

Hiša kakovosti v srednjem poklicnem izobraževanju

House of Quality in Secondary Vocational Education

Marko Starbek - Janez Kušar - Viktor Jemec - Branimir Vrtek

Naloga hiše kakovosti je, da zagotovi upoštevanje in uresničitev vseh zahtev in želja kupcev. V primeru srednjega poklicnega izobraževanja so stranke dijaki, njihovi starši, Ministrstvo za šolstvo in šport ter delodajalci.

V prispevku je prikazana splošno veljavna struktura hiše kakovosti za srednje poklicne šole ter rezultati gradnje le-te za eno od slovenskih srednjih poklicnih šol. V skupino gradnje hiše kakovosti so bili vključeni delavci srednje poklicne šole ter dva zunanja sodelavca Laboratorija za proizvodne sisteme Fakultete za strojništvo v Ljubljani.

Rezultati gradnje hiše kakovosti kažejo, da na izpolnitev zahtev dijakov, staršev, Ministrstva za šolstvo in šport ter delodajalcev v največji meri vpliva kakovost učiteljskega kadra.

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(Ključne besede: celovito obvladovanje kakovosti, hiša kakovosti, zahteve - želje, zmožnosti)

The task of the House of Quality is to provide for consideration and realisation all of the requirements and wishes of customers. In the case of vocational secondary education, the customers are pupils, their parents, the Ministry of Education and Sport and employers.

This paper presents the general structure of the House of Quality for vocational secondary schools and the results of a House of Quality construction for one Slovenian vocational secondary school. The members of the team which designed the House of Quality were staff employed in the vocational secondary school and two external collaborators from the Production Systems Laboratory, Faculty of Mechanical Engineering, Ljubljana.

The results of the design of the House of Quality indicate that the quality of the teaching personnel has the greatest effect on fulfilling the requirements of pupils, parents, the Ministry of Education and Sport, and employers.

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0 UVOD

Metoda razvoja funkcij kakovosti RFK (QFD) oziroma na kratko hiša kakovosti, je bila razvita sredi šestdesetih let na Japonskem [1]. Japonski podjetji Mitsubishi in Toyota sta jo uspešno preskusili v začetku sedemdesetih let. Danes jo pozna tudi Evropa.

Pri uvajanju metode RFK oziroma hiše kakovosti je treba upoštevati naslednja pravila:

- poslovodstvo mora projekt gradnje hiše kakovosti vsestransko podpreti,
- vodja projekta gradnje hiše kakovosti naj bo član skupine, ki metodo najbolje pozna,
- vsaka seja skupine mora biti sklicana z natančno določenim namenom,
- o seji je treba voditi uradni zapisnik,
- po seji se zapisnik dostavi vsem članom skupine.

0 INTRODUCTION

The quality functions deployment (QFD) method, often referred to as the House of Quality, was developed in Japan in the mid – 1960s [1]. The Japanese companies Mitsubishi and Toyota implemented it successfully in the early 1970s. Today the method is also known in Europe.

When implementing the QFD method it is necessary to consider the following rules:

- management has to fully support the construction of the House of Quality,
- the head of the House of Quality construction project should be that team member who is the most experienced in the QFD method,
- each meeting of the team should have a precisely defined goal,
- it is necessary to take minutes during the meeting,
- after the meeting, the minutes must be sent to all team members.

Osnovna struktura in postopek gradnje hiše kakovosti sta vidna v delih ([1] do [3]). Sodelavci Laboratorija za proizvodne sisteme smo analizirali predlagano splošno strukturo in postopek gradnje hiše kakovosti, ju kritično ocenili in pripravili predloge sprememb ([4] do [6]). Predlagane spremembe smo pretresli z vodstvom šole in končno prišli do sestave in postopka gradnje hiše kakovosti za srednje poklicno izobraževanje.

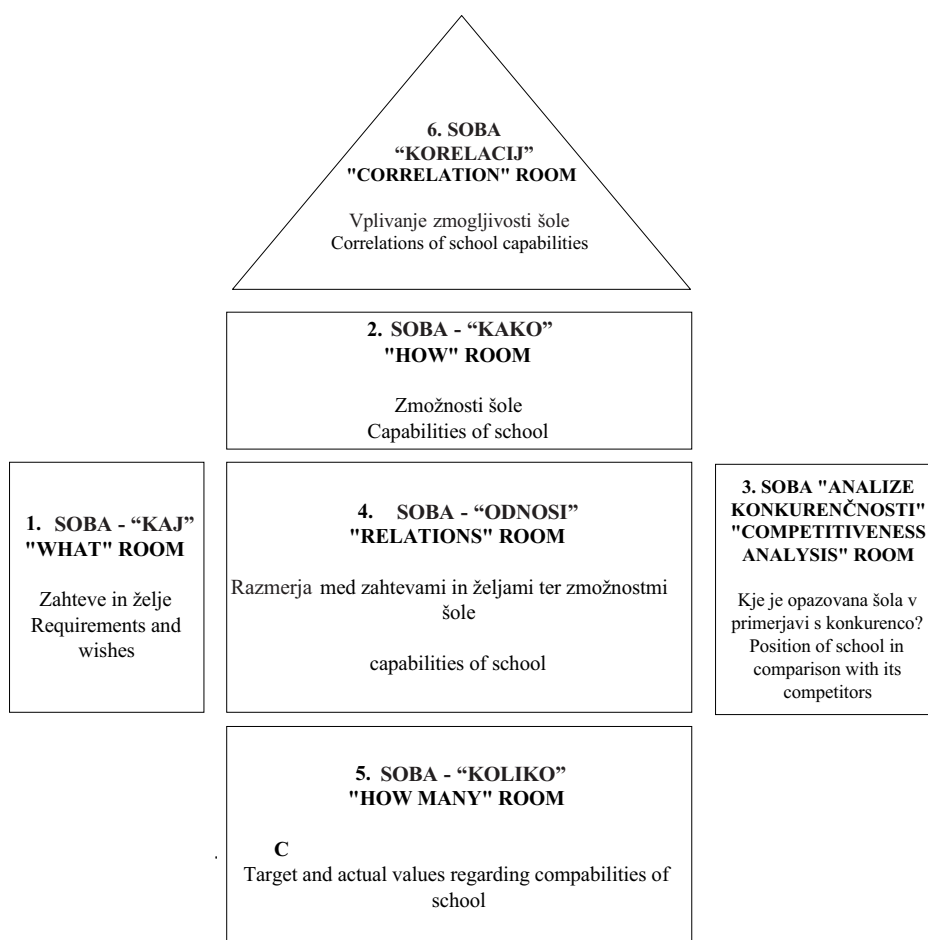
1 SESTAVA HIŠE KAKOVOSTI ZA SREDNJE POKLICNO IZOBRAŽEVANJE

Skupina za načrtovanje sestave hiše kakovosti, v katero so bili vključeni trije delavci šole in dva zunanja sodelavca, se je po vrednotenju različnih končno odločila za sestavo hiše kakovosti, ki jo sestavlja šest sob in je prikazana na sliki 1.

The basic structure and method for House of Quality construction have been presented in books ([1] to [3]). Members of the Production Systems Laboratory have analysed the proposed general structure and the construction method of the House of Quality, and made proposals for changes ([4] to [6]). The proposed changes were discussed with the school management and thus we developed the structure and method for constructing the House of Quality for vocational secondary education.

1 STRUCTURE OF THE HOUSE OF QUALITY FOR VOCATIONAL SECONDARY EDUCATION

The team chosen to design the structure of the House of Quality (the team consisted of three school employees and two external members) considered several possibilities and finally defined the House of Quality, consisting of six rooms, as presented in figure 1.



Sl. 1. Struktura hiše kakovosti za srednje poklicno izobraževanje
Fig. 1 Structure of the House of Quality for vocational secondary education

1. Soba "KAJ"

Soba "KAJ" predstavlja zahteve in želje dijakov, staršev, delodajalcev in Ministrstva za šolstvo in šport.

2. Soba "KAKO"

Soba "KAKO" predstavlja zmožnosti šole, Ministrstva

1. The "WHAT" room

The "WHAT" room represents requirements and wishes of pupils, parents, employers, and the Ministry of Education and Sport.

2. The "HOW" room

The "HOW" room represents capacities of the school,

za šolstvo in šport ter delodajalcev za izpolnitev zahtev in želja.

3. Soba "ANALIZE KONKURENČNOSTI"

Prikazuje rezultate izpolnjevanja zahtev in želja opazovane šole v primerjavi s konkurenčnimi šolami.

4. Soba "ODNOSI"

Ta soba predstavlja jedro hiše kakovosti. Podaja matriko odnosov oziroma razmerij med zahtevami in željami učencev, staršev, delodajalcev, Ministrstva za šolstvo in šport ter možnostmi šole.

5. Soba "KOLIKO"

Podaja zelene ciljne vrednosti zmožnosti šole, dejansko stanje doseganja ciljnih vrednosti ter prioriteten vrstni red izvajanja izboljšav zmožnosti šole.

6. Soba "KORELACIJ"

Podaja, kakšno je medsebojno vplivanje definiranih zmožnosti šole.

2 GRADNJA HIŠE KAKOVOSTI ZA OPAZOVANO SREDNJO POKLICNO ŠOLO

Pred izvedbo delovnih korakov gradnje hiše kakovosti so bili člani skupine seznanjeni z vsemi podrobnostmi o šoli, o krogu učencev in konkurenci. Predstavljen jim je bil tudi obrazec za vpis rezultatov izvedbe delovnih korakov hiše kakovosti, izdelan na papirju formata 2 x 3 m, kamor je mogoče vpisati do 30 zahtev in želja ter do 30 zmožnosti šole.

2.1 Koraki gradnje hiše kakovosti

Po izvedenih pripravah so se člani skupine lotili izvedbe posameznega koraka gradnje hiše kakovosti, rezultate pa tekoče vpisovali v pripravljene obrazce.

1. korak: Zahteve in želje

Da bi člani skupine prišli do podatkov o zahtevah in željah učencev, staršev, delodajalcev in Ministrstva za šolstvo in šport, so pripravili nekaj vprašalnikov, in to za učence in starše.

Z vprašalnikom KAKŠEN SEM, katerega del prikazuje preglednica 1, so člani skupine želeli spoznati učence, ki so vpisani v obrtni program šole.

Z vprašalnikom KAJ SI ŽELIM in KAJ PRIČAKUJEM OD ŠOLE, katerega del prikazuje preglednica 2, so člani skupine dobili odgovore, kaj si učenci želijo, oziroma kaj pričakujejo od šole.

Z vprašalnikom KAKŠEN JE, katerega del prikazuje preglednica 3, so člani skupine želeli dobiti odgovor, kako starši gledajo na svoje otroke.

the Ministry of Education and Sport, and employers to fulfil the requirements and wishes.

3. The "COMPETITIVENESS ANALYSIS" room

This room represents the results of the fulfilment of requirements of the treated school in comparison with competing schools.

4. The "RELATIONS" room

This room is the core of the House of Quality. It defines the matrix of relations between requirements and wishes of pupils, parents, employers, the Ministry of Education and Sport, and the capacities of the school.

5. The "HOW MANY" room

This room defines target values of the school capacities, actual fulfilment of target values, and priorities regarding the sequence of improvements in the school.

6. The "CORRELATION" room

This room defines the correlations of the school capacities.

2 DESIGN OF THE HOUSE OF QUALITY FOR THE TREATED VOCATIONAL SECONDARY SCHOOL

Before designing the House of Quality the team members were informed about the school's details, about pupils, and the competitors. A form (made on a sheet of paper, 2 x 3 m in size) where the results of the step-by-step designing of the house of quality can be filled in, was presented to the team members; up to 30 requirements and wishes, and up to 30 school capacities can be filled in.

2.1. Steps in designing the House of Quality

After the preparation activities the team members performed each individual step of the House of Quality designing; the results were promptly added to the form.

Step 1: Requirements and wishes

In order to obtain the data about the requirements and wishes of pupils, parents, employers, and the Ministry of Education and Sport the team members produced questionnaires for pupils and parents.

The questionnaire: WHAT AM I LIKE (part of it is shown in table 1) was used to obtain the data about the pupils who study in the trade program of the school.

The questionnaire: WHAT I WISH AND EXPECT FROM SCHOOL (part of it is shown in table 2) gave answers to the team members about what pupils wish or expect from school.

The questionnaire WHAT IS (S)HE LIKE (part of it is shown in table 3) was used to obtain the answers that revealed what parents think about their children.

Preglednica 1. Vprašalnik učencem – KAKŠEN SEM

Table 1. Questionnaire for pupils – WHAT AM I LIKE

<p>KAKŠEN SEM WHAT AM I LIKE Če je pravih odgovorov več, vpiši pred označenim odgovorom zaporedno številko po prioriteti. If you have several answers add sequential numbers to indicate priority.</p>
<p>1. Zakaj si se odločil za vpis na našo šolo? Why have you chosen our school? 0. Ker me zanima izobrazbena smer, ki jo ponujate. I am interested in the knowledge that your school offers. 1. Ker se mi zdi to najlažja pot do končne izobrazbe. For me this is the easiest way to obtain the final education. 2. Ker nisem imel pogojev za vpis na drugo, zeleno šolo. I did not fulfil the conditions to be admitted to the school of my preference. 3. Drugo Other -----</p>
<p>2. Kdo se je odločil, da si se vpisal na našo šolo? Who decided that you enrolled our school? a) Jaz I b) Starši Parents c) Oboji – bolj je bila pomembna odločitev staršev. Both – the parents' decision was more important. d) Oboji – bolj je bila pomembna moja odločitev. Both – my decision was more important.</p>
<p>3. Do katere stopnje – ustrezno obkroži (IV, V, VI, VII, doktorat) - se ti zdi še primerno šolanje za tvojo kariero? Zakaj? Up to which level is, in your opinion, education reasonable for your career (circle: vocational school, secondary school, college, university, Ph.D. degree)? Why? -----</p>
<p>4. Opiši svoje lastnosti, zmožnosti, želje; vse tisto, kar ni ali tudi je zajeto v vprašalniku. Describe your characteristics, capacities and wishes; everything which is not (and even if it is) included in this questionnaire. -----</p>

Preglednica 2. Vprašalnik učencem – KAJ SI ŽELIM

Table 2. Questionnaire for pupils – WHAT I WISH

<p>KAJ SI ŽELIM IN KAJ PRIČAKUJEM OD ŠOLE WHAT I WISH AND EXPECT FROM SCHOOL Če je pravih odgovorov več, vpiši pred označenim odgovorom zaporedno številko po prioriteti. If you have several answers add sequential numbers to indicate priority.</p>
<p>1. Opremljenost učilnic (računalniki, učna sredstva in pripomočki): Classroom equipment (computers, teaching aids and appliances): a) pomembno important b) manj pomembno less important c) zadovoljivo satisfactorily d) nezadovoljivo unsatisfactorily</p>
<p>2. Ustreznost literature: Adequate literature: a) pomembno important b) manj pomembno less important c) zadovoljivo satisfactorily d) pisanje po nareku me dolgočasi writing from dictation is boring e) pisanje po nareku mi je odveč I do not like to write from dictation f) želim si skripta za vsak predmet I prefer to have written material for each course</p>
<p>3. Ekскурzije – ogled slovenskih znamenitosti: Excursions – seeing the sights of Slovenia a) pomembno important b) manj pomembno less important</p>
<p>4. Ekскурzije – ogled proizvodnje: Excursions – seeing various production facilities a) pomembno important b) manj pomembno less important</p>

Preglednica 3. Vprašalnik staršem – KAKŠEN JE
Table 3. Questionnaire for the parents – WHAT IS (S)HE LIKE

<p>KAKŠEN JE WHAT IS (S)HE LIKE</p> <p>Z vprašalnikom želimo ugotoviti vaše videnje, kakšen naj bo človek, v tem primeru vaš otrok, ko zapusti srednjo šolo. Če je pravih odgovorov več, vpišite pred označenim odgovorom zaporedno številko po prednosti. The questionnaire will be used to obtain your opinion regarding the qualities the person (in this case your child) should possess upon finishing the secondary school. If you have several answers add sequential numbers to indicate priority.</p>
<p>1. Zakaj se je odločil za vpis na našo šolo? Why has (s)he chosen our school?</p> <p>a) Zaradi izobrazbene smeri, ki jo ponujamo. Because of our educational course.</p> <p>b) Ker je to najlažja pot do končne izobrazbe. This is the easiest way to obtain the final education.</p> <p>c) Ker ni imel pogojev za vpis na drugo, bolj zeleno šolo. (S)He did not fulfil the conditions to be admitted to the school of his/her preference.</p> <p>d) Drugo Other</p>
<p>2. Kdo se je odločil, da se je vpisal na našo šolo? Who decided that (s)he enrolled our school?</p> <p>a) On sam (S)He</p> <p>b) Starši Parents</p> <p>c) Oboji – bolj je bila pomembna odločitev staršev. Both – the parents' decision was more important.</p> <p>d) Oboji – bolj je bila pomembna njegova odločitev. Both – his/her decision was more important.</p>
<p>3. Do katere stopnje – ustrežno obkrožite (IV, V, VI, VII, doktorat) - se vam zdi še smotno šolanje za otrokovo kariero? Zakaj? Up to which level is, in your opinion, education reasonable for your child's career (circle: vocational school, secondary school, college, university, Ph.D. degree)? Why?</p>
<p>4. Opišite otrokove lastnosti, zmožnosti, želje; vse tisto, kar ni ali tudi je zajeto v vprašalniku. Describe the characteristics, capacities and wishes of your child; everything which is not (and even if it is) included in this questionnaire.</p>

Preglednica 4. Vprašalnik staršem – KAJ SI ŽELIM
Table 4. Questionnaire for parents – WHAT I WISH

<p>KAJ SI ŽELIM IN KAJ PRIČAKUJEM OD ŠOLE WHAT I WISH AND EXPECT FROM SCHOOL</p> <p>Če je pravih odgovorov več, vpiši pred označenim odgovorom zaporedno številko po prioriteti. If you have several answers add sequential numbers to indicate priority.</p>
<p>1. Zgled učiteljev z vzgojnega vidika, komunikacija učitelj – učenec: Teacher's example from the educational point of view, communication between teacher and pupil:</p> <p>a) pomembno important</p> <p>b) manj pomembno less important</p> <p>c) zadovoljivo satisfactorily</p> <p>d) nezadovoljivo unsatisfactorily</p>
<p>2. Komunikacija učitelj – starši: Teacher – parents communication:</p> <p>a) pomembno important</p> <p>b) manj pomembno less important</p> <p>c) zadovoljivo satisfactorily</p> <p>d) nezadovoljivo unsatisfactorily</p>
<p>3. Fizična in mentalna varnost: Physical and mental safety:</p> <p>a) pomembno important</p> <p>b) manj pomembno less important</p> <p>c) na naši šoli ustrezno adequate in our school</p> <p>d) na naši šoli neustrezno inadequate in our school</p>
<p>4. Pripišite, prosimo, tisto, kar po vašem mnenju v vprašalniku NI ZAJETO Please write down the facts which WERE NOT INCLUDED in the questionnaire</p>

Z vprašalnikom KAJ SI ŽELIM in KAJ PRIČAKUJEM OD ŠOLE, katerega del prikazuje preglednica 4, so člani skupine dobili odgovore, kaj si starši učencev želijo, oziroma kaj pričakujejo od šole.

Za ugotovitev zahtev in želja delojemalcev so člani skupine obiskali več podjetij in po opravljenih razgovorih z vodstvi podjetij prišli do pregleda najpomembnejših zahtev in želja delodajalcev.

Po pregledu zahtev in želja Ministrstva za šolstvo in šport so člani skupine ugotovili, da se njihove zahteve ujemajo z zahtevami učencev, staršev učencev in delodajalcev. Po končanem zbiranju zahtev in želja so člani skupine zbrane podatke vnesli v pripravljeni obrazec.

2. korak: Utežitve zahtev in želja

V drugem koraku so morali člani skupine zahtevam in željam določiti težo. Za izvedbo uteženja so uporabili metodo dajanja točk, in sicer najpomembnejšim zahtevam so dodelili 5 točk, najmanj pomembnim pa 1 točko.

3. korak: Izpolnitev sobe analize konkurenčnosti

Člani skupine so izvedli primerjavo opazovane šole z dvema konkurenčnima šolama, in to z namenom, da ugotovijo, katera od treh šol v največji meri izpolnjuje zahteve in želje učencev, staršev učencev, delodajalcev in Ministrstva za šolstvo in šport.

Dogovorjeno je bilo, da bodo ugotavljanje stopnje izpolnjevanja zahtev vrednotili s točkami od 1 do 5, torej šola, ki bo:

- nezadostno izpolnjevala zahteve, bo dobila 1 točko
- zadostno izpolnjevala zahteve, do dobila 2 točki
- dobro izpolnjevala zahteve, bo dobila 3 točke
- prav dobro izpolnjevala zahteve, do dobila 4 točke
- odlično izpolnjevala zahteve, do dobila 5 točk

V skupini obravnavane dejanske vrednosti izpolnjevanja posamezne zahteve vseh treh šol so članom skupine omogočile določitev doseženih točk izpolnjevanja zahtev.

Profile izpolnjevanja zahtev so člani skupine vnesli v pripravljeni obrazec.

4. korak. Zmogljivosti šole

Člani skupine so dobili kartončke 7 x 15 cm, na katere so zapisovali zamisli o zmogljivostih šole. Pri svojem delu so si pomagali s podatki o:

- funkciji in namenu šole,
- materialnih in nematerialnih možnostih šole,
- organiziranosti šole,
- financiranju šole.

Poleg ugotovljenih zmogljivosti šole so člani dodali simbol \uparrow ali \downarrow , ki pove, ali je za šolo pomembno zmogljivost povečati ali zmanjšati.

The questionnaire WHAT I WISH AND EXPECT FROM SCHOOL (part of it is shown in table 4) gave answers to the team members about what parents of pupils wish or expect from school.

In order to find out the wishes of employers the team members visited several companies. After they had analysed the talks with company managements the team members made a list of the most important requirements and wishes of employers.

When they had analysed the requirements of the Ministry of Education and Sport the team members found out that their requirements agreed with the requirements of pupils, parents, and employers. When all requirements and wishes were collected, the team members put the data obtained into their form.

Step 2: Definition of relative weights

In the second step, the team members assigned relative weights to particular requirements and wishes. For this purpose, a method of point assignment was used: the most important requirements were assigned 5 points, and the least important ones were assigned 1 point.

Step 3: Filling in the competitiveness analysis room

The team members made a comparison of the treated school with two competing schools in order to find out which school best fulfils the requirements of pupils, parents, employers, and the Ministry of Education and Sport.

It was agreed that the level of fulfilment of requirements would be evaluated with points ranging from 1 to 5; therefore the school which:

- insufficiently fulfils the requirement would be assigned 1 point
- sufficiently fulfils the requirement would be assigned 2 points
- fulfils well the requirement would be assigned 3 points
- fulfils very well the requirement would be assigned 4 points
- fulfils perfectly the requirement would be assigned 5 points

The team members discussed the actual values regarding the fulfilment of a particular requirement in all three schools and then they assigned the points.

Fulfilment profiles were entered in the form.

Step 4: School capacities

Team members got 7 x 15 cm sized leaflets, which were used to note ideas about school capacities. They used the data on:

- function and purpose of the school,
- material and non-material capacities of the school,
- organisation of the school,
- funding of the school.

Next to the identified capacities of the school they added a symbol \uparrow or \downarrow , which indicated whether it was necessary to maximise or minimise the capacity.

5. korak: Razmerja med zahtevami ter zmogljivostmi šole

Člani skupine so vsako zahtevo i paroma primerjali z vsako zmogljivostjo šole j in se po opravljeni obravnavi odločili za eno izmed štirih možnih povezav:

- močna povezava, simbol ●, vrednost 9,
- srednja povezava, simbol ○, vrednost 3,
- šibka povezava, simbol Δ, vrednost 1,
- povezave ni, simbola ni, vrednost 0.

Po izpolnitvi matrike povezav so člani skupine preverili, ali ima vsaka zahteva povezavo z vsaj eno zmogljivostjo šole. Odgovor je bil pozitiven.

6. korak: Ciljne vrednosti zmogljivosti šole

Člani skupine so obravnavali ciljne vrednosti zmogljivosti šole in jih vnesli v obrazec hiše kakovosti.

7. korak: Dosežene vrednosti zmogljivosti šole

Da bi člani skupine lahko izvedli primerjavo zmogljivosti opazovane šole in konkurenčnih šol, so morali najprej zbrati podatke o konkurenčnih šolah.

Po seznanitvi z zmogljivostmi konkurenčnih šol so člani skupine lahko za vsako zmožnost opazovane šole odgovorili, ali je ta:

- zelo dobro rešena 5 točk,
- dobro rešena 4 točke,
- zadovoljivo rešena 3 točke,
- rešitev je treba izboljšati 2 točki,
- rešitev ni sprejemljiva 1 točka.

Rezultati so vpisani v obrazcu hiše kakovosti.

8. korak. Določitev absolutne in relativne vrednosti posamezne zmogljivosti šole

V tem koraku so morali člani skupine določiti pomen posamezne značilnosti šole, gledano s strani učencev, staršev, delodajalcev in Ministrstva za šolstvo in šport. Absolutna vrednost pomena j-te zmožnosti je:

$$AVP_j = \sum_{i=1}^n (U_i \cdot U_{ij})$$

AVP_j – absolutna vrednost pomena j-te zmogljivosti šole,

U_i – utež i-te zahteve,

U_{ij} – utež povezave para i-te zahteve in j-te zmogljivosti.

Relativna vrednost pomena j-te zmogljivosti pa je:

$$RVP_j = \frac{AVP_j}{\sum_{j=1}^m AVP_j}$$

Step 5: Relations between requirements and capacities of the school

Each requirement i was compared with each school capacity j and after the discussion the team members assigned it one of four possible interconnections:

- strong interconnection, symbol ●, value of 9,
- medium interconnection, symbol ○, value of 3,
- weak interconnection, symbol Δ, value of 1,
- no interconnection, no symbol, value of 0.

After filling in the interconnection matrix, the team members checked whether each requirement had a connection with at least one capacity of the school. The answer was positive.

Step 6: Target values of the school capacities

The team members discussed the target values of the school capacities and entered them in the House of Quality form.

Step 7: Achieved values of the school capacities

In order to compare the capacities of the treated school with competing schools, the team members first had to collect the data relating to the competing schools.

After having studied the capacities of the competing schools, the team members defined each capacity of the treated school as:

- solved very well 5 points,
- solved well 4 points,
- satisfactorily solved 3 points,
- the solution should be improved 2 points,
- the solution is not acceptable 1 point.

The results are entered in the House of Quality form.

Step 8: Definition of absolute and relative value of each particular school capacity

In this step the team members had to define the significance of a particular school capacity from the point of view of pupils, teachers, employers, and the Ministry of Education and Sport. Absolute value of the significance of the j-th capacity is defined as:

AVP_j – absolute value of the significance of the j-th capacity of the school,

U_i – relative weight of the i-th requirement,

U_{ij} – relative weight of the interconnection of the i-th requirement and the j-th capacity.

Relative value of the significance of the j-th capacity is defined as:

RVP_j – relativno vrednost pomena j-te zmogljivosti šole,

$\sum_{j=1}^m AVP_j$ – vsoto absolutnih vrednosti pomena vseh značilnosti šole.

Rezultate izračuna so člani tima vnesli v obrazec hiše kakovosti.

9. korak. Kritične zmogljivosti šole

Kritične zmogljivosti šole so tiste zmogljivosti, katerim so bile poprej ugotovljene največje vsote absolutnih vrednosti pomena vseh značilnosti šole. Kritične zmogljivosti šole imajo bistven vpliv na uspeh šole. Vrstni red zmogljivosti šole je tudi vrstni red izvajanja izboljšav.

Rezultate ugotavljanja kritičnih zmogljivosti šole so člani skupine vnesli v obrazec hiše kakovosti.

10. korak. Povezave med zmogljivostmi šole

Člani skupine so morali vse zmogljivosti šole primerjati na medsebojno vplivanje.

Pri svojem delu so si pomagali z naslednjimi simboli:

- močno pozitivna povezava, simbol ++,
- pozitivna povezava, simbol +,
- negativna povezava, simbol -,
- močno negativna povezava, simbol --.

Rezultate primerjave parov zmogljivosti šole so člani skupine vnesli v obrazec hiše kakovosti.

Po desetih korakih gradnje hiše kakovosti in sprotne vnosa rezultatov izvedbe posameznega koraka v obrazec hiše kakovosti so člani skupine prišli do končne oblike in vsebine hiše kakovosti za opazovano srednjo poklicno šolo, ki jo prikazuje slika 2.

2.2. Rezultati gradnje hiše kakovosti

Po izvedeni analizi hiše kakovosti za srednjo poklicno šolo so člani skupine ugotovili:

1. Opazovana šola v primerjavi s konkurenco bolje izpolnjuje naslednje zahteve in želje:
 - varnost učencev v šoli in na poti domov,
 - teoretično izobraženi učitelji,
 - radi bi se izražali omikano.
2. Opazovana šola v primerjavi s konkurenco slabše izpolnjuje zahteve in želje:
 - kakovostno opremljene delavnice,
 - dobro opremljene učilnice z didaktično opremo,
 - inventivno razmišljanje,
 - primerna prehrana.
3. Opazovana šola je dobra v naslednjih zmožnostih:
 - varnostna služba,
 - vodstvo šole,

RVP_j – relative value of the significance of the j-th capacity of the school,

$\sum_{j=1}^m AVP_j$ – the sum of absolute values of significance of all the school capacities.

The results of the calculation were entered in a House of Quality form.

Step 9: Critical capacities of the school

Critical capacities of the school are those for which it was previously established that they have the highest sums of absolute values of significance of all the capacities of the school. Critical capacities of the school have a vital influence on the success of the school. The sequence of the school capacities is also the sequence in which to carry out improvements.

The results of the assessment of the critical capacities of the school were entered in a House of Quality form.

Step 10: Connections between the capacities of the school

The team members compared, in pairs, all the capacities of the school to determine their interconnections.

In the course of their work they used the following symbols:

- very positive connection, symbol ++,
- positive connection, symbol +,
- negative connection, symbol -,
- very negative connection, symbol --.

The results of the pair comparison of the capacities of the school were entered in a House of Quality form.

After having completed ten steps of the House of Quality construction and after filling in the results of a particular step in the House of Quality form, the team members obtained the final form and contents of the House of Quality for the treated vocational secondary school, as shown in figure 2.

2.2. Results of the House of Quality design

After the analysis of the House of Quality for the vocational secondary school had been completed the team members found out:

1. The treated school fulfils the following requirements and wishes better than its competitors:
 - safety of pupils on the way to and from the school,
 - theoretically-educated teachers,
 - pupils would like to speak in a cultivated way.
2. The treated school fulfils the following requirements and wishes worse than its competitors:
 - quality of workshop equipment,
 - good didactic equipment in classrooms,
 - inventive thinking,
 - suitable nutrition.
3. The treated school is good in the following capacities:
 - security service,

Rezultati prvič v šoli izvedene metode RFK oziroma hiše kakovosti so bili predstavljeni učiteljskemu zboru, ki je odločil, da skupina v razširjeni sestavi ponovi postopek gradnje hiše kakovosti in v analizo vključi več konkurenčnih šol.

3 SKLEP

V prispevku je opisan postopek gradnje hiše kakovosti za srednje poklicne šole. Rezultati preskusa postopka gradnje hiše kakovosti v eni od slovenskih poklicnih šol so pokazali, da predstavlja hiša kakovosti orodje za nenehno izboljševanje kakovosti šole in prilagajanje le-te trenutnim zahtevam in željam dijakov, staršev dijakov, delodajalcev in Ministrstva za šolstvo in šport.

Analiza težav, ki so se pojavljale pri gradnji hiše kakovosti v opazovani šoli, je pokazala, da je bilo število članov skupine (pet) premajhno in da so bili člani tima preslabo pripravljene za skupinsko delo.

Pred ponovitvijo gradnje hiše kakovosti bo torej treba povečati število članov skupine in člane z izvedbo več delavnic ustavrjalnosti usposobiti za uspešno skupinsko reševanje problemov.

The results of the first implementation of the QFD (House of Quality) method were presented to the teaching staff. They decided that new members should join the team and that the House of Quality procedure be repeated with additional competing schools included in the analysis.

3 CONCLUSION

The test results of the House of Quality design in one Slovenian vocational school have shown that the House of Quality is a valuable tool for continuous improvements of the school's qualities and adapting the school to the current requirements and wishes of pupils, parents, employers, and the Ministry of Education and Sport.

Analysis of the difficulties which arose during the House of Quality construction in the treated school has shown that there were too few team members (five) and that they were inadequately prepared for the team work.

Before repeating the House of Quality design it will be necessary to increase the number of team members and to organise several creativity workshops in order to train the team members to solve the problems as a team.

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Naslova avtorjev: prof. dr. Marko Starbek
dr. Janez Kušar
Fakulteta za strojništvo
Univerze v Ljubljani
1000 Ljubljana

mag. Viktor Jemec
Branimir Vrtek
Srednja šola Domžale
1230 Domžale

Authors' Adresses: Prof. Dr. Marko Starbek
Dr. Janez Kušar
Faculty of Mech. Engineering
University of Ljubljana
1000 Ljubljana, Slovenia

Mag. Viktor Jemec
Branimir Vrtek
Secondary school
1230 Domžale, Slovenia

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