

COMPARATIVE METHODS OF OBTAINING INFORMATION BY STUDENTS

KAMIL BŁASZCZYŃSKI

Faculty of Social Sciences, University of Wrocław
Plac Uniwersytecki Street 1, 50-137, Wrocław, Poland
E-mail address: kamil.b.cobcom@gmail.com



ABSTRACT

Cultural changes in the form of the technical and technological development are affecting all educational institutions including universities. The information revolution, which has resulted in the emergence of the information society and the knowledge economy, not only changes the perception of the quality of information, but also the methods of obtaining it.

The following text describes the results of an executed experiment related to teaching methods. The author has attempted to give an answer to two major problems: comparison of the teaching effectiveness of sources such as books, articles, general physical university library collections and the Internet. Then the comparison of methods used by students in obtaining information, in order to identify what is most effective.

Keywords: teaching college, experiment, technics, technology, methods of acquiring knowledge, the effectiveness of acquisition of knowledge, the Internet.

INFORMATION CULTURE AND HIGHER EDUCATION

Each cultural and civilizational circle produces its characteristic tools that serve the purpose of the realization of its internal and external purposes (Sztopmka, 2007, pp. 241 - 251). These tools, which are produced can be specified in general term of technique. The particular structures or systems involving technical solutions for the purpose of complex manufacturing, can be specified by the general terms of technology.

Technical development (discovery of some tools) and technological progress (the discovery of productive system of tools) are closely linked with the symbolic and material stratum of entities functioning (Kłoskowska, 1983, pp. 317 - 318). Together they form something which is called culture. Besides the obvious functional value, entity within the scope of her cultural circle seeks excuses for her actions. Trying justify her own existence, In the scope of treating matter, some sense, thus giving her technical and technological search value of progressively understood development (Gruchola, 2010, pp. 99 - 104). This is creating a coherent vision of a future in which innovations in the field of technology and technology connected with a specific ideological narration form a coherent cultural image-transfer (Szkudlarek, & Melosik, 2010, pp. 44 - 47). This is the base on which future generations will con-

struct their identity and consciousness. Perhaps this should be explaining the fact that along with technical and technological progress proceeds in some part with the evolution of society. An example of such progress are the changes in the collection, processing and dissemination of information of the codes in the oral and written form. European civilization and its derivatives (colonies and neighboring countries) produced in the course of history sophisticated tools for distribution of the information, which we now call the media⁹. In the range of media is included: press, radio, television and the newest, the Internet. Each of the above tools had undeniable impact on European society. This relationship continues today as can be seen in the example of the virtual global network. An endless stream of data, created by billions of people around the world, convinced sociologists and cultural theorists that it have been produced or it took a different, more expressive dimension the so-called information culture (Batorowska, 2009). Its central element is possession and production of more, and more data in the form of more or less developed information codes (Olechnicki, 2009, p. 217). Increasing opportunities in terms of generating and collecting data over time developed the need for a specialized institutions in society, and also became the reason for changes in institutions, which can be called traditional. An example is the author's research interest is the university.

Universities, colleges, academies and polytechnics are the most characteristic institutions of higher education in Western Civilization (Guri - Rosenblit, 2006, p. 31). The idea behind of their creation was the transmission of information in which members were future professionals, experts and officials. This mission has not changed until now, we may see that aforementioned are experiencing a resurgence. This is due to the previously mentioned cult of knowledge and information, and the ongoing process of professionalization of social services¹⁰. Universities as institutions providing educational services, with a view to the cultural context in which they had to function are coupled to the development of techniques and technologies. Therefore significantly and actively taking part in the process of generating innovations and inventions. Therefore, it seems legitimate judgment in which we treat the university as not only the habitat of tradition and criticism, but also as a dynamic source of change. The academic world, is inevitably a very distinctive agent against the background of European culture though, it exists in the total assimilation of it, because it is present throughout its creation.

The process of education at university has always aroused the imagination of people representing the world of *inter-muros*. Its specificity has allowed the coining of the canon term "academic didactics", which can be understood as a specific set of processes that affects the student to induce in him some planned changes. It is thus a kind of analogy, the technological process of the fact that both the "tools" (academic and methodology of higher education) and 'products' (students, graduates, pre-doc's) are biological beings. In the "Dark Ages" the process was filled with

⁹ Medium - intermediary between the event and the observer.

¹⁰ The current meta-ideology maintains the myth of the necessity of the professions in society. This is due not only to the wealth (surplus food and a stable birthrate of humanity) but the fact of increasing complex of tasks, which the units have to learn to control some field of knowledge. This ensures efficient allocation of roles within the society in which distinguish the professional groups.

literature studies, interviews with masters, active participation in the life of the university. These features can be called the classical method of academic education.

However, these times are long gone and universities under pressure from many forces, eg. ideological totalitarianism, capitalism, globalization, liberalism, corporatism, commercialism, etc. have changed radically (Kozyr - Kowalski, 2005, pp. 35 - 37), and finally, creating a model of the university as a private enterprise market providing educational services for money¹¹. Enterprises in which the teaching processes are very important because they generate income and prestige of the university. Therefore it is in the interest of the market, to invest in more advanced tools which have impact on the students, so that their learning process will bring more positive results. This ensures a constant flow of candidates which will lead to the ensuring of survival stability of the institution. In the culture of information the most valuable product is information. But this is not just any information, but what is most relevant. For technical reasons, the most valuable source of new information is the Internet. Its connection with the academic teaching machine is therefore natural.

There only remains one problematic subject which is academic culture. It is a combination of two contradictory trends: separatism (a critical attitude towards society and culture) and progressivism (acting on behalf of techniques and technologies). It seems impossible to combine these centrifugal forces as these forces are signs of ideological factions. The liberal option which exhorts adaptation, and conservatism, calling for resistance to the „sacred“ tradition of academic excellence, are essentially absolute and yet, are bringing themselves harm. Conservatism has won supremacy, or better to say upheld it, which is shown in the study about higher education by Jerzy K. Thieme (Thieme, 2009, pp. 298 - 299). Resistance to change is affecting not only the definition of the role, functions and content of academic *cre-scendo*, it is also imprinting its mark on teaching.

Responsibility for forced qualitative and quantitative changes in the academic world, bears the aforesaid information culture, a whole range of ideologies and academics themselves. A closed caste of specialists generating valuable knowledge has led to the fetishization of knowledge and giving her the supreme value in the development of society. This is the aftermath of fashionable theoretical concept of the knowledge society (by Daniel Bell) and knowledge - based economy (Kukliński, 2003; Hejduk, 2006; Rosati, 2007; Florczak, 2007; Dworak, 2012), which contribute to the prosperity of individuals, countries or international organizations (Dobrowolski, 2005, pp. 88 - 89). The most important transformation, affecting currently supported academic governance, consists primarily of moving the supremacy of traditional media associated with the physical transfer of word and writing (books + activities at the university) to the dominance of one source which is the Web.

11 The role of public institutions or state-owned higher education is ambiguous. These are examples of free institutions where the unit does not bear the cost of tuition. Although the profile of these institutions has also changed in the direction of the company generating profit. Financial expenditures on educational work and the scientific establishment are limited by the budget separated from the state treasury. This not only introduces competition between institutions (which in fact occurs only at the level of scientific activity), but makes the necessary allowance for the development of the facility has earned itself (grants, sponsors, service). These institutions take a personal profile, which is dominated by academic non-profit. education.

With the geometric progress of knowledge available for humanity questions are raised about the quality of the transmission of this gathered information for future generations. Therefore academic teaching becomes a valuable reflection on what must lead to very concrete results in the form of „suitably tailored to the individual“. In the academic production it is all about faster and more efficient transfer of knowledge and information. The duration of the technological process, as well as the selection of data for the injected process are the most valuable. This is due to accumulation of information generated every day and the level of its complexity.

At this point, it is interesting why there is so little empirical data on this aspect of knowledge¹²? Of course, the fact is that there are the classification of teaching methods that are used for studies such as lectures, workshops, seminars. It is also rich in a range of forms which can be realized the above mentioned methods. We can extract: discussions, debates, Oxford discussions, readings, presentations, papers, etc. At present, we also have targets and the main ideas on which are created curricula data contained in the given field of education¹³. Although there remains a mystery about the effectiveness of „traditional“ - classical and „modern“ - innovative methods, of implementing the knowledge to students. One of them is usage and the value of the Internet in the education of students, the value of which description the designed experiment was intended to check.

AUTHORS CONCEPT RESEARCH BASE

In order to check the effectiveness of the tool which the Internet can be, in the process of academic education, it is worth using the experimental method. For using this method addresses the following arguments:

- The possibility of creating artificial conditions in order to induce interesting researcher phenomenon, which is partially or completely in the control of his moderating skills,
- The ability to channel the activities of students on specific tasks in order to obtain interesting researcher quantitative data
- The lack of any research data concerning the results of comparative methods of data collection by students, defined by the author as „traditional“ and „modern“;

The study was divided into stages: pilot and proper research. The concept of a two-stage study was dictated by the authors methodological lack of experience in carrying out the experiment as well as lack of author organizational and executional experience. Also important was the inability to get answers to all questions. simultaneously interesting to the researcher Complementing motives was the fact

12 Significant scientific publication in the field of academic teaching is the work of Kazimierz Denek: University in the society of knowledge. Academic Teaching and its effects. Publisher School of Teacher Education and Administration. Poznan, 2011. (authors free translation) Although it has a value in axio-normative, probabilistic and historical – monographic context. Reflections about teaching methods, rooted in the realities of academic word, are based on the potential tasks, challenges and needs faced by the academic Word. Although they are not a reliable and critical diagnosis treating about methods, forms and teaching tools embedded on the canvas of empirical research. Undoubtedly, the work has a high intellectual value, although it is not written on the basis of hard data embedded in the quantitative paradigm.

13 The Lisbon Strategy, the Bologna Declaration, Directional Training Effects.

of birth of the research questions in the course of the pilot study,. Differences in the organization and conduct of the two stages are so significant that it is necessary to characterize them separately.

THE MAIN RESEARCH PROBLEM AND THE DETAILED PROBLEMS

The two-stage structure of the study enforces double research activity in which you can specify two main lines of inquiry:

- Compare the effectiveness of juxtaposed two data collecting methods artificially known as classical and modern (both are idealised types),
- Compare the effectiveness of four juxtaposed data collection techniques artificially referred to as the control and experimental (control method of testing is a representation of the characteristics of all common students, which is their experience, and experimental are the variations which were broken after implementation of differentiating factor);

These lines of inquiry generate different main research problems:

The main research problem 1: What is the effectiveness of the classical and modern method of data acquisition by the students in direct comparison,?

The main research problem 2: What is the efficiency of contemporary and experimental methods of data collection used by students?

The answer to the above questions will become possible when we determine the three indicators of the dependent variable, based on which we will measure them: time, quality and quantity. It allows variables to formulate the following specific issues:

1. Which method, classical or modern is more effective time collecting data?
2. Which method, classical or modern is more effective in obtaining quantitative data?
3. Which method, classical or modern is more effective in obtaining quality data?

Formulated above questions need to be adapted to the two differently formulated main research problems. The variables on which the measurement will be made is identical, although the specific content of the questions will be slightly different, namely:

1. Which methods are more time effective in getting the data?
2. Which methods are more quantitatively effective in obtaining data?
3. Which method are more qualitatively effective in obtaining data?

PILOT STUDY

The purpose of this step was to compare the effectiveness of methods of data collection by students, defined by the author for the purposes of this study as classical and modern. The Classical method is the scrutiny of the physical literature: books, articles, journals that are available in paper form. While the modern method is the search for Internet sites: pages, public Or private sites, forums, blogs, online encyclopedias, online dictionaries. In the scope of modern sources, for the purpose of this research, we do not include PDFs, digital libraries, open access libraries, generally electronic equivalents of the physical library collections. The author is aware that

such conditions are unlikely to occur in the real learning strategies conducted by students. Indeed, the level of freedom in the selection of sources and their range in reality is almost unlimited. Although the experiment allowed the researcher to shape interest in methods, which are in this case a manifestation of a kind of teaching system. One embedded in tradition, while the second is in the Progressive form. For the purpose of the comparison of their efficiency, interference from the students side should be limited. The role of the actors mentioned in the study has been reduced to the most efficient usage of the tool imposed on them by the developer.

The experiment was conducted on 29.10.2013 from 10.00 to 12.00, above the Vocational State High School name of Witelon in Legnica. Included in the survey were four groups. Two control (classic) and two experimental (modern). A characteristic feature of the control groups was the possibility of unlimited (in terms of number of sources) usage of the resources of the university library and reading room. Although they did not have access to a computer, in any form, even in order to view the library supplies, the replacement was the opportunity to review an archaic paper catalog. The aim of such moderating of the control group was the most faithful copy of the conditions that students had before the era of global informatization. The benchmark was the Humboldts university stage of development and university education. While a characteristic feature of modern group was the possibility of unrestricted (in terms of number of sources) usage of Internet resources. As previously mentioned, the range of sources not included PDFs, digital libraries, library access, generally the electronic equivalent of the physical library collections. The purpose of these restrictions was the desire on the part of the author to:

- Eliminate the tangent point between the two groups, which are the physical library collections converted to virtual
- Give equal access restrictions both groups, classical and modern,
- Introduce a variable in the test which was the qualitative selection of information, for both of the groups classical and modern.

For the purpose of comparison where possible the work of both groups had been submitted identical sets of tasks. Each task (in the form of questions or commands) has been arranged by one of the four experts, representing four different modules of academic knowledge: research methodology of the social sciences, higher education, family (in terms of teaching), and social marketing. This eliminated the problem of assessment of students' work by the author, and allowed us to extend the usable subjects to the test.

Each expert was instructed to construct three questions on the basis of the diagrams created by the author, which range of topics will be not only covered to the knowledge of their research and didactical interests, but also will represent one of three levels of complexity. The first level represented questions that forces the need to provide the definition of a process, phenomenon, concepts, etc. To the second level belonged questions that forced on the students the need to search, compare and select the most valuable data. For the third level eligible questions forced on students the need of search, comparison, selection and creative interpretation of the data. We formed a set of twelve questions designed by experts and after gathering them together created one sheet of tasks that each group had to solve. The evalu-

ation of students work, each expert could make according to the criteria that they personally believed the most appropriate. This was made to simulate the actual mechanics of diverse assessments that often apply within a class the students.

On the solution of tasks the students had one and a half hour (the standard time unit of teaching in the academic education). The starting was common to all groups because such a solution was more functional from an organizational perspective. The author also consciously chose the number of tasks to the time devoted to their solution, forming a hypothesis that students will not be able to solve all the tasks on time, which also was aimed to measure the effectiveness of work-based sources of physical and virtual method.

In the study were participating students of the Vocational State High School called Witelon in Legnica. Students were from the second year of master's degree, pedagogical direction. The choice of field of study was partly dictated by the choice of experts and potential scope of the content of the tasks that students would have to perform. Hence the content of the questions was divided into two blocks: the strictly educational sciences (family and higher education) and related to pedagogy (methodology of the social sciences and social marketing). This was the procedure that the author aimed at giving students the opportunity to use well-established knowledge of the familiar scope, and mobilizing them to work in favor of the need to gain new knowledge of the unknown or poorly-understood subjects.

Each group was assigned an invigilator, who was also a student, but unknown to the other students participating in the experiment. Their presence was to prevent unauthorized actions on the part of students directly involved in the experiment. Each of the invigilators was instructed to limit their activities to monitor activities while non-interfering in to substantive course of the experiment. Experimental groups of students were locked in for the duration of the study in order to eliminate the possibility of interruption of the structure of the test by external factors.

Each group answered individual tasks perpetuated on cards, which were collected by the author and converted into electronic documents. Each electronic document containing answers to the individual tasks of each group were divided by the author thematically into four parts corresponding to the research and teaching expertise scope of the expert. To some documents scans of student responses have been attached (some of the answers were very illegible) so that an expert if in doubt, personally made the decryption, thus eliminating the possibility of misinterpretation of response from the author.

For technical reasons the two control groups were housed in one room – university reading room (with the prohibition of communication between them), the two experimental groups were placed in separate rooms. They have simultaneous access to the Internet, so as to be able to solve the tasks foreseen for the experiment.

THE RESULTS OF THE PILOT STUDY

At the time of the pilot study the author left the experts the decision of design of the tools for measuring the effects of students' work. Each of them requires a brief discussion for the purpose of clarity of evaluation criteria.

Expert No.1 applied partial rating system on a scale of 0 to 10. Expert No.2 applied a complex system of partial assessments and In evaluation of students work has identified detailed elements such as (after the dash shows the maximum number of points that could be obtained): Language -3 (j) , a composition -2 (k), the content, sharing her range for quantitative -1 (T1) and qualitative -2 (T2) and critical approach -2 (marked by the author as reflexivity - r). Expert assessment No.3 applied in a 5-point scale. During the assessment three criteria were taken into account: the correctness of answers, wealth of sources (variety of information) and the quality of written expression. Expert No.4 applied a 10 step scale, which consisted of both partial evaluation and summary. The partial evaluation included variables such as form and content. These however were divided successively into vocabulary (s), the correctness of the language (pj) , the amount of information (T1) , the quality of information (T2) and the structure of wrritten expression (St).

The scoring results obtained by students in different subject areas including the system of expert evaluation are presented in Table No.1.

Table 1. Quantitative results of the pilot study

Group/ expert	E1sw	E 2r					E 3m	E 4ms						
GIn	Z1-3		j	k	T1	T2	r	Z1-3		s	Pj	T1	T2	St
	Z2-0	Z1	0,5	0	0	0,5	0	Z2-2	Z1	2	1,5	1,5	1	1,5
	Z3-0	Z2	1	0,5	0,5	0	0	Z3-5	Z2	1,5	2	1	1	1
		Z3	0,5	0	0,5	1	0		Z3	0	0	0	0	0
	Z1 - 1/10 Z2 - 2/10 Z3 - 2/10							Z1 - 7,5/10 Z2 - 6,5/10 Z3 - 0/10 $\sum Z = 14/30$						
GIk	Z1-0		j	k	T1	T2	R	Z1-3		s	Pj	T1	T2	St
	Z2-5	Z1	3	2	1	2	0	Z2-3	Z1	1	1	0,5	0,5	0,5
	Z3-0	Z2	1	0	1	1	0	Z3-2	Z2	2	1	1	0,5	0,5
		Z3	1	0	0,5	0,5	0		Z3	1	1	0,5	0,5	0,5
	Z1 - 8 Z2 - 3 Z3 - 2							Z1 - 3,5 Z2 - 5 Z3 - 3,5 $\sum Z = 12$						
GIn	Z1-0		j	k	T1	T2	r	Z1-4		s	Pj	T1	T2	St
	Z2-0	Z1	3	1	0,5	1	1	Z2-5	Z1	1,5	1,5	1	1	1,5
	Z3-0	Z2	2	2	0	0,5	0	Z3-2	Z2	1,5	1,5	2	2	1,5
		Z3	0,5	1	0,5	0,5	0,5		Z3	1,5	1,5	1	1,5	1,5
	Z1 - 5,5 Z2 - 4,5 Z3 - 2							Z1 - 6,5 Z2 - 8,5 Z3 - 7 $\sum Z = 22$						

Group/ expert	E1sw	E 2r					E 3m	E 4ms						
			j	k	T1	T2		r	Z1-1	s	Pj	T1	T2	St
G II k	Z1-7						Z1-1							
	Z2-0	Z1	3	2	0,5	1	2	Z2-3	Z1	1	1	1	1	1
	Z3-0	Z2	2	1	0,5	1	0	Z3-0	Z2	1	0,5	1	1	1
		Z3	0,5	0,5	0,5	1	1		Z3	1	0,5	0,5	0,5	0,5
		Z1 - 8 Z2 - 4,5 Z3 - 3,5						Z1 - 5 Z2 - 4,5 Z3 - 3 $\sum Z = 12,5$						

Source: Author.

Legend: G - Group, Roman - style number - group number, k - classical group, n - modern group, E - Experts, digit after the E - the number of the expert, the letter after the number E - Expert specialization: s - higher education, r - family, m - the methodology of social research, ms - social marketing, Z - task, digit by Z - level tasks digit after the dash - the number of points awarded by an expert task, $\sum Z$ - total points. for the task.

In order to maintain order statements the author received partial system response to research questions and the final evaluation summary which is also the answer to the first main problem. Individual specific questions will be asked, the data will be presented for interpretation, then the final assessment will be made in response to a outlined specific problem.

WHICH METHOD, CLASSICAL OR MODERN IS MORE EFFECTIVE IN COLLECTING DATA?

To answer this question, quantitative data was provided by the students in the questionnaire. They were instructed to mark the hour of ending of their activities, aimed at completing the tasks provided In the questionnaire. The results of the various groups are as follows: GI n - 1h10m, GI k - 1h15m, G II n - 1h15m, G II k - 1h30m. The most effective time proved to be Group I whereas the least efficient G II k. Difference in the execution of tasks between the two groups was about 20 minutes. The apparent advantage is also noticeable when comparing the arithmetic means of comparing the times of two groups (divided by method of work): classic and modern. The results were as follows: Classic group: 1h22,5m Modern Groups 1h12,5m. What is very important is the difference of 10 minutes in favor of the Modern groups.

In partial evaluation we can make the following interpretation of the results that, from the perspective of time the more effective source of data collection is the Internet although its effectiveness is also strengthened or weakened by the intellectual and organizational potential of a particular group of students. An example might be the result obtained by the GI and G II k n, which, despite the technical superiority of the experimental group, were similar.

WHICH METHOD, CLASSICAL OR MODERN IS MORE EFFECTIVE IN OBTAINING QUANTITATIVE DATA?

Indicators that will allow answer to this question are given in the number of tasks that the group failed to realize (tasks for the experts were able to award points were counted). Statement, as well as for time efficiency will be more credible if we take into account both the results obtained by different groups and in direct confrontation of both methods.

The results obtained by the group are as follows (after the hyphen: the number of solved tasks/number of tasks in the questionnaire), G I n - 9/12 G I k - 10/12, G II n - 9/12, G II k - 9/12. Number of tasks carried out by the group is on a very even level. What is very interesting is that the group handling the method more time efficiently in data collection temporarily obtained poorer results, This has been shown by the earlier analysis. This fact shows that, although the time result was similar (G I k, G II n) the quantification efficiency of the classical methods was greater.

We should also compile the number of tasks solved by the number of students scoring tasks by experts. This not only will be possible to enrich the quantitative analysis but would be an excellent introduction to the qualitative analysis of students' work.

Table 2. Summary of the number of tasks completed by the students with a number of points gained in the tasks

	Number of tasks					
	sw	r	m	ms	$\sum RZ$	$\sum PZ$
G I n	3/3	3/3	3/3	3/3	12/12	9/12
G I k	2/3	3/3	3/3	3/3	11/12	10/12
G II n	2/3	3/3	3/3	3/3	11/12	9/12
G II k	1/3	3/3	2/3	3/3	10/12	9/12

Source: Author.

The modern group solved most of the task (G I n), providing answers to 12 of 12 tasks provided in the questionnaire. This resulted, however in diminish the number of tasks - 9/12 gained by the modern group, in which students were able to score points. It shows that although there was a response by the students in each task, three of them were completely wrong (no points). Perhaps it was due to negligence on the students part, in terms of the selection and processing of information. The conclusion is all the more reasonable that the same result obtained the second modern group (G II n). Students of modern groups, probably enjoyed the quickest harvesting of the information, evidence could be the time of completing the tasks. In conclusion, students working on the basis of Internet sources did the job quickly and effectively enough in comparison to the classical groups. The latter solved a smaller number of tasks, albeit in a qualitative perspective, the task represented done enough quality that only one task in each group was not qualified for scoring points by experts.

The author proposes the following interpretation of the obtained results; effectiveness of quantitative methods of classical and modern stand at a relatively

similar level. In contrast, the differentiating factor could be the quality of content necessary to search by the students. Higher education proved to be the most difficult module (sw), although quantitative data show that the group limited to the classical method fared in this module slightly better than the modern group. Each of the classical groups received points in the module „sw“, and similarly only one modern group scored points. The result is more interesting that like has been shown in time analysis, the latter group had a more modern and efficient tool for collecting data. Perhaps this is due to the specific nature of the tasks, because higher education is a very specialized field, which is not even included in the canons of academic education, therefore, it is very limited from the perspective of online sources and literature.

WHICH METHOD, CLASSICAL OR MODERN IS MORE EFFECTIVE IN OBTAINING QUALITY DATA?

This is the most difficult part to compare because in to the overall assessment we must take into account several important sub-ratings. The data which we will use for this are represented primarily by the number of points that particular groups and groups representing idealized method managed to score.

The first data which is worth quoting is the total number of points obtained by each group for carrying out questionnaire. They are shown in Table no.3.

Table 3. The results of all groups being the sum of ratings of all experts

Group	Module score				Summary score
G I n	3/30	5/30	10/15	14/30	32/105
G I k	5/30	13/30	8/15	12/30	38/105
G II n	0/30	12/30	11/30	22/30	45/105
G II k	7/30	16/30	5/30	12,5/30	40,5/105

Source: Author.

The highest score was obtained by group G II n, while the worst has obtained group G I n. Points difference between the two groups is significant and the difference is 13 points. Both classic groups have ended in the middle with 7 and 5 -point loss to the best result and the difference of 2 points between each of them.

The data presented above is interesting from the perspective of a particular group, but does not resolve the central question which is the qualitative effectiveness of both methods. Therefore, it is appropriate to present the result averaging solely for distribution within the data acquisition methods (Table No.3). The resulting average number of points is as follows: Group Modern - 38.5 pts.; Group Classic - 39.25 points. The difference between groups was 0.75 points. in favor of the classical groups. The result, however, does not provide a basis for the formulation of arbitrary assertions. It is therefore necessary to present further data taking into account the average and total results obtained within the metod (Table 4).

Table 4. The results of the classic and modern groups counted together, being the sum of ratings of all the experts

Group	Average score in module				Average summary score
	6/30	14.5/30	10.5/15	12.25/30	
Classic Group	6/30	14.5/30	10.5/15	12.25/30	43.25/105
Modern Group	1.5/30	8.5/30	6.5/15	18/30	34.5/105

Source: Author.

This way compiled results confirmed the much greater efficiency of the classical method which allowed classic groups to achieve a better result by 8.75 points compared to modern groups. In the author's opinion presented data provides a basis for building some thesis, although not arbitrary claims for any of the analyzed methods. It becomes necessary to present further data on the effectiveness of quality used by the students in the experiment methods. They are located in Table No.5.

Table 5. Point values from the perspective of three levels of complexity of tasks

Group	Value of points gained by students.	Minimal points gained	Maximum points gained	Average score
G I n	Z1 - 3,1,3,7.5	1	7.5	3.63
	Z2 - 0,2,2,6.5	0	6.5	2.63
	Z3 - 0,2,5,0	0	5	1.75
G I k	Z1 - 0,8,3,3.5	0	8	3.63
	Z2 - 5,1,3,5	1	5	3.5
	Z3 - 0,2,2,3.5	0	3.5	1.86
G II n	Z1 - 0,5,5,4,6.5	0	6.5	4
	Z2 - 0,4,5,5,8.5	0	8.5	4.5
	Z3 - 0,2,2,7	0	7	2.75
G II k	Z1 - 7,8,1,5	1	8	5.25
	Z2 - 0,4,5,3,4.5	0	4.5	4
	Z3 - 0,3,5,1,3	0	3.5	1.86

Source: Author.

Conclusive information is contained in the scoring of complexity of task levels. The first level of task complexity (Z1) the results were clear but not conclusive. Using the maximum rating system: G I n - 7.5 pts.; G II n - 6.5 pts., G I k and G II k evenly over 8 points. can be observed that the score differences have a slight advantage over classical method. A slight advantage in favor of the classical method can also be seen using a list of tasks scoring average G I n - 3.63 points.; G II n - 4 points. Groups classic turn: 3.63 pts.; 5.25 points.

Similar results were obtained counting the average number of points achieved by the working group as determined by taking into account the maximum assessment: Modern Group - 7 pts.; Group Classic - 8 points. Then, the average number of points achieved by the working group as determined by taking into account the average results obtained by different groups. After calculating the numbers were: Modern Group - 3.82 points.; Classic Group - 4.28 points.

To summarize the classical group received slightly higher scores at the task level Z1. The advantage of this method occurred in the maximum ratings, ambiguously with average ratings of individual groups and clearly with the average group ratings.

On the second level of complexity (Z2) the results based on a system of maximum ratings were: GI n - 6.5 pts.; G II n - 8.5 pts., GI k - 5 points. ; G II k - 4.5 pts. At this level of analysis the better results obtained Modern Groups. However, using the average grade obtained by each group for the task, we observe that the results of groups hinder the release of arbitrary assessment: GI n - 2.63 points. ; G II n - 4.5, GI k - 3.5 pts. ; G II k - 4 points. It is therefore necessary to provide an average score for the group (based shared on the method) , which were as follows: Group Modern - 3.57; Group Classic - 3.75. Such a small difference point (0.18) in the opinion of the author allows us to conclude that the modern method efficiently utilized allowed us to get more points for a specific task, although the overall perspective, both the classical method and modern identity have emerged equally effective. While their practical efficiency probably largely depends on the students who use them.

At the third level (Z3), which is the most complex, and therefore the most highly valuable element of academic education, the results based on a system of maximum ratings are as follows: GI n - 5 points.; G II n - 7; GI k - 3.5 pts.; 3.5 points. Apparently showing a significant advantage over classical modern methods. Wrong reading of the data disappears when complemented with, as before, the above data, a list of the average score for the task of 3rd degree: GI n - 1.75; G II n - 2.75; GI k - 1.86; G II k - 1.86. and the average score for the task from the perspective of which method the groups were handling: Group Modern - 2.25; Group Classic - 1.86. Slightly better in this respect (0.39 pts.) Turned out to be the modern method.

In summary, the modern method is slightly more effective in the second and third levels of complexity of tasks contained in the questionnaire. In contrast, the classic method is more helpful in solving the tasks of the first level of complexity (footnote: requiring the least mental effort and creativity).

SUMMARY OF THE PILOT STUDY

The results of the pilot study, though in some cases ambiguous, led to the formulation of the final assessment on the effectiveness of the classical and modern method in academic education. Modern methods allow faster execution of the tasks of medium and high complexity in comparison with the classical method, giving way only on the canvas of tasks with the lowest degree of complexity. This result coincides with the general trend that can be observed in higher education around the world. In this trend which shapes the teaching processes in higher education, the emphasis is put on rapid acquisition and processing of the information, which the author wrote in the introduction to this article. What is very important in some cases high speed and quantitative results of modern groups do not translate into the quality of all the work done by students using this method. Initially, the above data concerning the number of points obtained (Table No.2. and 3), although only at the level of the average score of both groups showed a significant advantage to the classical method. This means that this method promo-

tes a better quality of performance of students, albeit at the expense of time that must be paid to the cloth of action.

Comparision of methods constituted not real but hypothetical confrontation between the two sources, based on which strategies can be designed to acquire information by students. The value and effectiveness of the Internet in the present time, in academic education is indisputable. As one of the elements of Western culture, deservedly and relatively naturally has become a central element in processing, manufacturing, distribution and exchange of information in the academic world. More utilitarian useful, embedded in social trends and needs of technical progress than physical academic library collections. The author, however, allows himself to put forward the thesis that, the cultural impact of the Internet, violently implemented in the process of academic education, may reduce its general and overall sense of value, as evidenced by the data presented above.

THE MAIN RESEARCH STUDY

The conducted pilot study proved to be valuable in order to apply the necessary changes to the main study. Not only did it allow trial of the research tool, confirming its usefulness and effectiveness, but also it had a contribution to construction of the following research issues needed to be resolved in order to build a comprehensive vision of the problem which is the value of the Internet in academic education in Poland.

The main study was conducted 07/11/2013 in VSHS name of Witelon in Legnica. The Pilot study was created upon artificial conditions of work, creating two perfect types of sources on which students work. Whereas the actual survey was designed to check the real quantitative and qualitative differences in terms of content acquired by the students. Taking into account all modern strategies of acquiring information, available to the students, creating thus the following qualities (in parentheses codes and names of the groups):

- Quantitatively unlimited physical library collections + unlimited virtual collections of Internet (Experimental Group Ebi - library - internet);
- Unlimited physical library files (experimental group Eb - Library);
- Unlimited internet sources (experimental group Ei - Internet);
- lack of access to any sources, operating solely on the basis of their own experience and knowledge (control group Kbz - anti-source).

Each of the above were assigned to a randomly selected, separate, group of students, creating in turn a control group, named for the test anti-sources (all students have the same feature sets, which is the access to their own experience), and three groups marked as experimental. Each group was implemented as with a specified variable: internet, library, or both sources simultaneously. This solution resulted in the re-integration of previous organizational arrangements which result as follows:

1. the experts have been left unchanged;
2. the number and content of the tasks constructed by experts have been left unchanged;
3. author imposed a system of evaluation for students' work to the experts, limiting it to 10 point scale, taking into account only partial points;
4. left three - stage level of complexity of the tasks;

5. amount of time to complete the task was limited to one hour, as in the pilot phase, the students too quickly coped with the tasks In the questionnaire or were temporarily too tired to maintain a uniform level of motivation; time has been utilized as a variable to generate pro - creative pressure on the students in order to complete tasks, with the author's assumption that they will not be able to perform all the tasks provided in the questionnaire, which also directly indicated the most effective method of obtaining information;
6. all groups were physically separated from one another;
7. each group had an invigilator with an unchanged scope of tasks;
8. study subjects were students VSHS name of Witelon in Legnica, who are studying on the second-year undergraduate level of pedagogy, as a course of study.

THE RESULTS OF THE MAIN STUDY

The structure of presenting the results from the main test will be similar to that which the author applied for the pilot study. However, with one significant exception, namely, the author deleted the averaged results and the distribution of the opposition: control method - experimental methods. This is due to the specificity of the experimental methods that can be quantitative and qualitative representations of themselves but not on each other as a whole. Generalizing the results within experimental methods would be in the author's opinion considerable abuse, due to lack of contact points within the tools which the students used working in the concerned groups.

The basis for conclusions or theses are the results obtained by different groups, after performing the tasks questionnaire. These data are shown in Table No.5.

Table 6. Points obtained by the groups during the main test

Group/Expert	Expert I (sw)	Expert II (r)	Expert III (m)	Expert IV (ms)
Ebi	Z1-2	Z1-5	Z1-10	Z1-10
RZ:1h	Z2-0	Z2-6	Z2-9	Z2-10
	Z3-0	Z3-1	Z3-0	Z3-4
Eb	Z1-0	Z1-8	Z1-0	Z1-2
RZ:45m	Z2-0	Z2-6	Z2-9	Z2-0
	Z3-0	Z3-6	Z3-8	Z3-0
Ei	Z1-0	Z1-2	Z1-10	Z1-8
RZ:40m	Z2-0	Z2-5	Z2-9	Z2-7
	Z3-0	Z3-8	Z3-3	Z3-6
Kbz	Z1-0	Z1-5	Z1-4	Z1-6
RZ:45m	Z2-2	Z2-6	Z2-10	Z2-6
	Z3-0,5	Z3-7	Z3-0	Z3-6

Source: Author.

Group Labelling: Roman number - group number, K - control group, E - experimental group, RZ - the time of execution of work; Experts designations: Roman number - the number of expert; letters after the number - the indications of specialization expert, s - higher education, r - family, m - methodology, ms - social marketing, bi - Internet library, b - Library, i - web, bz - anti-source.

WHICH METHODS ARE MORE TIME EFFECTIVE IN COLLECTING DATA?

Similar to the pilot phase, the students after the completion of their tasks, in the questionnaire, (or in inability to complete their tasks), had to mark the time of ending of their work. The results are as follows: Ebi - 1h; Eb - 45m; Ei - 40m; Kbz - 45m. Best time acquired group: Ei, while the worst Ebi. Time differences between the groups are 15-20 minutes. Interestingly Ebi group had no restrictions on sources of information, the students benefited from both the unlimited resources of the Internet, as well as a variety of physical sources gaining the worst result. In contrast, the group Kbz, having no access to any source had a score of only 5 minutes worse than the best result. Perhaps the poor outcome of Ebi group, was caused by the fact that the number of sources, from which they could use, surpassed their selection abilities. Instead focusing on the tasks they focused on the selection of content for execution of their tasks, and the implications were the consequences in time result. The data, however is sufficiently clear that they allow to formulate the base thesis that some methods in certain groups have proven to be more efficient in time, allowing for faster execution of the tasks provided in the questionnaire.

WHICH METHODS ARE QUANTITATIVELY MORE EFFECTIVE IN OBTAINING DATA?

A necessary addition to the above analysis of the efficiency of time is a quantitative analysis. Representation of the effectiveness of the described and compiled methods will be the number of tasks completed by students in groups. The results are as follows (the number of completed tasks/number of tasks in the questionnaire): Ebi - 10/12; Eb - 7/12; Ei - 9/12; Kbz - 11/12.

The best result obtained Kbz, which is very important, the students in this group did not have any benefits from any virtual or library source, basing their answers on their own experience and knowledge. The second best result belongs to Ebi, who had access to two types of sources and used them as indicated by this result very effectively. However, as shown in the time analysis, high score in the amount of completed tasks, was achieved at the expense of time, that was given to their implementation.

The worst result obtained Eb group, having access only to the library physical files, which represented the classical method, which was tested at the pilot stage of study. Again, the theory has been confirmed that the classical method is the least quantitatively effective. At the same time confirming an earlier proposed thesis of the greater efficiency of the quantitative methods used by the Ei group (based on Internet sources without any restrictions).

Just as in the pilot stage of the study, the valuable source of information is the table containing the number of completed tasks by the each group, supplemented by number of tasks, scored by the experts. This will again make a quantitative analysis and a smooth transition for qualitative analysis undertaken in the next section.

Table 7. Number of tasks solved by students

	Number of tasks solved by the students					
	sw	r	m	ms	ΣRZ	ΣPZ
Ebi	1/3	3/3	2/3	3/3	9/12	9/12
Eb	0/3	3/3	2/3	1/3	6/12	6/12
Ei	0/3	3/3	3/3	3/3	9/12	9/12
Kbz	2/3	3/3	2/3	3/3	10/12	10/12

Source: Author.

Legend: ΣRZ - the sum of solved tasks; ΣPZ - the sum of scored tasks by the experts.

To summarize, the most effective method, in the perspective of how many problems have been solved is Kbz, in which students are forced to use their own knowledge resources. Not only does it motivate them to work harder but it is channeling their efforts on solving specific problems, also it created the need to effectively manage their time to solve the task. This method resembles the work in American schools in the 90's. They were based on the experimental method of John Dewey, which imposed on pragmatics action (fast and efficient completion of tasks) on the value of intellectual property.

Also worth mentioning is the method used by the group Ebi using standard sources enjoyed by the students in order to carry out the tasks given to them at the university. It is a very quantitatively effective method, although requires on the part of students more experience, force and resources (skill selection of information and the organization of work).

WHICH METHODS ARE MORE QUALITATIVELY EFFECTIVE IN OBTAINING DATA?

The most informative and valuable part of the study is qualitative analysis. Similarly as in the pilot study, in order to formulate general conclusions, it is necessary to break down the analysis into several sub-problems, namely: number of points gained regarded as the total score, the number of points having three degrees of complexity of tasks including the minimum, maximum, and total averaged scores. The scoring results obtained by the research groups are contained in Table No.8.

Table 8. The results of combined experimental groups

Group	Module score				Summary score
	sw	r	m	ms	
Ebi	2/30	12/30	19/30	24/30	57/120
Eb	0/30	20/30	17/30	2/30	39/120
Ei	0/30	15/30	22/30	21/30	58/120
Kbz	2,5/30	18/30	14/30	18/30	52,5/30

Source: Author.

The best result was recorded by the Internet group, yielding a result at the level 58 points out of maximum 120 points. The worst result was recorded by the library group, reaching a score of 39 points out of 120. Also interesting is the high result anti-source group, which received 52.5 points out of the maximum 120 points.

High (from the perspective of all the groups) the result of the Ebi group, should not be surprising. This group not only had access to all sources in the experiment, in addition it spent the most time on completing tasks from the questionnaire also solving a relatively large number of tasks. The confirmation of the above conclusion is the scoring points in each thematic unit that group achieved.

An interesting situation arose in the case of the website group (Ei), which used a method defined in a pilot study as modern. The Internet has proven to be the most time efficient source of all and it allowed the group to get the best quantitative result with the quality of the work remaining high.

The worst result denied the conclusions from the pilot study. Providing conflicting data on the low quality of the physical library resources in resolving the tasks in the questionnaire. The relatively fast time execution recorded, resulted probably, from the resignation of the group of students to accomplish all tasks. The need for tedious queries from literature and the lack of experience needed for this (it is worth recalling that they were students of the second year of undergraduate studies) resulted in the worst result of quantity and poor quality of work that have been produced.

Anti-source group managed surprisingly well. Lack of access to any of the resources and the need to rely on their own experience, probably acted as motivation. The group completed tasks assigned to them relatively quickly, scored points in 10 of the 12 tasks of the questionnaire, and the quality of work produced by students in this group, in comparison to others, remained high.

Added to this analysis is the summary of the results obtained by each group having three levels of complexity of tasks. The results are contained in Table No.9.

Table 9. The results of groups depending on the level of complexity of the task in the questionnaire

Grupa	Point values per task including level of the tasks	Minimal number of points gained	Maximum number of points gained	Average number of points gained
Ebi	Z1 - 2,5,10,10	2	10	6.75
	Z2 - 0,6,9,10	0	10	6.25
	Z3 - 0,1,0,4	0	4	1.25
Eb	Z1 - 0,8,0,2	0	8	2.50
	Z2 - 0,6,9,0	0	9	3.75
	Z3 - 0,6,8,0	0	8	3.50
Ei	Z1 - 0,2,10,8	0	10	5.00
	Z2 - 0,5,9,7	0	9	5.25
	Z3 - 0,8,3,6	0	8	4.25
Kbz	Z1 - 0,5,4,6	0	6	3.75
	Z2 - 2,6,10,6	2	10	6.00
	Z3 - 0,5,7,0,6	0	7	3.38

Source: Author.

Among the tasks of the first stage (Z1) the best average result was obtained by group: library - Internet - 6.75 (Ebi). Taking into account the previously presented

data and conclusions this result is not doubtfull, the group Ebi had guaranteed access to all sources in the experiment, devoted much time to the realisation of the project, yielding significant quantitative result and the highest score point.

In contrast, the result of an online group - 5.00 (Ei) also logically proved the effectiveness of the tool which is the Internet in resolving the tasks in the questionnaire, which perhaps, was not so clearly demonstrated in the pilot study. Quick access to data with low complexity resulted in rapid implementation of tasks and an important result in quantitative and qualitative terms.

The lowest score of the Z1 received group Eb, whose main source of information was the physical library collections. This is a logical connection to the previously obtained results, namely low-performing quantitative and qualitative work.

On the second level of complexity (Z2), the best average result was obtained by Ebi - 6.25 and Kbz - 6.00. In the case of Ebi group, the factors that favored the implementation of tasks on the first level were also crucial to the second level. Difficult to explain is, however, the result of the Kbz group. Z2 tasks were designed to force the students to find and the selection of the information required in the resolving problems. Perhaps the experience of the students were already rich enough that they possess partially a single view, which minimized the need for the selection of information and allowed the group to focus on the content necessary to perform the tasks, which is also confirmed by the highest score point.

While the worst outcome again, at the level of the Z1 obtained library group - 3.75 points. Library collections again proved to be the least effective tool for gathering information. Key was the low engagement of the group (premature completing the quests) and lack of experience in the classic academical work¹⁴. Students represented one generation (1993) and one group within the study. Better results are obtained by the group library - Internet group and the Web group, show that these generation of students are better at solving tasks when they have access to the Internet or simply have a freedom of choice.

The highest degree of complexity of tasks (Z3) has provided a very interesting and ambiguous set of data to interpret. Firstly this is due to the highest score obtained by the Internet group (Ebi). We should return to the results of the pilot study in which appeared slightly higher value of the Internet, as a source of information, data or definitions, that need to be creatively selected and processed. In this case there is no difference. The only variable that allows for a different interpretation of this result is that obtaining a high quantitative score, went also qualitative aspects and factors¹⁵.

Surprisingly low is the result of the library - website group, which theoretically represented the closest to the reality of the system work of students. Based on physical and virtual sources, caused that the group to complete its activities noting, at the highest level of complexity of the tasks, the worst score among all groups. Maybe

14 Evidenced by the high total score obtained by the students of the second year of Master's Degree in the pilot study.

15 Perhaps this is due to the different kind of academic socialization. Students on the masters degree, engaged In the pilot study were aged 24-25 years, so the author can assume that during their entire educational process, from the earliest stage to the time of study books and classic library work were more dominant. Unlikely in the case of the main test where the students were aged 19-20 years, the socialization process within educational institutions could be different, and the Internet as a source appears to be, for that generation a better base, a more user-friendly and more efficient source resulting in concrete practical consequences what has been demonstrated in the research.

simultaneously work on the basis of physical and virtual sources can reduce the initiative for creative work, dispersing the attention and effort of the whole group, eventually resulting in its low value in the authorship context. Partially it confirms the result obtained by the library, web and anti-source groups, which recorded a minimum of twice a better point values.

The most effective qualitative method in solving questionnaire tasks, was represented by the website group. Which source of the work had only been the unrestricted access to Internet resources. High efficiency also recorded the library - internet group, working on the basis of mixed sources and also the anti-source group, basing only on their experience (control - Kbz).

SUMMARY OF THE MAIN TEST

Among the most valuable methods specified by the author from the perspective of academic teaching are:

- A method of combining sources of information in the form of the Internet and the physical library collections,
- Web method, referred to as a modern,
- Anti-source method, in which students must use their own resources, knowledge, skills and creativity.

In order to illustrate the differences and selecting the best method, the author proposes the following tabulation; Using the three-stage scale (Low, Medium, High) there will be specified levels of efficiency based on: time, quantity and quality. Ratings, which represents the level of the actual result, made it necessary to create compartments of point for each indicator used by the author. In the author's constant reference point to evaluate the performance of the proposed scale are the actual results achieved by the group, especially when it is possible to determine the results of the weakest and the strongest.

In the case of temporary criteria the author has identified the following time periods: 1-40 minutes - High; 41 - 50 minutes - Average; 51 -60 minutes - Low. The ranges for the quantitative efficiency are as follows: 1 - 7 tasks - Low; 8 - 10 tasks - Average; 11 - 12 tasks - High. The ranges for the quality criterion required adoption of a single criterion on which were established ranges. The most important criterion adopted by the number of points scored. Point ranges are as follows: 0-46 points. - Low, 47-52 points. - Average; 53-58 points. - High.

Then, in order to quantify the resulting ranking of each level is assigned a numerical equivalent: Low - 1, Medium - 2 High - 3 As a result, it is easier to evaluate the obtained data who is not condemning the far-fetched interpretations.

Table 9. Summary of methods along with the final evaluation of effectiveness

Method/ Efficiency	Time	Quantity	Quality	Ending Score
Ebi	Low	High	High	7
Ei	High	Medium	High	8
Kbz	Medium	High	High	8
Eb	Medium	Low	Low	4

Source: Author.

Established ranking shows that the most effective methods of obtaining the information necessary to perform the tasks in the questionnaire are, at the academic level, methods which are based on virtual sources or are based on the absence of any sources, thus allowing students to free intellectual work.

The most ineffective both from the perspective of teaching as well as methodical method is that based on only library resources. Its potential is possible with the right kind of socialization of students, quality of student experience and the lack of other sources that could distract and reduce the motivation of students.

SUMMARY AND CONCLUDING REMARKS OF THE AUTHOR

The experiment provided an interesting and important research material. The obtained data not only refuted the myth of the high value of traditional or classical academic teaching but also demonstrated the real value of the virtual source as an essential complement of the academic process of education. Surprising was the high value of the individual work of students who are deprived of access to the internet sources. Scores showed a similar degree of effectiveness of that group in the implementation of tasks as the best group participating in the experiment. Perhaps the classic academic teaching should be used only to supplement the work of students directing their main attention, efforts and resources on unexhaustable resources of the virtual world and their self - directed intellectual work. Although the author due to lack of experience and authority in this field of knowledge does not want to take arbitrary voice in the above case.

However, in the light of obtained data, physical resources of the library appear to be a less effective source of knowledge for novice students, which not only charges financially the budget every university in the country and the world but also creates and sustains the social myth of the over pragmatic sense of the library, book, article or letter, a myth that does not stand up to the realities of the present world, that reality requires selected and high-speed access and data distribution. Despite these weaknesses, however, it is worth mentioning the library as a source, but as one of the alternatives to academic education. The more often they are used by the students, the more they become a valuable addition to the information that students usually seek on the Internet. The basis, on which they only begin their search. Academic education moving partially into the world of virtual network means that there must be sought the value and the future of it. The weakening potential of library sources could be reinforced, if all physical materials in libraries have their electronic representations, and what is very important, can be easy to use and access.

Separate discussion requires experiment itself as a researching method. That led the author to formulate some proposals for future practice researchers, who want to join in to the same trend of research. I want to point out that these are the conclusions of the author himself and, as such, may be only a fractional complement to the knowledge about the experiment as a method of research, and they take no arbitrary power, because the experience of practicing the method of the experiment may be different for each researcher:

- Each designed experiment should be consulted, discussed and implemented in a confrontation with a third party developer, although familiar to the subject and method of research¹⁶;
- Each experimental study should be preceded by a pilot study that not only confirms but can overthrow and identify erroneous assumptions about the methods, techniques and tools used in the experiment;
- Each experiment should be carried out in a team with at least one researcher firmly embedded in that method of research¹⁷.

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With the internet - Projects

