

Quality assessment - one task versus multitask model in studio teaching

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ABSTRACT: The university environment has shifted from the principle of co-operation to the principle of competitiveness. As a result, a variety of rankings, requiring evidence-based (self)evaluation of quality, has emerged. In this article, the authors focus on the preferred evaluation of the quality of architectural design studios. How should creative work be evaluated? Should this be systemically-based on fixed criteria by comparing student projects with each other or purely intuitively, subjectively? By default, the evaluation of the quality is objectified through public presentation of design studio projects. The problem is that the design studio supervisor cannot compare these results, because of the different assignments, approach of teachers or presentation preferences of individual departments. The authors present the one-task model of design studios for all the students in the same year of study. In this case, a studio supervisor has one unified matrix of studio outputs displayed within a single printed publication. Moreover, one can consider student feedback by using a questionnaire. This model also provides evaluation of the quality of teachers.

INTRODUCTION

How should architecture be taught? This question troubles all the responsible teachers, day and night. An architect serves as a personal example for production/creation only when it comes to the practice, when the graduates gain experience leading them towards performing as a member of the profession. A school must do all its necessary homework beforehand. It has to convey the basis for architectural production, it must provide answers to the questions as to what architecture is and formulate the context of architecture, as well as the methodology of production/creation preceding the practical experience. Here, the key role is played by the content and structure of assignments in the design studio subjects. Should one deal with a task or a problem? Is an official activity in the students' timetable sufficient to develop the contact with students or are teachers to accompany the design studio by other events both to enrich the students' knowledge and motivate them: motivate not only to comply with their duty but, in particular, to understand the reasons behind and the meaning of what they are doing? Answering these questions is attempted by an innovated organisation of the subject Design Studio III. For the third year, the assignments have been organised as one task for all the students in the same year of study. Comprehensiveness is sought, regardless of any potential extra work on the part of both the teachers and students. The purpose of the Design Studio III subject is not to satisfy the necessary requirements posed by the subject in terms of the pedagogical documentations, but also to move gradually beyond the basic horizon. The aim is to establish new methodology principles.

Quality assessment does not comprise the assessing of quality of a student's work only; it also involves the assessment of the quality of the teacher and his/her preparations for the teaching. One can simulate a situation when a teacher - head of a design studio group is assigned a task - a commission that he/she must prepare and design with a team of his/her students - co-designers. One task for all the students in the same year of study is a good base for a comparative evaluation of results. The quality of work, and the talent factor of a student, will be manifested in the quality of his/her project. The quality of a teacher can be seen in the compactness of the result achieved by the group he/she leads. Indeed, there are situations when a below-the-average student will not be saved by a great teacher, but the authors also noticed cases when the *flowering* of a student is halted by a teacher with low-aimed horizons. The subject supervisors can see both qualitative spectra; plus, the comparisons with the reactions by students (if any) in the subject evaluation in the academic information system (AIS) have higher relevance. Teachers and students are motivated to formulate and push their creative opinion through in a rather broader, competitive group.

UNIVERSITY QUALITY EVALUATION

It is not intended to provide a complete analysis of the historical development of the university phenomenon. One should only outline some partial, selected aspects of this evolution. Over recent decades, the university

environment has shifted from the principle of co-cooperativeness to the principle of competitiveness. On the external side, it is specifically manifested in a whole array of rankings; on the internal side, it is mainly the competitions for grant funding. Both manifestations require evidence-based (self)evaluation of quality. These mostly involve a combination of measurable parameters with a peer review principle.

At the authors' University, measurable parameters not based on trust towards the evaluating peers tend to prevail. In a simplified way, one can speak of functional dualism of universities: one is to carry out the educational function and, since the times of Humboldt, there is also the function of scientific institutions. In the period under review, the assessment of the quality of the University has changed its focus to evaluate the outcomes of science and research at the University, especially, through indexed publication outcomes. Scientometrics has developed into a separate branch with a rich life of its own. This article does not deal with that particular area, but will rather focus on the evaluation of the quality of teaching.

QUALITY ASSESSMENT IN GENERAL

Speaking about quality assessment in general, one can distinguish between: 1) quality management methods; 2) analytical techniques; and 3) standards and normative frameworks. The quality management methods include; for example, the Deming circle (PDSA cycle) or total quality management (TQM). The Deming circle [1] is a method of gradual improvement of the quality of products, services, processes, applications or data, taking place via a repeated performance of four activities. One can also call it the PDSA cycle: plan (P) - planning of the intended improvement (intention); do (D) - implementation of the plan; study (S) - verification of the actual results against the original intention; and finally, act (A) - adjustments of the intention based on the verification and across-the-board implementation of improvements into the practice. The TQM method [2] is a comprehensive technique, putting emphasis on the quality management in all dimensions of an organisation's life. Thus, it goes beyond quality management and becomes a method for strategic governance and a managerial philosophy for all the operation/conduct of the organisation.

The Isikawa diagram [3], the best-known analytical technique (also called the cause-and-effect diagram, fishbone diagram or Fishikawa) shows and helps analyse causes and effects. The diagram's principle is based on simple causality: each effect (problem) has its cause or a combination of causes. The goal is to determine the most probable cause for a problem dealt with. The causes are mostly looked for in eight basic categories (8M): man power - causes driven by people; methods - causes produced by rules, directives/policies, legislation or norms/standards; machines - causes induced by devices, machinery, computers or equipment; materials - causes produced by a fault/defect or characteristics of the materials used; measurements - causes brought about by inappropriate or wrong measurement applied; mother nature (environment) - causes produced by the impact of environment, such as temperature, humidity or by culture; management - causes driven by wrong management; and maintenance - causes driven by improper maintenance. In addition to production processes, this list can also be applied to the area of services or pedagogy.

Several legislation and normative frameworks are applied in quality management across the globe. One should also mention the ISO 9001 standard, which is part of the group of international standards issued by the International Organisation for Standardisation. ISO 9001 is not a method of management, but a standard that serves as a reference model (benchmark) to set the fundamental management processes in an organisation, which help constant improvement of the quality of the products or services provided. This is a process-oriented standard. In relation to standards (ISO, DIN, and so on), the authors refer to the methods of the worst accepted result. Norms and standards in this form originate especially from the fields of production and services, nonetheless, they can also be applied in the sphere of education. The Standards and Guidelines for Quality Assurance in the European Higher Education Area (ESG) [4] can stand as an example of a norm for pedagogy.

EVALUATION OF THE QUALITY OF TEACHING - PROCESS VERSUS PRODUCT

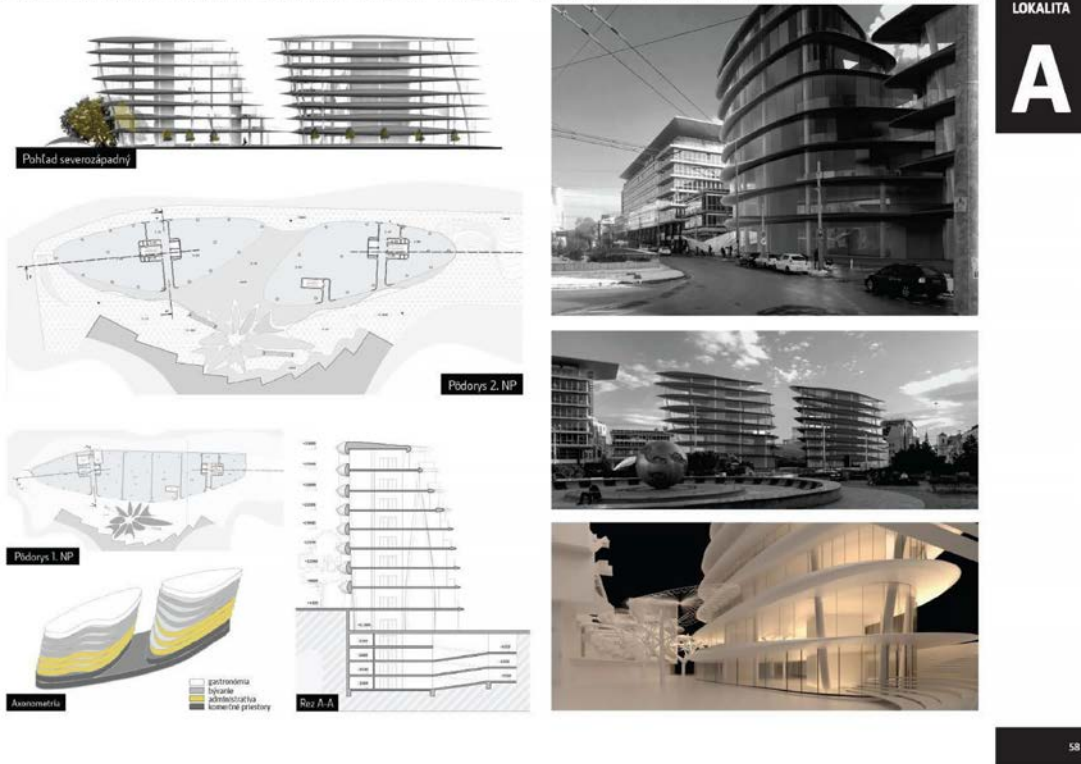
What is the product of education - is it a piece of knowledge or a graduate? A piece of knowledge is the result of scientific work. Scientific work is necessary in the process of gaining, refining, adding new knowledge, thanks to which a university gains credit or the right to generate graduates - a product of pedagogical work. If one evaluates the quality of a piece of knowledge as a product, one gets back to the evaluation of research outcomes. If one evaluates the quality of knowledge as a volume of gained knowledge, one can have to resort to evaluating long-term feedback regarding the successfulness of graduates.

The methods for immediate evaluation of the quality of educational process have been preferred recently. Traditionally, although a system of examination basically documents the successfulness of students, one can hardly derive the quality of a teacher from it. Evaluation by questionnaires done afterwards is of questionable validity. Quality assessment carried out in this way can be applied to subjects taking lectures, seminars or practical lessons. The situation becomes more complicated, if one moves into the specific sphere of teaching architecture - design studios. Parallels can be also found in engineering - teaching construction design, i.e. an area generally falling under the scope of design.

The authors will now focus on architectural design studios. The teaching is typically organised in studio groups consisting of five students. The teacher-head of a studio group is responsible for the formulation of assignments - the design task. In general, the project-based learning (PBL) method is applied. With the multitask model, every teacher tasks his/her design studio group with a different assignment/task, as to the topic and scope. The resulting quality assessment value of individual student projects and of the design studio quality is objectified through public presentation of design studio projects - design studio results. In this case, the design studio supervisor cannot compare the results of individual design studios, because of the different assignments, approach of teachers or presentation and defence preferences of individual faculty departments.



Figure 1: Obchodná Street in Bratislava: demolish, rebuild, add/build up [5]. Results from one-task model of design studio in the third year of study, where the task was to design a complex poly-functional building. Index of individual student projects with the city planning parameters for each one of them (top to bottom): index of floor areas, total plot area, gross floor area, built-up area percentage, used area percentage, population density per 1 ha.



AN3
LOKALITA
A

ATELIÉR NAVRHOVANIA III
1_AN3_AU

1:2000

1,00	INDEX PODLAŽNÝCH PLOCH
13.500 m ²	PLOCHA POZEMKU
13.600 m ²	HRUBÁ PODLAŽNÁ PLOCHA
37,5 %	ZASTAVANÝCH PLOCH
30,9 %	VÝVETNÁ PLOCHA
198	HLA MESTRSTVA

01 Michal Al-Hussein
VEDÚCI PRÁČE: Ing. arch. Loran Krajčovič, PhD. POLYFUNKČNÝ OBJEKT ÚČEA

Návrh lokality A na mieste hotela má pre okolité prostredie a rušnú Obchodnú ulicu veľký potenciál a môže mu dať oveľa viac ako súčasný stav. Okolie hotela v súčasnosti vytvára tzv. „hluché miesto“ pre Obchodnú ulicu, ktorá stráca svoje hodnoty. Podkladom pre vytvorenie návrhu sa stal urbanistický koncept z 30. rokov 20. storočia, kde sa rátało s pokračovaním Vysokkej ulice prechádzajúcej cez riešené územie, čo mohlo zatraktívniť riešenú lokalitu. Pokračovaním Vysokkej ulice až po Drevenú ulicu, by sa riešená lokalita stala stretávacím priestorom na Vysokkej pre všetky okolité ulice. Cieľom je vytvorenie príjemnejšieho a atraktívnejšieho verejného priestoru pre ľudí, ktorí najviac prechádzajú lokalitou, bývajú v nej a pracujú; priestorom, ktorý by oživil Obchodnú ulicu a stal sa príjemnejším miestom so zeleňou pre rušný mestský život. Zrušením mohutného objektu hotela, ktorý v súčasnosti skôr odvádza ľudí prechádzajúcich okolo, by nové riešenie lokality navádzalo a pozývalo prejsť cez územie a vojsť do jednotlivých objektov čím by si Obchodná ulica získala väčšiu hodnotu aj pre mladú generáciu obyvateľov. Riešený objekt je situovaný pozdĺž frekventovaného pešieho tahu na Vysokkej ulici a dodržiava jej líniu. Objekt sa rozdeľuje vo vyšších podlažiach na dva objekty. Dvojposchodový obchodný parter komunikuje s okolím. Ďalšie tri nadzemné podlažia oboch objektov sú navrhnuté pre administratívnu funkciu. Na troch najvyšších podlažiach sa nachádzajú bytové jednotky s terasami orientovanými na juh. Parkovanie je riešené v suteréne - prepojené s ostatnými objektami.

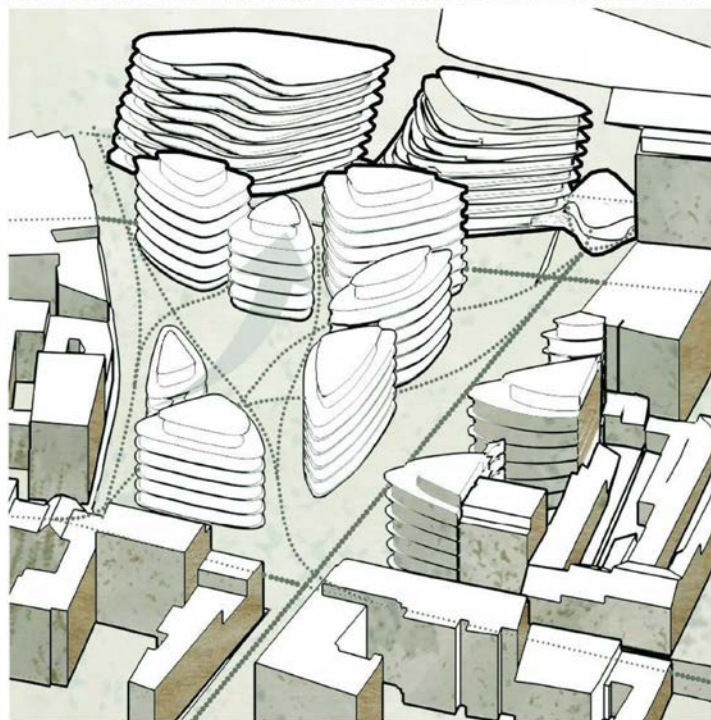


Figure 2: Obchodná Street in Bratislava: demolish, rebuild, add/build up [6]. Example of a student project.

The authors of this article present an alternative model enabling a higher comparability level for the results achieved via design studio: they present the one-task model for all the students in the same year of study. The task - problem formulation is assigned to students in the form of a story with a subsequent specification of particulars. All students are in the same year - a model count of 150 students will see them distributed into 30 model design studio groups. The responsibility for the course and quality of schooling is split among 30 model teachers. The method brings new options for the design studio supervisor and the manager of schooling - a Vice-Dean, such as to evaluate the quality of

result *at a glance*, in relation to the student's potential, as well as to the quality of work done by individual teachers. The design studio supervisor and the manager of schooling has one unified matrix of studio outputs displayed within a single printed publication of the published result. This is also distributed to the public involved. Moreover, student feedback can be taken into account, using a standardised questionnaire in the academic information system (AIS). This model also provides evaluation of the quality of teachers. External critics may help increase the quality of the schooling process, during checks performed from time to time and at the time of final project presentations and defence.

Design studios can meet with various situations. A talented student + a good teacher = a harmonious relation with optimal results. A talented student + a poor teacher, who *leaves room* for the student = the result rather demonstrates the quality of the student. A talented student + a poor teacher, who limits the student = average results; the student is not motivated to personal growth. A poor student + a quality teacher = the result is not optimal, but the design result can be beneficial. A poor student + a poor teacher = poor results. In fact, it is true that a design studio will be of benefit to a student, if it makes him/her push forward the limits of the student's own creativity. The authors consider it substantial to improve the schooling process, responding to the changing requirements of the external environment as to the practice of implementation of the design projects, as well as the research area. Reaching the optimal state is just an illusion. The authors have gathered results over three years of implementing this model, while continuing to work on it.

DESIGN STUDIO EVALUATION

Design studio evaluation is a complex topic. Should evaluation be done systematically by mutual comparing of projects or by using mere intuition? Students compare their projects and the relevant evaluations to one another, also across the departments. They are often driven to frustration, as individual departments or committees apply different evaluation approaches and use different criteria. A poor student who receives good evaluation is not motivated to personal progress; a good student given poor evaluation loses motivation.

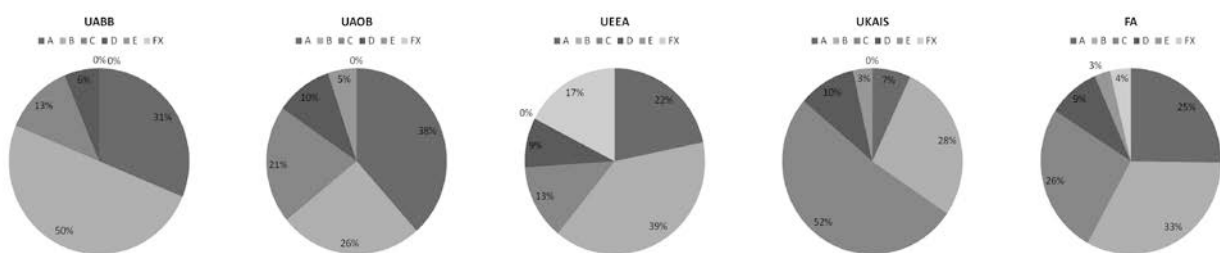


Figure 3: Design Studio III evaluation in the academic year 2013/2014, the topic being *academic centre*; evaluation presented across departments and for the Faculty as a whole (from left to right: the Institute of Architecture of Residential Buildings - UABB, the Institute of Public Buildings - UAOB, the Institute of Ecological and Experimental Architecture - UEEA, the Institute of Constructions in Architecture and Engineering Structures - UKAIS and the Faculty of Architecture as a whole - FA). The evaluation by grades shows significant variabilities that can be caused by good quality students variedly distributed in the departments or rather by different evaluation approaches [7].

A student could receive a more comprehensive reaction after any presentation and defence of a design studio project, the evaluation (in percentage) of individual aspects of the design or verbal commentary to the cumulative assessment. Currently, these forms of evaluation are used only for final projects. The unification of the evaluation system at the Faculty seems to be crucial; it should include evaluation forms with parameters (such as quality and uniqueness of the design, graphics, verbal expression and presentation...) and the utilisation of the entire grading scale in assessment.

Is it imperative to assess the studio projects by a grade? If minimum limits were prescribed, which must be met by any student project (typological, design or aesthetic criteria), the assessment would be: passed/not passed. Some projects may receive an award, whereby one points out exceptional results. Other students who managed to complete the studio can be qualitatively ranked as *in between extremes* and are able to carry out their profession as fully-fledged architects. One can see similar conduct in architectural practice. The Slovak Chamber of Architects (abbreviated to SKA from *Slovenská komora architektov*) does not only select exceptional architects to join the existing members, but anyone who meets some (minimal) level of quality of their work and years of practice. The exceptional ones are rewarded in competitions. Such a (non)evaluation might eliminate certain negative (demotivating) factors of the schooling system in relation to the creative professions.

It is also indispensable that a student knows the evaluation criteria of the studio beforehand. The criteria clearly define e.g. the percentage of individual design aspects in the final assessment. All architectonic competitions apply a similar principle. They set out the core focus of a task/assignment; for example, the quality of operational relations, the composition of volumes, if the construction is fitting the environment, etc. The assignment for Design Studio III in the academic year 2013/2014 was an Academic Centre in Bratislava. As a result, the projects were to present a volume

study and the emphasis was placed on the volume composition of the designed building, its location within a square, position and mutual spatial (not strictly disposition/layout-related) relations among the functional units. Imperfections (if any) in an otherwise rather rational disposition concept were not of a decisive influence in the assessment. The unification of the evaluation system at the Faculty seems to be crucial (e.g. through developing evaluation forms with parameters, such as quality and uniqueness of the design, graphics, verbal expression during the presentation of the project, and so on) and the regular utilisation of the entire grading scale in assessment. To a great extent, all the above is handled by the one task method system.

There are two fundamental factors impacting the evaluation of studio projects: definition of the work's objective (identification of the key problem of the assignment) and the amount of energy spent to achieve it. The amount of creative energy or intellectual work is a quantity that cannot be measured physically; a pedagogue may only estimate. The evaluation methodology is an indispensable part of the methodology for design studio production. It would be difficult to find a universal evaluation system for all design studios, as the evaluation is greatly dependent on the topic and scope. On the other hand, an intuitive assessment not based on a concept leads to the frustration of students. A poor student who receives good evaluation is not motivated to personal progress; a good student given poor evaluation loses motivation. There are also projects not fitting any evaluation scheme. An optimal solution is to have specific criteria defined for the evaluation as part of the design studio assignment. The better the design studio methodology is, the more objective evaluation one will be able to produce. When it comes to architecture, the evaluation will always include an element that is non-quantifiable. One can handle this problem in the case of the implemented architecture designs; their evaluation is objectified by the opinion-making criticism.

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