Full Length Research Paper

Using multi-dimensional organizational intelligence measurements to determine the institutional and managerial capacities of technical education institutions for girls

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This study aims at defining the institutional and managerial capacities of the technical education institutions for girls in Turkey and measuring the level of the organizational intelligence of these schools. In this study, "multi-dimensional organizational intelligence scale", re-adapted for technical education institutions by Erçetin and Potas was used. The scale has seven dimensions of organizational intelligence. In conclusion, perceptions about general organizational intelligence level are intensified in "middle level" choice. Also, this perception about organizational intelligence does not vary in general according to regions and districts; while it varies between teachers and managers.

Key words: Organizational intelligence, dimensions of organizational intelligence, educational institutions, multi-dimensionality.

INTRODUCTION

Because of the importance of the tasks and responsibilities of schools that depend on General Directorate of Technical Education for Girls, it is crucial to investigate all the things that affect their achieving their aim and removing all their lack. In this term, increasing both their organizational intelligence and perception level is a really important case for the future of our country. It is clear that in a rapidly changing world only intelligent organizations survive; and the efficiency of organizations is proportional with the usage of their potential in the best way and the degree of their fulfillment depends on their intelligence requirement. This study is done for fulfilling the purpose of improving strategies and politics by taking into account the result of this study which describes the institutional and managerial capacities of organizations. With this study, measures that must be taken, the way of

improving human resources and arrangements that can be done about the organizational structure are going to be revealed in organizational level.

The contributions of this study to the field include understanding the educational needs that can help to improve human resources, improving organizational intelligence and growing the human resources that can improve the institutional capacity. General Directorate of Technical Education for Girls has decided to start working towards improving the human resources with the suggestion that is composed according to the findings of this study. The debates on what can be done about structural arrangements are still on. Turkey shows an effort in order to increase the capacity of employment and education of women. This effort is shown by Vocational and Technical Schools for Girls which train labor force into the sectors such that women have domination; the results and reflection of this effort will be seen in short time. This study can be an important example for all countries that share similar view. This kind of applications can support researchers to make new studies. Another

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contribution of the study is making all to see the benefits of the right usage of the organizational intelligence scale.

In this study, research data were collected from the school managers and vocational lesson teachers.

STATEMENT OF PROBLEM

Girls Technical Education Institutions and the dependent schools fulfilling their tasks and responsibilities effectively is a really important topic for our country. Their tasks and responsibilities include providing coordination and cooperation between working life and education, serving qualified educational services that provide participation to work life especially for woman, growing qualified manpower that has appropriate features with the requirements of our age and that can adapt to changes and technology.

For reaching their aim and their purposes, applying right things and consistent learning are the requirements for the institutions that depend on General Directorate of Technical Education for Girls. And this can be possible with the use and the development of skills for organizational intelligence.

The terms "intelligence" and "organizational intelligence" are evaluated within multi-dimensions scale. In several studies "intelligence" is described and resolved by evaluating different metaphors. Intelligence is explained with "geographical, cognitive, biological, epistemology, anthropological, sociological and system" metaphors. System metaphor is really important because it evaluates intelligence in terms of so many systems complicated interactions (Erçetin, 2001a). Because of this, intelligence does not have only one definition. There are too many definitions with different point of views of people from different fields. Erçetin and Düzer (2001d) associated intelligence with states of matter; they depicted solid matter as "vegetative and animal intelligence"; liquid matter as "humanistic intelligence"; and gas matter as "chaotic intelligence". Also several studies on intelligence attract attentions with different intelligence dimensions. In addition to Multiple Intelligence Theories, "peace intelligence", described by Erçetin, shows that definitions of intelligence are still being improved and will be improved continuously (Erçetin, 2001a, 2005; Erçetin et al., 2009c).

When literature is reviewed, too many definitions of "organizational intelligence" can be seen. According to Ghosh (2009: 31) "organizational intelligence" is the skill of an organization to learn and manage the information, and applying it for effective decision making and adapting to changes. Some other definitions from the literature are like this (Liebowitz, 2000: 5): "the organization's ability to deal with complexity, that is, its ability to capture, share, and extract meaning from marketplace signals (Haeckel and Nolan)"; "information processing functions that allow adaptation to the environmental demands and are related to innovation initiation and implementation (Glynn)"; "understanding organizations as learning and creative systems (Halal and Kull, as cited in Liebowitz,2000)".

Schawaninger (2003: 54) describes the basic features that separate intelligent organizations from others as "being able to adapt to changes as a function of external stimuli, influencing and creating their own environment, either through finding a new milieu or reconfiguring themselves anew with their environment, making important contributions."

In the studies about "organizational intelligence" that describe the term in different ways, these are the focal points: tendency of members to improve the performance of organization, process data together and create useful knowledge and exchange of ideas about intelligent behaviors. According to this approach, two important dimensions of intelligence are "joint effort" and "knowledge management" (Erçetin, 2000, 2001a).

Gonyea (2009) explained three important dimensions of organizational intelligence. These three dimensions are expressed as "technical and analytical intelligence"; intelligence of understanding base and procedural problems and "context intelligence".

Another important dimension about organizational intelligence is social networks in organizations. It is stressed that the level of organizations being more innovative, collaborative and having effective change is dependent on social networks in organizations (Erçetin et al., 2009e). Other things that can lead to increasing the level of organizational intelligence are creating a common consciousness and the term called "organizational learning" (Templeton et al., 2002; Waters, 2008; Bradbery, 2007).

According to Schawaninger (2003: 308), when organizational intelligence is founded, organizations resides in its members and, especially, in the network of relationships among them. Such a natural culture hierarchy structure can be improved with experience and growth, and it enhances intelligence.

In addition to the term "organizational intelligence", "organizational stupidity" is also investigated and the behaviors that block the activation of skills as related to the organizational intelligence (Erçetin, 2001b, 2005). Kerfoot (2003) also argued about the organizations that cannot get information and those that the knowledge of "organizational stupidity" cannot be shared with.

In the studies done by Erçetin (2004) new description and new point of views are developed about "organizational intelligence" and the skills that help to show organizations behaving in an intelligent way. "Operational Dimensions of Organizational Intelligence" are defined. "Multi Dimensional Organizational Intelligence Scale" is composed based on those dimensions. In the scale, different skills that described organizational intelligence, different operational dimensions are investigated (Erçetin, 2001a, 2004a, b, 2005, 2009a; Erçetin et al., 2007). This scale is adapted

by different institutions (universities, public and private schools) for describing the organizational intelligence perceptions for determining the institutional and managerial capacity of organizations applied to different foundations (Erçetin, 2004a, b, c; Erçetin et al., 2007; Potas et al., 2009b). With these studies, the levels of organizations' intelligence skills are revealed and suggestions are created for the removal of the missing parts. In literature there are some more other studies about measuring the organizational intelligence. One of them is the empirical studies done by Staškevičiūt (2008) in universities.

Erçetin (2009a) described the operational dimensions of organizational intelligence as "the promptness in action and reaction, adaptation to changing situations, being flexible and convenient in operation, being able to detect and being prudent, being able to use imagination, adaptation to changing situations II, effective communication with stakeholders". Each of these operational dimensions contains different skills. Organizations possessing levels of these foundational skills is dependent on General Directorate of Technical Education For Girls, and the aim of the foundation and the importance of reaching these aims make the investigation of this subject necessary.

General and sub-purposes of the research

Below are the things that comprise the general aims of the study:

1. For defining the institutional and managerial capacities of the foundations that depend on the General Directorate of Technical Education for Girls; to describe the perception about the level of organizational intelligence in general as a whole group, and NUTS1 regions scope in particular.
2. Searching whether perception of organizational intelligence level changes or not between teachers and managers; and NUTS regions and schools.

Below are the things that comprise the sub-purposes of the study:

1. Describing the perception of teachers and managers who work in schools that are dependent on General Directorate of Technical Education for Girls about the multi dimensional organizational intelligence which demonstrates the managerial and institutional capacity in terms of these dimensions of organizational intelligence in general as a whole group and in particular as NUTS1 Regions.
2. Describing the perceptions of teachers and managers in NUTS regions and districts and whether organizational intelligence changes or not in terms of organizational intelligence operational dimensions can be seen as follows:

a. The promptness in action and reaction,

b. Adaptation to changing situations,
c. Being flexible and convenient in operation,
d. Being able to detect and being prudent,
e. Being able to use imagination,
f. Adaptation to changing situations II, and
g. Effective communication with stakeholders.

METHOD

Research model

Model of this research is survey. In this research we investigated the perception level about the seven sub-dimensions of organizational intelligence in general and whether there is a relationship or not between organizational intelligence level and the regions, city or town where the schools and task variables are.

Population and sample

The population of this study is all Girls Technical Education Institutions in Turkey. The sample of the study is composed by taking 1 province from each 12 NUTS1 regions. In other words, 81 provinces are represented with 12 provinces chosen from 12 NUTS region (Table 1).

NUTS 1 regions are used for determining the sample; in this research, regional and national problems of a country are analyzed. In general studies, deciding the provinces that will participate in a research, all cities in NUTS1 regions are taken into consideration. In other words putting provinces chosen from each NUTS1 region has a great importance in terms of samples that represent the entire country.

Samples of the study consist of Istanbul Kayseri, Balikesir, Samsun, Izmir, Trabzon, Bursa, Erzurum, Ankara, Malatya, Gaziantep and Adana", the cities chosen from twelve regions in Turkey.

As seen in Table 1, the cities taken into sample are determined by taking them from each NUTS1 regions according to Statistical Area Classification Units.

Data of the research are collected from the school managers (principals and assistant principals) and teachers of vocational courses who work in schools that depend on National Education Ministry, General Directorate of Technical Education for Girls. In this study, totally 177 managers and 535 teachers participated.

Scale of organizational intelligence

In this study "Multi-Dimensional Organizational Intelligence Scale" is used. The first example of this scale is developed by Erçetin (2001, 2004). Then it was revised by Erçetin et al. (2007). The adaptation of the scale to university level from the education organizations was done by Nihan (2009). With the demand of National Education Ministry, General Directorate of Technical Education for Girls was declared in the act number 83-3516; 29.09.2009; the person who developed the first and other examples of the scale is Erçetin and Nihan, re-adapted it in the context of schools that depend on General Directorate of Technical Education for Girls by taking into consideration the aims of the project.

In this scale, organizational intelligence was handled in terms of these skills:

a. The promptness in action and reaction,
b. Adaptation to changing situations,
c. Being flexible and convenient in operation,
d. Being able to detect and being prudent,
e. Being able to use imagination,

Table 1. Grouping of cities that participated in research according to nuts regions.

NUTS1	Cities chosen from NUTS1 regions
Istanbul	Istanbul
West Marmara	Balikesir
Aegean	Izmir
East Marmara	Bursa
West Anatolia	Ankara
Mediterranean	Adana
Middle Anatolia	Kayseri
West Black Sea	Samsun
East Black Sea	Trabzon
North east Anatolia	Erzurum
Middle east Anatolia	Malatya
South east Anatolia	Gaziantep

Table 2. Coefficient values of α about the "multi-dimensional organizational intelligence scale".

Dimensions	Coefficient of α
The promptness in action and reaction	0.93
Adaptation to changing situations	0.91
Being flexible and convenient in operation	0.91
Effective communication with stakeholders	0.95
Being able to detect and being prudent	0.96
Being able to use imagination	0.93
Adaptation to changing situations II	0.95
General organizational intelligence	0.99

f. Adaptation to changing situations II, and
g. Effective communication with stakeholders.

With the scale current situation of school managers and teachers' perception level who work in schools that depend on General Directorate of Technical Education for Girls about the organizational intelligence and operational dimensions of organizational intelligence is described. At the same time whether the perceptions about the organizational intelligence and operational dimensions of organizational intelligence level change between teachers and managers; and regions and schools or not is another thing that is determined. Scale also can facilitate making managerial evaluations based on these.

Alfa tests results about the reliability of the scale both in each dimension and in general are shown in Table 2.

When we look at the coefficient of α values of scale and its sub-dimensions, we can see that reliability coefficients are in high levels.

Data analysis and interpretation

The order of sub-problems was observed during the analysis of data. For fulfilling the purpose of first sub-problem, determining the level of school managers and teachers in their organizations both in the seven sub-dimensions and in general, total points gathered from each sub-dimension separately and generally was divided by the number of average points in each dimension; and general organizational intelligence levels were calculated to make it

appropriate for five ratings. Average points in five rating scale for four range (5 – 1 = 4) and (4/5 - 0.80) according to range calculated by organizational intelligence levels were determined. According to this;

1.00 – 1.80 point range (1) "very low level of organizational intelligence",
1.81 – 2.60 point range (2) "low level of organizational intelligence",
2.61 – 3.40 point range (3) "middle level of organizational intelligence",
3.41 – 4.20 point range (4) "high level of organizational intelligence",
4.21 – 5.00 point range (5) "very high level of organizational intelligence"

Then for finding the central tendencies about organizational intelligence mean ($\overline{X}$) and for determining to spread ideas, standard deviations were calculated. Also, to resolve the problems that stem from the differences in measurement units and large size of observation values in comparison, the mean, more informative and coefficients of relative changes that are related series of the mean's percentage [V= (ss'/$\overline{X}$)*100] were calculated. In terms of agreement, mean and standard deviations were investigated with coefficients of relative changes; and it is concluded that groups in which standard deviation values and coefficient of relative changes are lower have higher agreement and groups in which these values are higher have lower agreement.

Table 3. Test of normal distribution.

Kolmogorov-Smirnov test	Organizational intelligence
N	763
Kolmogorov-Smirnov Z	1.67
P	0.00

About the level of organizational intelligence in schools both sub-dimensions and general frequency and percentages are calculated and the levels with the highest and striking percentage values are stressed.

Interpretations are done with this idea: middle level of intelligence is acceptable; very low level will damage the organization and it can be a learning barrier. In other sub-problems of the study we aimed to test whether organizational intelligence level is related with other variables or not. With this aim primarily we decided that the test to be used in analysis can be parametric or non-parametric. For this, normality of ideas distribution is tested with the help of SPSS programme Kolmogorov-Smirnov test. Results of the test are given in Table 3.

According to test results and in terms of organizational intelligence perceptions, group distribution is not normal ($p < 0.05$), and for the analysis of the differences, non-parametric techniques are used. In this, organizational intelligence level of the seven sub-dimensions and in general that of the provinces or regions where the schools are, task, gender, seniority, time of work, education variables of workers are investigated with the help of SPSS programme and Pearson Relation Test. In the result of test p value is evaluated and in situations that p value is ≤ 0.05 relation is interpreted as "meaningful".

FINDINGS AND COMMENT

General perceptions of whole group and the perceptions according to NUTS1 regions about the organizational intelligence level

In this part, findings about the first general purpose are presented by dividing them into two main titles.

The perceptions of whole group about the organizational intelligence level

In this part, the perception of school managers and teachers about multi-dimensional organizational intelligence level about institutional and managerial capacity is presented in general as whole group; in particular within the context of NUTS regions.

All perceptions of teachers and managers major in "low" choice except adaptation to changing situations (middle level). In a different point of view, these dimensions determine the institutional and managerial capacities. The dimension characterized by most people as "very low" has been through the use of imagination, while adaptation to changing situations has the fewest. Findings are concluded by benefiting from the definitions of Erçetin (2009, 2004) as follows:

a) Adaptation to changing situations dimension is perceived as "very low and low" by 30% participants; as "middle" by 27% participants; as "very high and high" by the 43% participants. Adapting to new situations; being aware of changing situations that can affect the institution, creating new balances; guessing the situations that can possibly change and developing appropriate politics and strategies about them, and easily coping with the complexities that emerge while a change is happening are the skills that can be evaluated in this dimension. We can say that participants perceive some imperfections about these skills when we look at the results which show 30% of the participants perceives this dimension as "low or very low".

b) Effective communication with stakeholders dimension is perceived as "very low and low" by 37% of the participants; as "middle" by 27% participants; as "very high and high" by 36% participants. Using new information and technology that supply organizational interaction and presence; being quick about sharing information both inside and outside of the organization; supporting the activities inside the organization; sharing the job according to the knowledge, skills and abilities of people by creating cooperation among stakeholders; taking into account the demands, expectations and complaints both inside and outside actions are perceived as being partly fulfilled.

c) The promptness in action and reaction dimension is perceived as "very low and low" by 47% participants; as "middle" by 22% participants; as "very high and high" by 31% participants. In the context of skills in this dimension, it has to do with working in a systematic way to understand internal and environmental stimuli and commenting on them very fast; is a situation where appropriate actions are taken in an organization to reduce the slowing effect of bureaucratic business and operations and being ready to handle any kind of situation and reactions of each member.

d) Being able to detect and being prudent dimension is perceived as "very low and low" by 43% participants; as "middle" by 22% participants; as "very high and high" by 35% participants. So we can say that: organizations' skills in perceiving possible situations and estimating possible effect of them is perceived in a low level.

e) Being able to use imagination dimension is perceived as "very low and low" by 40% participants; as "middle" by 23% participants; as "very high and high" by 37% participants. In this sense, smoothening the rules that block using of imagination, encouraging the workers for producing creative solutions, allowing the usage of personal creativity to organizational improvement are the skills used partly and some problems are perceived in them.

f) Being flexible and convenient in operation dimension is perceived as "very low and low" by 43% participants; as "middle" by 24% participants; as "very high and high" by 33% participants. In this sense rules can be changed in necessary situations about the operation of organizations.

It can be said that the ideas of managers and teachers intensify in "low and very low level". In addition to this no matter how the hierarchical structure is, there should be the possibility to communicate to everybody; supporting a mentality that creates opportunity to make the job in different ways by decreasing the standards; improving an idea that making mistakes is normal and accepting that solving the problem soon and effectively is the more important thing. These are the skills that participants perceive some problems about.

g) Adaptation to changing situations II dimension is perceived as "very low and low" by 35% participants; as "middle" by 28% participants; as "very high and high" by 40% participants. In this dimension improving alternative ways and techniques about appropriate different situations for each job and task; creating solutions to the problems that are not handled in legal and administrative tasks; supporting the research and other activities fulfilled in organizations and creating new politics about operation are the skills that participants perceive some problems about.

The perceptions of school managers and teachers about organizational intelligence level according to NUTS1 regions

The perceptions about organizational intelligence level according to NUTS1 regions are indicated as follows:

1. Participants from Istanbul Region have perceptions of 40% as "very low and low"; 27% as "middle"; 33% as "very high and high".
2. Participants from West Marmara Region have perceptions of 42% as "very low and low"; 19% as "middle"; 39% as "very high and high".
3. Participants from Aegean Region have perceptions of 35% as "very low and low"; 16% as "middle"; 49% as "very high and high".
4. Participants from East Marmara Region have perceptions of 42% as "very low and low"; 34% as "middle"; 24% as "very high and high".
5. Participants from West Anatolia Region have perceptions of 42% as "very low and low"; 26% as "middle"; 32% as "very high and high".
6. Participants from Mediterranean Region have perceptions of 39% as "very low and low"; 22% as "middle"; 39% as "very high and high".
7. Participants from Middle Anatolia Region have perceptions of 37% as "very low and low"; 33% as "middle"; 30% as "very high and high".
8. Participants from West Black Sea Region have perceptions of 40% as "very low and low"; 25% as "middle"; 35% as "very high and high".
9. Participants from East Black Sea Region have perceptions of 18% as "very low and low"; 50% as "middle"; 32% as "very high and high".

10. Participants from North East Region have perceptions of 7% as "very low and low"; 40% as "middle"; 53% as "very high and high".
11. Participants from Middle East Region have perceptions of 46% as "very low and low"; 9% as "middle"; 45% as "very high and high".
12. Participants from South East Region have perceptions of 34% as "very low and low"; 29% as "middle"; 27% as "very high and high".

As a result of these findings, we can say that the region which has the highest perception about the organizational intelligence level is the North East region with 53%; the region which has the lowest perception about the organizational intelligence level is Middle East Region with 46%.

The differences about the organizational intelligence perceptions

In this part, findings about the second general purpose are presented with the help of two sub-purposes defined. According to these findings we can say that perceptions about organizational intelligence do not vary in general according to NUTS regions and districts level; while it varies between teachers and managers.

According to Table 4 in schools that depend on General Directorate of Technical Education for Girls, there is a meaningful difference between the perceptions of teachers and managers in all dimensions ($P<0.05$). When we look at the means we can see that teachers have higher points.

According to Table 5, in terms of multi-dimensional organizational intelligence there is no meaningful difference among the provinces in NUTS regions ($P>0.05$). These values show that managers and teachers who work in the schools that depend on General Directorate of Technical Education for Girls have similar perceptions about multi-dimensional organizational intelligence levels in provinces level.

Also there is no meaningful difference in schools that depend on General Directorate of Technical Education for Girls in terms of multi- dimensional organizational intelligence levels in districts level ($P>0.05$). So we can say that the perceptions about the organizational intelligence level are similar in districts level.

RESULTS AND DISCUSSION

The perceptions about the organizational intelligence level are describing the managerial and institutional capacities of the schools that depend on General Directorate of Technical Education for Girls. These perceptions about general organizational intelligence level are intensified in "middle level" choice. There is a difference among the perceptions of managers

Table 4. The differences among the perceptions of school managers and teachers.

Dimensions	Job	N	Mean of rows	Total of rows	U	Z	P
Adaptation to changing situations	T	568	398.37	226275	46081	-3.602	0
	M	195	334.31	65191			
Effective communication with stakeholders	T	568	398.70	226460	45896	-3.674	0
	M	195	333.36	65006			
The promptness in action and reaction	T	568	403.44	229156	43200	-4.764	0
	M	195	319.54	62310			
Being able to detect and being prudent	T	568	405,47	230307	42049	-5.160	0
	M	195	313.64	61159			
Being able to use imagination	T	568	401.78	228211,50	44144	-4.329	0
	M	195	324.38	63254.50			
Being flexible and convenient in operation	T	568	400.64	227566	44790	-4.090	0
	M	195	327.69	63900			
Adaptation to changing situations (II)	T	568	394.84	224268	48088	-2.812	0
	M	195	344.61	67198			
Organızatıonal Intellıgence	T	568	401.41	228003	44353	-4.265	0
	M	195	325.45	63463			

Table 5. The differences among the perceptions about organizational intelligence of all groups according to the all provinces take place in NUTS regions.

Dimension	Province	N	Mean of rows	Chi-square	sd	P
General Organizational Intelligence	Adana	18	380.00	12.62	14	0.55
	Ankara	73	389.74			
	Balıkesir	43	403.81			
	Bursa	64	354.31			
	Diyarbakır	8	357.50			
	Erzurum	15	498.87			
	Gaziantep	29	427.90			
	İstanbul	316	374.54			
	İzmir	63	407.73			
	Kayseri	27	356.74			
	Konya	40	326.05			
	Malatya	22	402.64			
	Samsun	20	376.30			
	Trabzon	22	415.73			
	Şanlıurfa	3	379.00			
	Total	763	380.00			

and teachers about the level of organizational intelligence. This difference shows that teachers have higher organizational intelligence level than managers. Teachers and managers' perceptions who work in schools that depend on National Education Ministry, General Directorate of Technical Education for Girls are not different about organizational intelligence level in terms of regions, provinces, districts variables. In other

words they are similar.

Because schools that depend on General Directorate of Technical Education for Girls have average or fewer organizational intelligence perception, taking necessary measures by the National Education Ministry can be suggested. In addition to this, other suggestions are seen as follows:

1. For the teachers, managers and other staff who work in schools that depend on National Education Ministry, General Directorate of Technical Education for Girls trainings in service can be useful and in these trainings, the following are expected:

i. Evaluating the institution as a system, knowing the variables that affect the organization inside and outside and understanding the relations,
ii. Observing the important sides of environment, analyzing and using them for the benefit of the organizations,
iii. Usage of sub-station sources effectively for fulfilling the organizational aims, improving new sources,
iv. Effective communication both inside and outside of the organization,
v. Using technology effectively while doing a job and information exchange,
vi. Using the knowledge, ability, skill and potential that they possess for the benefit of the organization,
vii. Being willing to work together and co-operate,
viii. Being willing to change and permanently learning,
ix. Thinking in a systematic way, estimating each kind of result effectively and making quick decisions about them, and
x. Managing stress and conflict skills development can be aimed.

2.   Topics of trainings in-service;

i. Coaching and Quantum Leadership As a Tool of Improving Organizational Intelligence,
ii. Project Management,
iii. Team Work,
iv. Management of Performance,
v. Personal Communication and Institutional Interaction,
a. Social Behaviors and Protocol Rules,
b. Courtesy and Etiquette,
c. Hierarchical Relations,
d. Peer Relations can be.

3. Within certain limits some structural arrangements to remove institutional rigidities can be done in institution.
4. By introducing the suitability in associations between corporate objectives and compliance, necessary arrangements can be made.
5. By introducing the strengths and weaknesses of the institution, identification of the threats in operation can be possible and necessary measures can be taken.
6. By improving the organizational intelligence, more

efficient, reliable, satisfying organizational culture and work environment can be created if the idea can be adopted by all workers.

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APPENDIX

Factors and sample items from muldimorins

Factor 1: Adaptability to changing circumstances I,

Sample items: The sample items are as follows;

1. Being empathetic in all the relationship within school, and
2. Guidance in case of crises.

Factor 2: Communication with the stakeholders

Sample items: The sample items are as follows;

1. Sharing the extra course materials with other schools, and
2. Changing school schedule when needed.

Factor 3: Promptness in action and response

Sample items: The sample items are as follows;

1. Setting up a school culture that is open to change, and
2. Transforming school into a learning organization.

Factor 4: Being intuitive and far-sighted

Sample items: The sample items are as follows;

1. Estimating social needs, and
2. Designing physical setting in a flexible manner.

Factor 5: Being able to use the power of imagination and creativity

Sample items: The sample items are as follows;

1. Encouraging the staff and students to produce creative solutions, and
2. Setting up a shared vision within school and sharing it.

Factor 6: Flexibility and comfort in operation

Sample items: The sample items are as follows;

1. Taking successful school as an example, and
2. Policy-making as to education and instruction by the school administration.

Factor 7: Adaptability to changing circumstances II

Sample items: The sample items are as follows;

1. Taking the support of the stakeholders, and
2. Following local and national press.