9 |
|---|---|---|---|---|---|---|---|---|---|
| V1 | 1 | 0,625316456 | 0,579487179 | 0,65443038 | 0,628205128 | 0,602531646 | 0,624050633 | 0,652564103 | 0,475949367 |
| V2 | 0,625316456 | 1 | 0,583544304 | 0,701265823 | 0,606410256 | 0,603797468 | 0,637974684 | 0,650632911 | 0,416455696 |
| V3 | 0,579487179 | 0,583544304 | 1 | 0,586075949 | 0,6 | 0,588461538 | 0,587179487 | 0,614102564 | 0,448101266 |
| V4 | 0,65443038 | 0,701265823 | 0,586075949 | 1 | 0,650632911 | 0,581012658 | 0,621794872 | 0,663291139 | 0,428571429 |
| V5 | 0,628205128 | 0,606410256 | 0,6 | 0,650632911 | 1 | 0,678481013 | 0,611392405 | 0,674683544 | 0,369620253 |
| V6 | 0,602531646 | 0,603797468 | 0,588461538 | 0,581012658 | 0,678481013 | 1 | 0,670886076 | 0,645454545 | 0,435443038 |
| V7 | 0,624050633 | 0,637974684 | 0,587179487 | 0,621794872 | 0,611392405 | 0,670886076 | 1 | 0,594936709 | 0,386075949 |
| V8 | 0,652564103 | 0,650632911 | 0,614102564 | 0,663291139 | 0,674683544 | 0,645454545 | 0,594936709 | 1 | 0,417721519 |
| V9 | 0,475949367 | 0,416455696 | 0,448101266 | 0,428571429 | 0,369620253 | 0,435443038 | 0,386075949 | 0,417721519 | 1 |

Tabel No.4

*Average estimated ratio for the psychology group*

| | V1 | V2 | V3 | V4 | V5 | V6 | V7 | V8 | V9 |
|---|---|---|---|---|---|---|---|---|---|
| V1 | 1 | 0,682608696 | 0,578 | 0,705507246 | 0,572142857 | 0,49784058 | 0,556666667 | 0,661304348 | 0,514347826 |
| V2 | 0,682608696 | 1 | 0,621571429 | 0,735942029 | 0,575 | 0,521014493 | 0,583333333 | 0,605588235 | 0,513188406 |
| V3 | 0,578 | 0,621571429 | 1 | 0,613768116 | 0,6740435 | 0,551428571 | 0,605 | 0,639857143 | 0,546086957 |
| V4 | 0,705507246 | 0,735942029 | 0,613768116 | 1 | 0,649130435 | 0,556971014 | 0,569275362 | 0,675588235 | 0,510147059 |
| V5 | 0,572142857 | 0,575 | 0,6740435 | 0,649135362 | 1 | 0,662463768 | 0,624202899 | 0,724411765 | 0,564492754 |
| V6 | 0,49784058 | 0,521014493 | 0,551428571 | 0,556971014 | 0,662463768 | 1 | 0,665147059 | 0,648985507 | 0,514328358 |
| V7 | 0,556666667 | 0,583333333 | 0,605 | 0,569275362 | 0,624202899 | 0,665147059 | 1 | 0,642647059 | 0,536086957 |
| V8 | 0,661304348 | 0,605588235 | 0,639857143 | 0,675588235 | 0,724411765 | 0,648985507 | 0,642647059 | 1 | 0,555 |
| V9 | 0,514347826 | 0,513188406 | 0,546086957 | 0,510147059 | 0,564492754 | 0,514328358 | 0,536086957 | 0,555 | 1 |

Tabel No.5
*Average estimated ratio for the marketing group – inversed values*

|    | V1 | V2 | V3 | V4 | V5 | V6 | V7 | V8 | V9 |
|----|----|----|----|----|----|----|----|----|----|
| V1 | 1 | 1,599190283 | 1,725663717 | 1,528046422 | 1,591836735 | 1,659663866 | 1,602434077 | 1,532416503 | 2,10106383 |
| V2 | 1,599190283 | 1 | 1,713665944 | 1,42599278 | 1,649048626 | 1,656184486 | 1,567460317 | 1,536964981 | 2,401215805 |
| V3 | 1,725663717 | 1,713665944 | 1 | 1,706263499 | 1,666666667 | 1,699346405 | 1,703056769 | 1,628392484 | 2,231638418 |
| V4 | 1,528046422 | 1,42599278 | 1,706263499 | 1 | 1,536964981 | 1,721132898 | 1,608247423 | 1,507633588 | 2,333333333 |
| V5 | 1,591836735 | 1,649048626 | 1,666666667 | 1,536964981 | 1 | 1,473880597 | 1,635610766 | 1,482176636 | 2,705479452 |
| V6 | 1,659663866 | 1,656184486 | 1,699346405 | 1,721132898 | 1,473880597 | 1 | 1,490566038 | 1,549295775 | 2,296511628 |
| V7 | 1,602434077 | 1,567460317 | 1,703056769 | 1,608247423 | 1,635610766 | 1,490566038 | 1 | 1,680851064 | 2,590163934 |
| V8 | 1,532416503 | 1,536964981 | 1,628392484 | 1,507633588 | 1,482176636 | 1,549295775 | 1,680851064 | 1 | 2,393939394 |
| V9 | 2,10106383 | 2,401215805 | 2,231638418 | 2,333333333 | 2,705479452 | 2,296511628 | 2,590163934 | 2,393939394 | 1 |

Tabel No.6
*Average estimated ratio for the psychology group – inversed values*

|    | V1 | V2 | V3 | V4 | V5 | V6 | V7 | V8 | V9 |
|----|----|----|----|----|----|----|----|----|----|
| V1 | 1 | 1,464968153 | 1,730103806 | 1,417419885 | 1,747815231 | 2,008675148 | 1,796407186 | 1,512163051 | 1,944209637 |
| V2 | 1,464968153 | 1 | 1,608825557 | 1,358802678 | 1,739130435 | 1,919332406 | 1,714285714 | 1,651287033 | 1,94860209 |
| V3 | 1,730103806 | 1,608825557 | 1 | 1,629279811 | 1,483679525 | 1,813471503 | 1,652892562 | 1,562848885 | 1,831210191 |
| V4 | 1,417419885 | 1,358802678 | 1,629279811 | 1 | 1,540522438 | 1,795425568 | 1,756619145 | 1,480191554 | 1,960219083 |
| V5 | 1,747815231 | 1,739130435 | 1,483679525 | 1,540522438 | 1 | 1,509516517 | 1,602043186 | 1,380430369 | 1,771501926 |
| V6 | 2,008675148 | 1,919332406 | 1,813471503 | 1,795425568 | 1,509516517 | 1 | 1,503426929 | 1,540866458 | 1,944283227 |
| V7 | 1,796407186 | 1,714285714 | 1,652892562 | 1,756619145 | 1,602043186 | 1,503426929 | 1 | 1,556064073 | 1,865369019 |
| V8 | 1,512163051 | 1,651287033 | 1,562848885 | 1,480191554 | 1,380430369 | 1,540866458 | 1,556064073 | 1 | 1,801801802 |
| V9 | 1,944209637 | 1,94860209 | 1,831210191 | 1,960219083 | 1,771501926 | 1,944283227 | 1,865369019 | 1,801801802 | 1 |

Tabel No.7
*Value scales*

| Value scale – marketing group | Value scale – psychology group |
|---|---|
| 1,566674212 | 1,592104195 |
| 1,580391116 | 1,570792943 |
| 1,642618727 | 1,566864123 |
| 1,562221281 | 1,522095507 |
| 1,591597323 | 1,509425342 |
| 1,582848747 | 1,635889196 |
| 1,610787006 | 1,580658018 |
| 1,555704137 | 1,480399892 |
| 2,140220858 | 1,748792654 |
| 1,566674212 | 1,592104195 |

Tabel No.8
*Results of the regression model (output in R)*

```
Residuals:
    Min       1Q      Median      3Q      Max
-0.065845 -0.026428  -0.001832  0.015916  0.080153

Coefficients:
              Estimate  Std. Error  t value     Pr(>|t|)
(Intercept)   1.00228    0.15138    6.621      0.000298 ***
MK            0.34966    0.09133    3.828      0.006471 **
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 0.04817 on 7 degrees of freedom
Multiple R-squared:  0.6768,    Adjusted R-squared:  0.6306
F-statistic: 14.66 on 1 and 7 DF,  p-value: 0.006471
```
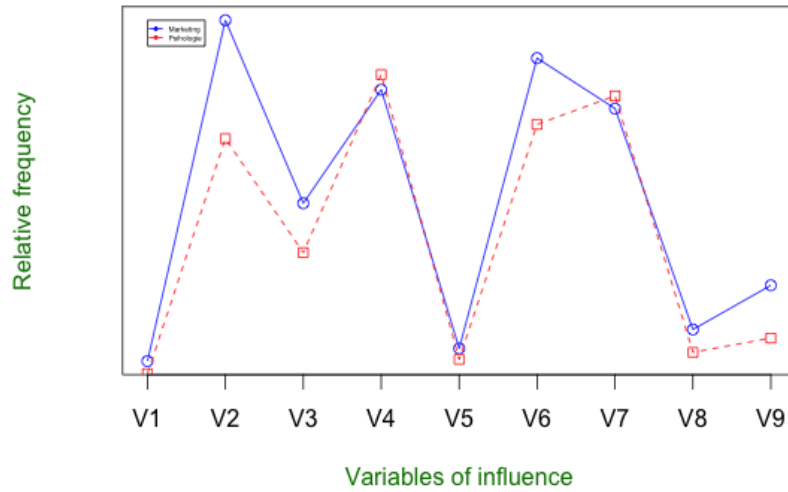
*Figures*



*Figure No.1.*
*Comparative assesment of the factors that generate a decrease in the adoption rate of video technologies*
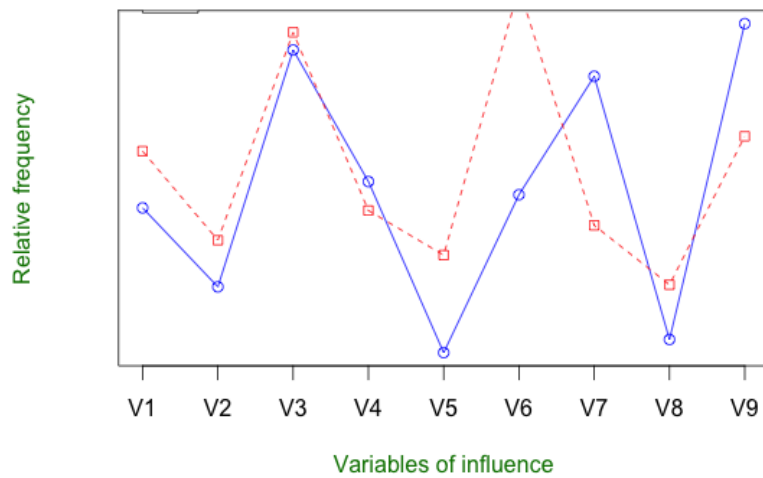


*Figure No.2*
*Comparative assesment of the factors that generate no influence in the adoption rate of video technologies*
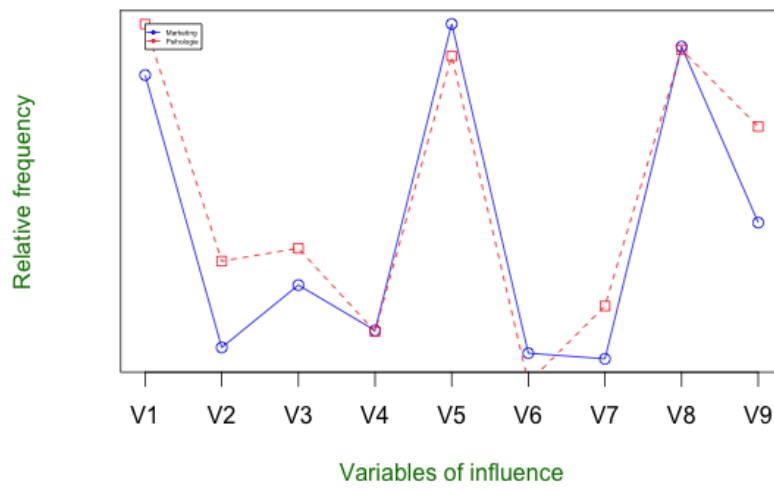
*Figure No.3*
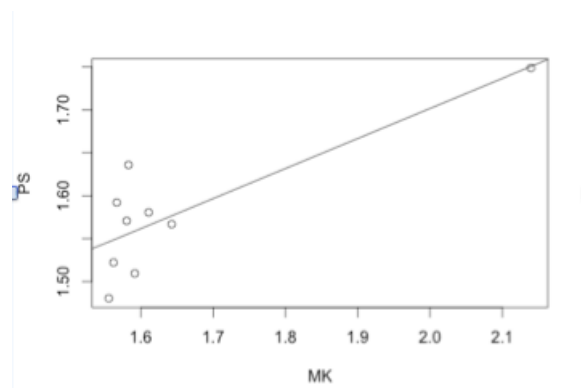*Comparative assesment of the factors that generate an increase in the adoption rate of video technologies*



*Figure No.4*
*Scatter diagram of the regression model*