

BUILDING PROGRAMMING AS AN ELEMENT OF CHANGES OF THE CULTURE OF AN ORGANISATION

Agnieszka BUGNO-JANIK

Faculty of Architecture, The Silesian University of Technology, Akademicka 7, 44-100 Gliwice, Poland

E-mail address: agnieszka.bugno-janik@polsl.pl

Received: 9.11.2007; Revised: 20.11.2007; Accepted: 24.01.2008

Abstract

The main objective of the research was the creation of a functional programme for possible extension of the building of Faculty of Architecture, Silesian University of Technology. At present the building is not sufficiently adjusted to serve even its fundamental function- didactics. In the process of participative preparation of the functional programme another essential objective of the research was revealed – the need of systematic change in the functioning of our organization. The participation of our students in the process was very effective, as they played the role of the co-authors of the programme as well as the role of the users of the building which was subjected to the programming process.

The process revealed many important aspects in the culture of organization and the ways in which the changes could be implemented. The participative programming is a great opportunity for setting the preferred direction of the changes in the culture of organization, as so far the students' role has been marginalised or even disregarded, which prevailingly results in a specific characteristics of the functional space of the Faculty building, where the students' needs are not considered. The outcome of the process is a new functional programme submitted to the Dean's Council, together with an indication of revaluing the role of the students by recognising their importance as responsible participants of the process of change.

Streszczenie

Celem badań było stworzenie programu funkcjonalnego dla planowanej rozbudowy budynku Wydziału Architektury Politechniki Śląskiej w Gliwicach. W obecnym kształcie budynek nie spełnia wymagań nawet swojej podstawowej funkcji – dydaktyki. W trakcie procesu programowania budynku opartego na partycypacji ujawnił się inny zasadniczy cel działań: konieczność wprowadzenia zmian w sposobie funkcjonowania organizacji. Partycypacja studentów dała w procesie oprogramowania zaskakująco dobre efekty, występowali oni bowiem w podwójnej roli autorów i użytkowników obiektu, co zwiększyło ich zaangażowanie. Proces programowania odsłonił wiele ważnych aspektów kultury organizacji oraz pozwolił określić możliwości wprowadzania w niej zmian.

Keywords: Building programme; Spatial analysis; Building brief; User participation; Changes in culture of organisation.

1. INTRODUCTION

1.1 Programming of buildings – differences between the traditional and modern approaches

The programme of a building, compiling all the rooms essential for its functions, including the furnishings and considering specific requirements of definite users, constitutes the basis of every architectural design. Until recently in Poland this term was understood as a set of requirements provided to an architect by an investor's representative (in case of institutions commissioning a design of an office building, the rep-

resentative was, for example, a company board member appointed for contacts with the design architect) and supplemented by the latter with legal, technical and functional requirements along with the architectural concept devised in accordance with the architect's knowledge and professional experience.

However, in view of Polish and international experiences concerning the use of buildings designed upon such concept, many essential elements, seemingly untypical or too obvious, as they stem from the specific situation of the prospective users, may not have been considered in the design process.

In the traditional approach, the user of the building is perceived as an anonymous party and his activities performed in space as typical. The need to create a new building results from a definite problem associated with its use – usually this concerns the insufficiency of space in relation to the user’s needs. Such traditional approach to the construction of the program of the building often ignores an essential fact – the problem perceived as the most inconvenient one turns out to be only apparent, or, conversely, is just a tip of an iceberg.

The architect who constructs the programme in a traditional way, is focused on compiling the list of rooms with definite floor area and cubature. Thus, the programme describes a given organization in its present form, treating it as a three dimensional machine with movable elements of various size, operating in a repeatable manner. Yet, such programme should also describes a situation that may occur later – after the building will have been constructed and commissioned to operation, which usually lasts a few years. The time between the emergence of the need for a new building and its completion and readiness for habitation or use is regarded by the designer and the users as transitory: difficult in view of inconveniences and additional burdens connected with the ongoing construction, yet, often ignored as far as changes from the user’s perspective are concerned. “The transitory period” is expected to pass as soon as possible. It becomes a “time gap” – we know why a new building is required and imagine how the organization will function in it. It would be best if during that time, the user’s situation remained unchanged, as, otherwise, the building shall not “match” the expectations. It is indisputable that architects who prepare functional programmes should recognize the importance of analysing the strategy of the organizational development of the prospective users of programmed buildings. However, it is still disputable if the organization is going to perform in the manner forecasted by its managers.

Surely, the designer of a traditional programme tries to predict changes in the future functions of the building by creating space organized in a flexible way, but the emerging structure is usually fit for the situation that does not exist anymore.

These days it is more and more common to focus on the fact that the situation of the future users of the building at the programming stage, as well as at the transitory stage is changing, which means that the user changes accordingly.

If we abandon a modernist approach and admit that

an organization is not a machine but a living social organism, subjected to continuous change in response to need for adjusting to external conditions (social, cultural, economic) and to internal circumstances of its own growth, we will come to the conclusion that a static image of the situation (traditional programme) does not depict such specific changeability of a living organism.

Modern programming of buildings is founded on the practice of Facility Management, i.e. managing the functionality of buildings. The practice is an outcome of comprehending the fact that a building, although being a “dead skeleton” of live processes that occur therein, may respond to changes in a more flexible way. The modern approach to programming is focused on understanding the nature of the changes that occur within the organization seen as “processes of life”, i.e. predictable or possible to plan only to a certain extent.

Modern architectural programming, understood as an iterative process of pre-design investigation provides a profound insight into users’ conditions and needs.

Accordingly, methods enabling the analysis and explication of the functioning of organizations play a crucial role in modern programming.

1.2. Users participation as a principle of modern programming

In numerous cases, upon professionally made analysis of spatial management of an existing building, it is possible to solve its problems without the necessity of constructing a new one [1]. Frequently, thanks to treating programming as an analytical process of investigating the relations among users, designers and consultants in a definite period of time, it is also possible to grasp **the nature of the changeability of the user’s organization** [2]. The process of the emergence of the building is not separated from other processes taking place in the organization but on the contrary, constitutes one of many factors that transform it. If the users understand that the processes are continuous and interrelated, it is easier for them to move on to new space without any shock connected with, for example, change of the workplace environment. Thanks to prospective users’ participation in the programming process it is easier to detect their specific needs and, first and foremost, to prepare them psychologically to the new conditions (according to the author’s research practice, affluent and enlightened organizations offer psychological training to their employees). In many cases, employees moved to a new building that offers improved work-

ing conditions feel worse, because the change of location and organization of space is contrary to their habits. This may even lead to conflicts between employees and their employer that can be prevented – a design architect, while programming, should not only imagine the users' situation but should contact and consult them in many ways, securing better identification of their needs and helping them to participate and prepare to their new situation before the changes take place.

1.3. Programming as a catalyst of change in the organization's culture

The proposed method of participative formulation of the programme of the building has already been adopted as an obligatory element of the design process in many countries. The author's contribution to the method consists in profound insight into the programming process as one of the **factors that transform the culture of an organization**. This could play a tremendous role in the face of the transformation of numerous Polish institutions – change of the organizational culture with simultaneous creation of adequate built environment that shall support new cultural qualities and catalyse further development (events occurring one after another and traditionally connected by the cause and result relation become correlations in time).

1.4. Culture of an organization

The culture of an organization is a type of psychological environment in which the employees function. Its material counterpart is the building. The culture can be created consciously and adequately to the social context in which the organization operates, to the way it functions and to its needs, being a kind of "interpersonal binder" resulting from the quality of the relations among the members of the organization. Good quality culture is required for the creation of an efficiently functioning organization – in a friendly atmosphere people work better, feel better and identify with the organization. Such identification with the organization and its values facilitates the achievement of the organization's objectives, because it stems from the employees' motivation.

To safeguard proper quality of the organizational culture it is required that the declared and cultivated values are cohesive with the symbolic content of architectural objects: intangible values, beliefs and concepts have their material equivalents in the architecture of the building, for example, in its internal space arrangement.

2. CASE STUDY – PROGRAMMING A BUILDING FOR THE FACULTY OF ARCHITECTURE, SILESIAN UNIVERSITY OF TECHNOLOGY IN GLIWICE

2.1 Problem: lack of cohesion between the built environment and the organization's values

The building of The Faculty of Architecture, Silesian University of Technology, was constructed about 30 years ago. It was designed as an office building – the seat of the Rector's office and university administration. In its functional structure it contains symbolic information about the users' structure: corridor office – corresponding to hierarchical, cellular structure of administration agencies, the spacing of the poles corresponding to comfort solutions of office space for senior administrative staff in a big organization. The history of this building is a good example of the faults in a traditional approach to the programming process for a big institution: instead of remaining an office building, upon the foundation of the Faculty of Architecture it was partly adjusted for teaching purposes, without the implementation of essential changes. At that time there were about 150-200 students of architecture (30 students on each year) which posed no difficulty in accommodating them in a typically office space. The arrangement of the rooms, apart from classrooms and office facilities, included half-open recreation spaces, in which students could perform functions other than didactic. However, the nature of the building was legible as an office facility, far removed from the needs of interpersonal contacts typical of academic institutions.

In the late 1980s the number of students increased fivefold – up to 100-150 students per year. The number of the teaching staff rose in proportion. It is since that time that the decline of the quality of the teaching/learning conditions has been observed in the building. Most of the recreation space was converted to rooms for teaching staff or classrooms.

Until the mid 1990s the Faculty used specialist facilities at the Faculty of Civil Engineering – lecture rooms, drawing and painting workrooms. However, due to the subsequent organizational and relocation changes, problems in locating specific didactic activities in unsuitable space of our building became more and more pressing.

2.2. The structure of space and the quality of organizational culture

The framework which the building provides for social

processes occurring in an organization, has a big impact on the formation of interpersonal relations among its members. The conditions of constructing the functional programme for the planned development give a good opportunity for assessing if the current relations in the organization are worth being reconstructed in a new building, or, if the programming should be focused on the restructuring of the organization's social system.

Yet, the main point is not the change of the organizational structure, which, in this case, is uncomplicated, flexible, unquestionably specific to universities. What may be modernised, however, is the organizational culture in such range as to create basic frames for treating the needs of some users as less important than other considerations, as they have been deemed impossible to satisfy anyway within the existing location facilities. The repressive attitude of organizations towards their weakest elements is still a specific feature of Poland's previous political system. The transformations towards citizenship society compel essential changes in public institutions, especially those that educate architects. The latter should be trained in such environment and atmosphere that sets objectives for the social transformations in Poland.

The two main groups of the users – students and university staff make up fundamental relations in the internal community, resulting from the performance of one of the two essential objectives of this organization – the didactic process. Currently, this relation is based on domination and not on cooperation, although it is matter of generation change taking place in the university authorities.

Depending on the latter's will, as it is the authorities that shape the character and create the values system, the relations between the two groups of users may be directed otherwise. In the traditional approach, students occupy the lowest level in the organizational hierarchy, subordinated to academic teachers and administrative staff. Such viewpoint, in spite of formally existing tools enabling students' participation in the decision-making process, results in the marginalisation of the needs of the biggest group of the users of the building.

On the other hand, if we consider the role that students play in educational institutions from the external point of view, it may turn out that their situation should be perceived as not the most subordinated group in the system, but as a formative one (especially for an institution where research does not enjoy sufficient financial support and the existence of which depends on educating students under the competitive

conditions as new educational institutions enter the market).

By treating students as customers of the university, we create an alternative way of perceiving their role; they still remain at the bottom of the decision making ladder, but their importance to the existence of the institution becomes a priority. The quality of servicing students as customers is nowadays a priority for university institutions, and, accordingly, the main task to be accomplished by the university building, as the students constitute the most important group of its users.

2.3. Elements of the programming process

The most essential element of the programming process, understood as an element of implementing changes in the culture of a given organization, was an attempt at exposing the importance of the way of understanding the students and their position in the organizational culture. At the same time, while exposing the changes in the quality of the organizational culture, the programme is capable of describing the manners of functioning of organizations that have already undergone the cultural change.

Nowadays, one of the most commonly indicated spatial manifestations of erroneous building performance in view of the organization's needs is the insufficiency and inadequacy of the teaching facilities in comparison with the requirements of specific activities. A more detailed description of the problem is presented below.

Due to office-like character of our building some basic forms of teaching activities are conducted under substandard conditions.

The most important drawbacks in sustaining the required standards are:

- **the rooms are too narrow**, it is impossible to arrange space for lectures or drawing and sculpture class for more than 60 students at the same time (visibility, acoustics, ventilation, fire protection do not meet the required standards and rules of ergonomics)
- **congestion and insufficiency of workplaces for students**. Design classes that require a lot of time and place due to the size of drawings (A0, A1) take place in congested classrooms containing several student groups at one go. The acoustic conditions are very difficult for teachers and make it difficult for students to work efficiently. The floor area in the building is almost wholly used for teaching and staff work. The students waiting for another class or for consultation appointments have no place for design work, so they occupy any free place, mainly the canteen.

- **the building does not comply with the standards concerning the disabled** – the stairs have no ramp, and there are no toilets for the disabled. This poses an ethical problem as far as teaching is concerned: students of architecture should be especially sensitive to the problems of the disabled, whereas the building where they study is an example of a bad, even arrogant attitude towards this issue.
- **the working conditions of the teaching and research staff**; due to the combined functions of research and consultation rooms, it is impossible to perform activities that need peace and concentration. In most Faculty Departments the workplace is adjusted only for consultations, so research works must be conducted elsewhere.

Certainly, the problems are noticed, first and foremost, by the Faculty staff, as they are inconvenient for teachers. But the students also indicate the functional inadequacy of space, yet, from their perspective there are other zones, not directly connected with didactics, that pose problems. The students' activities are not only focused on learning, they need to develop interpersonal relations which, in future, shall be translated into the life of their professional environment. The importance of social relations is recognized even by the youngest students who state that it is time to stop reciprocal "elimination" from the job market, unfair competition and individualistic ambitions. Cooperation and team work perform well all over the world and contribute to healthy psychological atmosphere. By learning how to cooperate and by building friendly relationships among students, we will change the environment of architects in the nearest future.

The fact that our students realize the importance of this sphere of human life and, facing the challenge of our time (contrary to the beliefs of previous generations), bring up the issue of building a healthy professional environment is really inspirational and in consonance with the concept of citizenship, based on creating proper space for people from all walks of life.

Some of the students' comments are quoted below:

"Students are forced to flock in rooms unsuitable for the type of class. There are no conditions for receiving guests or organizing lectures of eminent architects. The classrooms have poor acoustic protection, and no possibility of darkening. Also, work organization calls for changes. The form of design classes should be altered to enable the efficiency of work. We propose obligatory consultation hours, the dates of which should be agreed with the students. There should also be some accessory facilities where we could work on our projects and designs. The disre-

gard for our time is a serious flaw, having a negative impact on our efficiency" (Dorota Kniżewska speaking on behalf of her student group).

Other comments:

1. It seems insignificant – absence of signs on particular floors – although I have been studying here for four years I still must check the room number to make sure that I am on the right floor.
2. Waiting – on poorly lit corridors – eats up our time, whereas outside it's a beautiful day, but we sit in dark corridors in artificial lighting and we all complain about being stuck here.
3. For me it is a big inconvenience that there are no locks for our personal belonging – I often have something to leave at university for the next day and if not for the kindness of Magda (shop runner) I would have to carry it home and back here.
4. The library – it has no novelties such as Taschen. The Press is updated, that's true, but the books... The books are so expensive and you need to use them only occasionally, while looking for inspiration; it would be ideal if we had the opportunity of browsing through the books in the library. Although recently I have been very lucky to spot a "pearl" – a brand new book about modern designs.
5. The collection and disposal of our work – we would be willing to have them back when the staff don't need them any more (Barbara Urbanowicz).

The above comments have been selected out of very many descriptions collected in the course of the analyses focused on formulating the programme for our Faculty building.

2.4. Strategic plan as the basis of the programme for our Faculty building

There is a **strategic plan of changes implementation** formulated within the framework of the programming process with the following objectives:

- improvement of the conditions of teaching
- improvement of the conditions of work and stay of our students in the building
- change of the mode of work of the Faculty staff, to use the space more efficiently and organize their work time predominantly in consideration of our students' needs, which is a sign of respect.

The analyses of the organizational, functional and technical conditions of our Faculty building indicate that it is possible to eliminate some problems and to improve the teaching conditions by changing the way in which the building is used. However, the activities

that are spatially different from office-like nature of the space of our building and that are essential elements of the didactic process, should be located elsewhere. The same conclusions may be drawn from the analyses of the building capacity conducted by our students by means of their own methods: overcrowding the classrooms and some staff rooms, emphasising the need for new facilities supporting other functions essential to provide modern means of instruction.

The sequence of the implementation of changes depends on the predicted technical and functional capacities of the building, but also on financial factors (investment outlays at our University's disposal) and on shaping social relations. It has been assumed that all members of our organization are equally convinced of the need for change – for some of us the changes will be inconvenient and the organizational culture will be definitely more demanding. Therefore, the spatial changes shall be implemented gradually, starting with those that ease all of us, and finishing with the most demanding ones, which should alleviate psychological problems involved in culture change and human relationships quality.

The following stages have been assumed in the strategy:

1. Construction of a new auditorium and seminar rooms with supporting facilities. This will improve the uncomfortable conditions in the classrooms – ease for all.
2. Creation of “thematic rooms” for students in the existing building – making it possible for students to spend the in-between time on doing something useful and effective (also creating favourable conditions for the development of interpersonal relations) – ease for the students
3. Construction of a new workshop facility – more specialized artistic classes require flexible space adjustable to specific activities – ease for the teaching staff and students, additionally, it will reduce the occupancy of some rooms in the existing building.
4. Reorganization of the ground floor of the existing building and adjustment to the functions focused on students and their needs (the Faculty staff occupying some ground floor rooms will be moved to the new workshop part) and creation of “didactic floors” characterised by dynamic ways of space division, facilitating the organization of workplace for team work. Such solution will ease the students but will also alter the system of workplaces for the Faculty staff. The size of the workplaces will be differentiated, depending on the modes in which the staff members work (change of habits may cause

obstruction among the staff who feel comfortable in the existing space, but, in the long run, it is a rational measure).

The students, while preparing their own strategy of changes implementation and the functional programme, referred to detailed analyses of the existing situations, as well as to their concepts of the functioning of our organization from the point of view of right social relations. At the first stage, the problems were analysed as if they were perceived “at first sight”, next, main issues for more detailed analyses were designated and groups responsible for a given issue appointed. Apart from detailed analyses of their issue, the groups were obliged to meet other teams to exchange information to ensure that all participants have a clear picture of the current situation. Such approach is at the heart of iteration (grounded theory) – while analysing, we also make a synthesis, to get as cohesive picture of the situation as possible. Successive approximations may alter the picture, or focus the analyses on some specific task, yet, at the time, the analysis of the particular elements reveals the relations among them. This resembles a typical condition of architects’ work, where, on the grounds of some information, they create a concept of a building; however, our approach is different in acknowledging the imperfections of each synthesis, its multiple verifications and production of alternative models: “what would happen if...”. Such approach required the analyses to be conducted from different perspectives and reaching beyond typical architectural practice.

Example:

The group focused on the problem of space for students, was given a task of examining the capabilities of the building (size, functional adequacy, spatial arrangement versus human relations, location of particular functions in the building, functional links) in view of accommodating the existing space to the students’ needs, to create a concept of such space functions in relation to other functions and to calculate the demand for space. The students described their solution to the problem as follows:

“The issue of additional space for students was a result of the insufficiency of the existing space securing the students’ active participation in the life of our Faculty after classes. The programme assumes the creation of space that would make it possible for students to interact, to learn in untraditional ways, to make projects and designs. In view of the option of moving some artistic classes (drawing, sculpture, painting) to a new facility together with head office of the Departments of Arts and Architectural Design

we have taken the liberty of adapting the whole ground area for additional support functions. Our concept clearly emphasises and exposes the entrance zone, directly linked to the exhibition part, which shall be used for the display of the achievements of students, young architects, experienced professionals, and possible externally commissioned exhibitions. As the students spend a long time in the Faculty building, the cloakroom shall be extended to create room for temporary locks (key, coin or card operated). The canteen part shall also be enlarged, as, in view of the results of the analyses, it is too small. As far as the materials and print shop is concerned, our attention was focused on permanent misunderstanding between plotting and scanning. The re-organization of the shop should be considered, for example, by creating computer self-service stands supervised by one person. The shop could be supplemented by a small bookshop. Upon the analysis of the students' needs, we propose to alter the sculpture room for a mobile workshop area, where parts of space could be created and divided by movable partition walls. Such room would encourage cooperation, discussion and add variety to the design process. Media files would provide an excellent IT support for such facility. The internet café, magazines reading room, and the library facilitating instant access to information".

Another example (the group focused on specialised workrooms):

"The most sensible solution would be to create a new space, a new building linked to the existing one. This will enable the consolidation of the sculpture and painting classes with the teaching staff rooms, provid-

ing good working conditions and accessory space (e.g. the archives). The workshop as such is equally important – as this is the place where students can work in-between class time. Another advantage is the option of organizing "student galleries" and improving the back-up facilities of these functions.

(As the last resort, this space may be connected in one block with the auditorium and the representation zone, but, as we all agreed we are against such option).

The space made free in the building shall make it possible to reorganize the teaching space and the space for students on the ground floor for real (bigger canteen, locks, etc. – see comments from other groups) – Anna Panek, Maria Zapolska, Tomasz Majcher, Adam Przybyła.

As a tool of assessing the present condition, the elements of Post Occupancy Analysis were used in relation to the functions of the building; as far as the social problems were concerned – questionnaires and interviews were used, providing valuable information and comments. The students concluded that up till now all the questionnaires they were given reflected the quality of social relations – they cannot express their opinions about the problems that are bothering them, because the questionnaire makers have no idea about the nature of such problems .

Example: Several years ago there was a smokers' room in the cellars of our building. It was used by students only, the Faculty staff had no idea that for the students' environment this was an important place for the development of informal relations, and, being the only informal and easily accessible place in the Faculty building, it served as a workplace for students

Graphical analysis of density of workplaces in existing offices arrangements

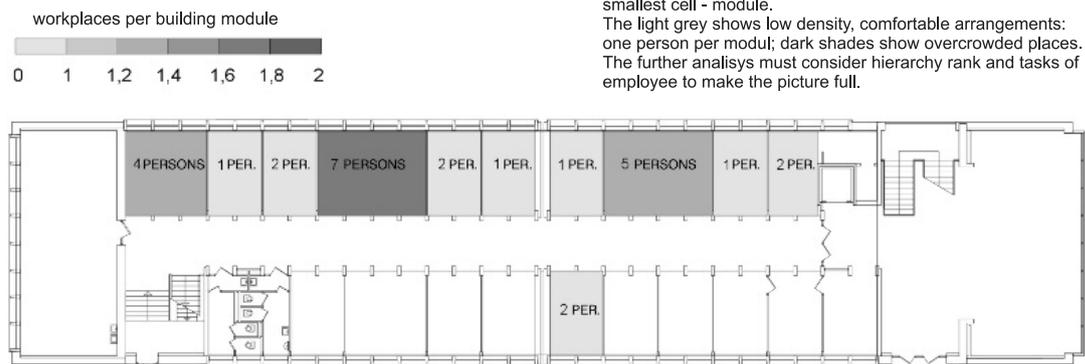


Figure 1.
Example of spatial analysis of density – one floor

Spatial analysis for new arrangements in old building

drawing/painting room

area: $9.8 \times 4.85 = 47.53 \text{ m}^2$

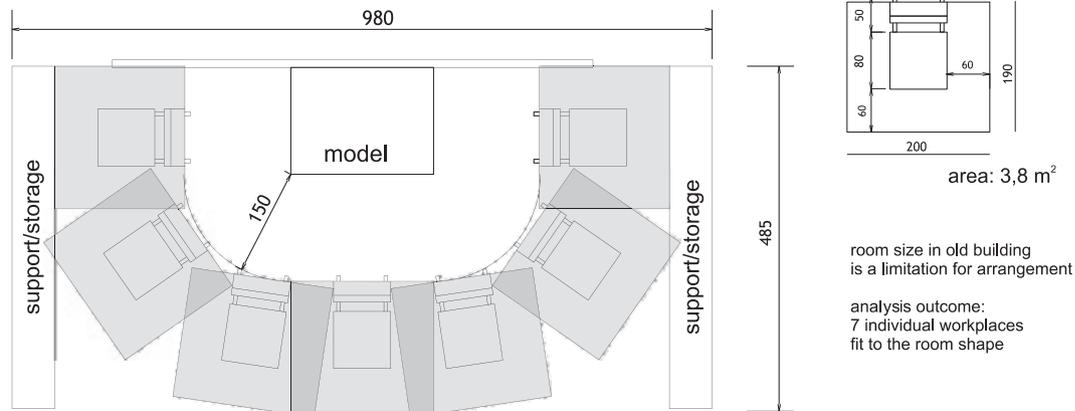


Figure 2. Example of spatial needs analysis – drawing/painting room

who had some time to kill in between classes.

Furthermore, a formal nature of questionnaires discourages them from giving critical answers. Accordingly, the interviews and questionnaires were conducted by individuals selected on the grounds of their easy-going disposition, under informal conditions outside the Faculty premises (informal atmosphere guarantees better openness). The main objective was not to achieve an average picture of the reality, but to reveal unknown problems concerning the functions of the building and the organization to find well expressed comments. The results, at least in several cases, were surprising (e.g. criticism of the mode of conducting classes by different Departments).

After the final synthesis of the works performed by the students, the programme was presented before the Dean's Council, discussed and verified. The findings were used in substantiating the Faculty's investment bid for the construction of a new part adjoined to the existing building. From the point of view of didactics, the results were very successful – the involvement of our students in this task could not be compared to any other theoretical design situations.

3. CONCLUSIONS

For the last few years our Faculty has been trying to promote certain values and elements that enrich the architect's workshop and attitude of being able to notice "the other side" of the customer-architect relation. We are trying to promote a sustainable attitude focused on research and creativity, instead of

the architect-artist model focused on reality creation in disregard of any analyses. Renowned methods of quality evaluation of the built environment, architectural programming or participative designing used all over the world are in line with our attitude. We want to make design architects aware of the following values: sensitivity to the recipient of architectural structures, not treating them as passive consumers but as co-creators. Thus, we want to highlight the change in the nature of the relation between architects and customers, from the hierarchical one (the architect is a professional in his field and he dominates over the customer – who is a layman) to a partnership one; both parties have their own competencies and interests, which, in the course of dialogue, may render common solutions, which, in turn, shall be given a certain shape by the architect.

Thanks to such approach the emerging buildings shall not only have a material value as real property, but shall also become multi-aspect indices of progress: in view of the financial considerations by avoiding incorrect investments, as well as in view of the cultural ones by accurate adjustment to the social and cultural context in line with the social expectations that meet the quality of human life environment.

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