

Determinant Factors of Decision Making Process in Higher Education Institution

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Abstract

What factors influence decision-making process in higher education institution? This paper presents the results of a case study of State University of Gorontalo, Indonesia that addressing to the question. The aims of this study were to identify and to analyse factors that influence decision-making process at the State University of Gorontalo. The study used descriptive quantitative method and data was collected using survey method. Sample of the study were 174 participants; consist of 129 lecturers and 45 administration staffs (n = 520). The quota of the sample was 25

Index terms— Influence factors, decision-making, process, organisation, State University of Gorontalo.

1 Introduction

Decision-making is a routine management activity happens at all levels in an organisation. A decision should be made in order to execute activities and to achieve goals. Inability to make a quality decision may affects every aspect of the organization (Nik Muhammad et al 2009; Al Medlej 1997). However in the decision making process there are several factors that could influence the decision. Individual and organisational are the two "nature" factors influencing the decision making process. Blackmore and Berardi (2006) argue that there are at least seven factors, which can influence decision. They are decision makers (Individual or personal), decision situation (environment or condition), thinking in terms of a problem or an opportunity, decision criteria (single or multi-criteria), time and people affected by the decision as well as decision support theories, models, tools, strategy and techniques.

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 ??tmosudirjo (1982) described two important factors that influence the process of decision-making: nature of organization and personal capabilities of decision-maker. Decision maker, which covered their personality characteristic and individual differences, such as gender and age differences, past experience, cognitive biases and belief in personal relevance, could also be an influencing factor for decision-making ?? The Individual or personal factor is considered as the most difficult to control or to predict in the decision-making process, because there are many variables might involved this factor. Arroba (1998) mentioned five factors affecting the decision making process, which related to the decision-maker (person), namely: (1) Information that was known concerning to the concrete problem, which need to be solved, (2), the level of education, (3) personality, (4) coping, in this context can be experience related to the problem (the adaptation), and (5) culture.

Factor of individual or personal mostly corresponds to psychological aspect of decision-maker, whereas organisational factor deals more with environment or condition in the organisation. Furthermore, organisation behaviour and dynamics are multi-determined and relatively complex. Thus, it needs ways of examining and understanding the situation in organization (Cremona 2012). Syamsi (2000) identified four factors that influenced the process of decision-making. These factors are (1) state of organization, (2) availability of information, (3) external condition/ environment, and (4) personality and skill of decision maker. The first three factors are included by organisational factor, which influencing the decision making process.

The dynamic of organisation is also considered as one important factor, which can influence decisionmaking process. Siagian (1987) explained the dynamics in the organization in three categories: (1) the dynamics of individuals within the organization, (2) group II.

2 Decision Making in Higher Education Institution

In the context of Higher Education Institution (HEIs), like in any other organization, the execution of decision is normally done by the top management level of HEIs. Therefore, the management must have skill in term of making and taking the decisions. They have to understand "the core of decision question". This question is formulating in 4W (what, who, why and when) -1H (how). WHAT must to do? This refers to definition of the decision to be made or what is the issue, problem, or choice, and finally assess the impact of the decision on organisation and on people, WHO will implement the decision (the person, who will responsible to make decision). WHY it must be carried out, or why a decision is necessary (this question deals with the reason of a decision to be made -the answer to this question can be found through define, identify and classify of the problem with more quantifiable reason).

The question, WHEN does the decision need to be made has to do with timing (Bovay 2002) and HOW will lead to the strategy taken in making decision (Which strategy will be use?).

Apart from the skills of decision maker, the fundamental aspect of an already taken decision is the implementation of the decision itself. In the organisational theory, the hierarchy of decision's responsibility lays on the decision maker, usually in topmanagement-levels while for the implementation of the decision is on the staff or decision takers or people who have to execute the decisions. For this reason, management needs specific skill and approach. The management is expected to use participatory approach and should not be done using force or violence (both physical and non-physical) in a decision making process.

The approach and step in the implementation of the decision should be materialized through good leadership from management. Through right approach, the people, who have to implement the decision or who will be affected, could carry out the decision that was given to them well and happily, without force and pressure. According to statement of Copeland (1998, cited by Syamsi, 2000) "for each decision action must be taken and the primary responsibility for making sure that action is taken rest on however makes the decision. Action is inducted however, not by the exercise of physical force, not by the threat of corporal punishment, not even by a threat of any kind except under extreme circumstances. Action is inducted rather by leadership.

The essence of the statement is that the implementation of a decision emphasizes the personality character of the people who make decisions (decision maker).

The topic of agility, accuracy, and effectiveness of decision making sometimes grow to be a dilemma. This is partly due to the management gap between the abilities and skills of decision-makers with perception of the decision taker or staff. Consequently, frictions or conflict, due to difference in accepting and interpreting a decision, will follow this situation sometime.

In order to make a quick, accurate and effective decision, it needs to be supported by data and information. Therefore, availability of information plays important role in decision making process. It assumes that only with adequate information a decision can be taken accurately. Brinckloe (1977 cited by Salusu, 2000; ??5) argued that facts and information can guide the decision maker to make an accurate and effective decision. ??rummond (1993: 129) noted that one of the biggest problems faced by decision makers is how to obtain information, which will use to support their decision. This information covers at least three criteria, i.e. reliable, relevant, and up to date. Srinivas (2011) also agreed with Drummond statement about the criteria of information in a decision-making process. Srinivas put some question regarding to information in decisionmaking. These questions are: from where information needed for decision-making can be obtained, what information needs to be taken?, who has that information?, why is that information being collected by the source?, which component of the information will help to make a decision, and which source can provide the best information, as well as which information is available and presented?

Due to important function of information in decision-making, it is not surprising that in organizational theory, there are specific topics, which focused on information and decision making, such as Management Information System (MIS) and more specific is Decision Support System (DCS). DCS itself nowadays is considered as the next evolutionary step after MIS in the development of management theory. Both, MIS and DCS provide information for the managerial activities in an organization. These allow the manager to make available accurate and timely information necessary to facilitate decision-making process and enable the organization's planning, control, and operational functions to be carried out effectively ??Reddy et.al 2011).

In terms of quality and implementation of decision, it could also be influenced by four factors, which mentioned above by Syamsi (2000). It assumes, a good or sound decision has positive impact on the implementation. A quality decision has more possibilities to accept and to implement by the decision taker. On the other hand, a bad or wrong decision tends to have lower acceptance and has low impact in the implementation. Figure1 : Factor influence decision-making process.

3 III.

4 Decision Making Process

Decision-making begins with presence of problems or issues that must be solved in order to achieve the goals of organization. Identification and understanding of a problem considered as the basis for determining the next steps to be taken in decision making process.

The theory of decision-making process in the literature is mostly base on a "traditional" model from Mintzberg. Mintzberg et al (1976) defined a decision making process as the set of actions beginning with the identification of a stimulus for action and ending with the specific commitment to action. As Mintzenberg elaborated, there are three important steps of the decision making process formulated: the problem identification, development of alternative solution, and selection of the best alternative. Baker et al. (2001) divided a general/formal decision-making process into an eight series of steps. The first step is defining the problem, the second, determining the requirements that the solution to the problem must meet. Followed by establishing goals that solving the problem should accomplish, then identifying alternatives that will solve the problem, develop valuation criteria based on the goals, select decision-making tools, apply the tool to select a preferred alternative and check the answer to make sure it solves the problem. However the core of "natural" process of decision-making (Masch 2004) can be specified in four steps: problem identification/recognition, searching and gathering of information, selection and evaluation of alternatives, execute/implement the decision and evaluate the result. During the process of decision-making, starting from identification of the problem to a decision taking, there are many factors that could influence a decision. They could be the personality of decision maker, the state of organisation, internal and external situation in organization as well as availability of information. These entire factors can be classifying as individual and organisational factor and as controllable and uncontrollable conditions (Ozer 2005).

Understanding how important these factors which influence decision making process can be the best "strategy" to improve timely, reliable, accuracy, effectively and accountability of the decisions, which will be made.

5 IV.

6 Methodology

The paper identifies factors influences decisionmaking process. Research was designed using survey method and data was collected through distributing questionnaire. The questionnaire designed to use the four factors mentioned by Syamsi (2000) as the variable for this study plus a "Diverse" factor. These four variables are state of the organisation, availability of information, external condition, and personality and skill of decision maker. The reason to use these four factors as research variable was because these factors are common influencing factors in decision-making process within organisation. Other factors such as, type of problem that the organization deals with; the goal of decision-making, and type of decision to make are classified under "Diverse" factors.

The questionnaire was developed base on the research variables. The total item of questionnaire was

7 Decisionmaking

8 Low

9 Quality of the decision

Execution/implement ation of the decision organization (10 items); availability of information (9 items); external factor (9 items) and skill and capability of decision maker (11 items) as well as "Diverse" factor, covered the type of problem within organization; the goal of decision-making, and type of decision, etc (9 items). A total number of 174 samples consisting of 129 lecturers and 45 administrative staffs were selected randomly by using proportional random sampling from the population for study. The quota of the sample was 25% from the population (Table 1). The data was analysed in to two stages using:

1. Simple mean percentage:

10 $P = \frac{f}{n} \times 100\%$

Where: P = Percentage F = Frequency N = number of sample (Sudjana, 1996; 2005) 2. Descriptive percentage. To describe the score from each variable into the form of descriptive percentage was employed following formula:

11 $P = \frac{S_r - S_{min}}{R} \times 100\%$

Where: P = Percentage S_r = Score of indicator/respondent score S_{min} = Minimal score R = Difference between maximal score and minimal score (Sugiyono, 2002) The total of scores obtained for each indicator shows the degree of influence of each factor in the decision making process at the State University of Gorontalo. The degree of influence classified as follows: 81% -100% = high influence 61% -80% = moderately high influence 41% -60% = relatively low influence 21% -40% = very little influence 0% -20% = not influence Arikunto (2000;57)

V.

12 Result and Discussion

This study provides important information regarding the factors influencing the decision making process in Higher Education Indonesia; in this context is the State University of Gorontalo. The result of data analysis helps to provide a "small" picture of the various facts, information, and justification in process of decision-making in an organization.

There are five factors, which can be settled in decision-making process at the State University of Gorontalo, namely state of organization, skill and personality of decision maker, availability of information, external condition of the organization as well as the miscellaneous factor. These five factors have significance influencing roles in process of making a decision. The cumulative average percentage of these five factors is 68.20% (see Table 2 Research finding shows that state of the organizational in this context is internal condition in organization dominantly influences factor in the decision-making process at the State University of Gorontalo (75.78%). Personality and skill of decision maker considered as the second most influenced factor and has given contribution of 73.67%, followed by availability of information with percentage of contribution of 73.30%. The external condition of the organization also gives significant contribution to decision-making process with the mean percentage of 63.98% and while the rest 54.29% is the result of "diverse" factors.

The state of the organization is the dominant factor, it gives information that internal condition in origination plays important role in the process of decision-making. Internal conditions are physical and intangible factors inside of the organization that influence the decision-making behaviour of individuals in the organization (Duncan, 1972; ??indsay & Lue, 1980).

It is important to note, that in internal condition of organization there are many "inter-related" element, which support the existence of organization. Each element could contribute in decision-making process, such as budget, personnel and physical infrastructure as well as organizational structure, size, instrument and bodies.

Theoretically, it is sometimes not easy to deal with internal condition in a decision making process because internal conditions are not amenable to change (Benveniste 1974), even though this factor generally controllable. The challenge to develop a solid internal condition in organization considered as a strategy in order to produce a quality decision, which is the use of all potential in internal condition to support decision maker in decision making process.

Identifying, assessing, and managing factor which influence decision-making process are important for decision maker in order to produce a quality decision. Furthermore, critical point to minimize a wrong or not sound decision due to the important of quality of decision making, which could improve organizational performance.

Regarding variable of the availability of information, the result showed that this factor also has significant contribution in the decision-making process. Base on the data analysis, it found that there were many decisions in State University of Gorontalo, used and supported by data and information. On the other hand, there are number of decisions that always considering input and suggestions from the staffs.

Furthermore, it can be concluded that data and information in decision-making process in any organisation were taken into account to be an important factor. Data and information can be obtained through the facts and experience possessed by the organization in solving organizational problems or issues. Due to lack of information and poor data supporting system, many were often failing to produce a quality decision. This case also indicated as one of the result of this study.

However, the availability of data and information is not a guarantee to produce a quality decision. Even when decision makers have sufficient information, which could be used as a basis to make a decision, still this is not a warranty to make an effective decision. This is due to the fact that data and information, which in-putted or supplied by staffs sometimes not relevant with what the decision makers need. The problem for this case is that the required information often so abundant and complex.

Furthermore, decision makers (manager, executive, or directors) sometimes do not explain, what kind of data or information that they need. As consequent, even there are available data and information for decision maker, still they cannot use that and the data also are not able to assist them. The result is they would not be able to grasp all of the information because the provided information is inappropriate in order to produce a quality decision. Such a common situation is well known as "garbage in, garbage out" and to be considered as one of failures in human decisionmaking due to faulty, incomplete, or inaccurate of the data ??Brooks et.al. 1981).

In the practice of organisational activities, it is the demands of data and information that always been a part of the decision making process. Therefore, several decisions often must be delayed due to lack of the complete data or because only inadequate information that is available.

The third variable in this study is external condition of the organisation. This variable or factor also has significant contribution in influencing the decisionmaking process. However when compared with another variables (state of organisation availability of information and skill and personality of decision maker), external condition of the organisation has the smallest percentage of contribution with 63.98%, whereas the variable of state of organisation (75.78%), availability of information (73.30%) and the skills and personality of the decision maker (73.67%).

Although the percentage of contribution of external conditions is not as high as another variable, this factor remains important aspect in decision-making process and considered as influencing factor in particular for the strategic decision-making.

In addition, some important decisions related to the stakeholders were informed to public and some circumstances that occurred outside of the organisation were also taken into account.

Related to the external condition, it is important to note, that this may cover local, regional, national and international levels. Because the impact of a decision or policy is sometimes not only experienced by the organization itself, but is also exposure to those in outside of the organization.

Factor of personality and skill of decision maker, which covered their ability and capability, is more complex because it is directly related to the person who will take or make a decision. This factor plays important role in determining whether a decision maker will produce a quality or a bad or a wrong decision. Moreover, this also closely related to subjective factors of decision maker. Personality and skill of decision maker is one fundamental factor in decision-making process. The skill is necessary to ensure that the locus of knowledge and the locus of decision-making authority are matching in order to produce a sound decision (Jensen 1995).

It is also important to note that one goal of decision making is to ensure the performance of activities in organisation running properly. Decisionmaking can serve as a "bridge", which has function to connect between the maintenance of performance activities and the achievement of the goal of organisation. This relates to (Richard et.al 2007) statement that organizations could only function efficiently when those who have the knowledge necessary for decisions also have the authority to make those decisions.

In relation to the indicator of personality and skill of decision-maker, the result of study shows that there is a significant contribution of this variable. As a human factor in decision-making process, it is not a surprise, that this variable has the mean of 73.67%, because the people who make decisions (decision makers) can never be separated from their personality and skill attribute. These attributes covers experience, personal qualities, position, and authority in organisation, level of intelligence, accountability, empowerment, or authority to delegate a decision, decision style, as well as knowing and understanding of the vision and mission of the organization / institution.

Type of decision also provides significant contribution in influencing the decision-making process. The research result shows that most of decisions at the State University of Gorontalo are programmed decision. Programmed decision means a decision that usually use to deal or to solve routine and repetitive problems within organisation. Because the decision in the State University of Gorontalo are dominantly programmed decision, it can be concluded that the decision-making process has its established policies, rules and procedures and stem from prior experience or technical knowledge about what works or does not work in a given situation. In addition, this decision making process could be based on organisational habit in the State University of Gorontalo. Interestingly, the research findings also indicates that most of problem in the State University of Gorontalo, which need decision in order to solve it, can be categorized as structured problems or well-structured problems. The characters of this problem are logical, well known and easily to identify. These findings give important information that there are significantly relation between the type of decision and the type of problem in organisation.

Since programmed decision is rated as dominant type of decision in State University of Gorontalo and it is faced routinely in everyday organisation activities, it affects the decision-making process. The decision makers are not being put in a special context whilst the problem descriptions are clear and the information needed to solve them is well provided in the problem statement (Chi & Glaser, 1985). Thus, the context and situation of programmed decision is relevant to the setting of structured problems.

However, research has shown that the goal of decision affects the process of decision-making. Furthermore, research findings in this area indicate that there are two type of decision goal in the State University of Gorontalo. First is decision, which has main purpose to achieve of the goal in term of problem solving. The second type is decision that has to make as respond to the pressure from the environment. It could be an internal or external pressure in the organisation.

As the research finding, the three factors namely type of problem; the goal of decision-making and type of decision have given significant contribution in decision-making process at the State University of Gorontalo with the percentage value of 54.29%.

13 VI.

14 Conclusion

By considering the findings of this study, it is informed that the five variables have significantly contribution in decision-making process at the State University of Gorontalo. In general, information that can be obtained from the research results is that there is no significant different across variable which affected the decision-making process. The state of organization (75.78%) is dominantly factor that affected decisionmaking process at the State University of Gorontalo, followed by personality and skill of decision maker, which contributes up to 73.67%. Availability of Information has a contribution of 73.30% and external condition contributes to 63.98%. Other factors such as, type of problem within organization; the goal of decision-making, and type of decision, etc. brings a total contribution of 54.29%.

The findings require further research to be done in the area of decision-making process, especially the



Figure 1:

1

Nr	Faculty	Number of population	Sample
1	Faculty of Education	80	20
2	Faculty of Letter	71	18
3	Faculty of Science and Mathematics	106	27
4	Faculty of Social Science	104	25
5	Faculty of technology	90	23
6	Faculty of Agricultural	69	17
7	Administrative Staff	180	45
	Total	520	174

Figure 2: Table 1 :

2

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Global Journal of Manage- ment	Nr.	Variable	Internal condition of the organization	Mean of re- spon- dent's scores	Percentage	Category (level of influence)	(level of influence)
	1	Availability of	Internal condition of	280	75.78	moderately	moderately
	2	information	External condition	275	73.30	high	influence
	3	of the organization		249	63.98	moderately	high
						influence	influence
						moderately	high
	4	Personality and skill of decision	maker	276	73.67	moderately	high influ-
						ence	
	5	Diverse" factors (type of prob-	lem, goal of decision and type	158	54.29	relatively low	influence
		of decision)					
		Total		247	68.20	moderately	high influ-
						ence	

Figure 3: Table 2 :

276 determinant factors of multiple viewpoints or variables using other type of research approach such as qualitative
277 research. ¹ ²

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²Determinant Factors of Decision Making Process in Higher Education Institution (A Case of State University of Gorontalo, Indonesia)

- [Beberapa Pandangan Umum Tentang Pengambilan Keputusan. Jakarta. Ghalia Indonesia] , *Beberapa Pandangan Umum Tentang Pengambilan Keputusan. Jakarta. Ghalia Indonesia*
- [Keynes and Gb] , Milton Keynes , / Gb .
- [Brooks and Becker] , Daniel T Brooks , Brandon Becker , JerryR .
- [Jakarta and Gramedia Pustaka Utama] , Pt Jakarta , Gramedia Pustaka Utama .
- [Springer-Verlag] , Springer-Verlag . 10.1007/s00191-004-0218-8. 14 p. .
- [Jakarta and Gramedia Widiasarana Indonesia] , Pt Jakarta , Gramedia Widiasarana Indonesia .
- [Atmosudirdjo ()] , Prajudi Atmosudirdjo . 1987.
- [Siagian ()] , S P Siagian . *Filsafat Administrasi. Jakarta. PT Gunung Agung* 1987.
- [Sudjana ()] , Sudjana . Metode Statistika. Bandung. Tarsito 1996.
- [Jullisson et al. ()] , E A Jullisson , N Karlsson , T Gärling . 2005.
- [Sanz De Acedo Cardelle-Elawar ()] , Sanz De Acedo & Cardelle-Elawar . 2007.
- [Duncan ()] 'Characteristics of organizational environments and perceived environmental uncertainty'. R Duncan . *Administrative Science Quarterly* 1972. 17 (3) p. .
- [Marlatt ()] *Computer Applications in Particular Industries: Securities appearing in Bigelow, Computers & The Law American Bar Association, Section of Science and Technology*, Marlatt . 1981. (Third Edition at 250, 253)
- [Wilson ()] *Decision making Approaches and Analysis*, Wilson . 1982. Manchester University Press. Manchester. P. 160.
- [Arroba ()] 'Decision making by Chinese -US'. T Arroba . *Journal of Social Psychology* 1998. 38 p. .
- [Al-Medlej and Ibraheem ()] *Decision Making Process In Higher Education Institutions. The Case of Saudi Arabia*, Hafez Al-Medlej , Ibraheem . 1997. Thesis. Middlesex University. The Burroughs. London
- [Maheran ()] 'Decision making quality of higher education Institutions leaders in malaysia: leadership Style, decision style, managerial process and competitive intensity relationships'. Nik Maheran . *Akademi Kepimpinan Pengajian Tinggi (AKEPT). Kementerian Pengajian Tinggi Malaysia*, 2009. (Research report)
- [Bovay ()] *Decision making tips to improve decision outcomes and the best types of problem solving Strategies*, Kris Bovay . <http://www.more-for-small-business.com/decision-making-tips.html> 2002.
- [Timberlake ()] 'Decision-Making in Multi-Campus Higher Education Institutions'. Gregory R Timberlake . *Community College Enterprise, The ?* 2004. 10 (2) p. .
- [Stowell ()] 'Equity, justice and standards: assessment decision making in higher education'. Marie Stowell . 10.1080/02602930310001689055. *Assessment & Evaluation in Higher Education* 2004. 29 (4) .
- [Factors that affect decision making: gender and age differences International Journal of Psychology and Psychological Therapy] 'Factors that affect decision making: gender and age differences'. *International Journal of Psychology and Psychological Therapy* 7 p. .
- [Ozer ()] 'Factors which influence decision making in new product evaluation'. Muammer Ozer . CiteSeerX. 10.1.1.109.1479. *European Journal of Operational Research* 2005. 163 p. . (Psychology.)
- [Baker et al. ()] *Guidebook to Decision-Making Methods*, D Baker , D Bridges , R Hunter , G Johnson , J Krupa , J Murphy , K Sorenson . WSRG-IM- 2002-00002. http://www.dss.dpem.tuc.gr/pdf/Decision%20Making%20Guidebook_2002.pdf 2002. Department of Energy, USA
- [Chi and Glaser (ed.) ()] *Human abilities: An information processing approach*, M T H Chi , R Glaser . R. J. Sternberg (ed.) 1985. New York: W. H. Freeman. (Problem solving ability)
- [Lindsay and Rue ()] 'Impact of the orgnization evnironemtn on the long-range planning process; a Contingency view'. W M Lindsay , L W Rue . *Academy of Management Journal* 1980. 23 p. .
- [Bruine De Bruin et al. ()] 'Individual differences in adult decisionmaking competence'. W Bruine De Bruin , A M Parker , B Fischhoff . 10.1037/0022-3514.92.5.938. *Journal of Personality and Social Psychology* 2007. 92 (5) p. .
- [Srinivas ()] *Information for Decisionmaking. Environmental Decision-Making*, Hari Srinivas . <http://www.gdrc.org/decision/info-decis> 2011.
- [Richards and Seesholtz (2007)] *Internal organization and external contracting for the NEPA process: Lessons from New Institutional Economics and Strategic Organizational Design. A White Paper Prepared for USDA Forest Service*, Kenneth Richards , David Seesholtz . <http://www.fs.fed.us/pnw/about/programs/fsd/NEPA/NewInstitutionalEconomicinFSNEPA.pdf> 2007. September 20, 2007.
- [Berardi and Blackmore ()] *Introducing Environmental Decision Making. Book. 1*, Berardi , C Blackmore . 2006. Open University Worldwide.

- [Reddy and Satyanarayana ()] *Management information system to help managers for providing decision making in an organization. International Year Determinant Factors of Decision Making Process in Higher Education Institution*, G Reddy , Satyanarayana . 2011. Indonesia. Case of State University of Gorontalo
- [Arikunto ()] 'Manajemen Penelitian'. Suharsimi Arikunto . *Jakarta. PT. Rineka Cipta* 2000.
- [Sugiyono ()] 'Metode Penelitian Administrasi'. Sugiyono . *Bandung. CV. Alfabeta* 2002.
- [Ho et al. ()] 'Multiple criteria decision-making techniques in higher education'. W Ho , P K Dey , H E Higson . *International Journal of Educational Management* 2006. 20 (5) p. .
- [Stanovich and West ()] 'On the relative independence of thinking biases and cognitive ability'. K E Stanovich , R F West . *Journal of Personality and Social Psychology* 2008. 2008. 94 (4) p. .
- [Syamsi ()] 'Pengambilan Keputusan dan Sistem Informasi'. Ibnu Syamsi . *Jakarta. PT. Bumi Aksara* 2000.
- [Salusu ()] *Pengambilan Keputusan Strategik untuk Organisasi Publik dan Organisasi Non Profit*, J Salusu . 2000.
- [Drummond ()] *Pengambilan keputusan yang Efektif (Effective Decision Making). Petunjuk Praktis dan Komprehensif untuk Manajemen*, Helga Drummond . 1993.
- [Departemen Pendidikan ()] 'Proses Pengambilan Keputusan. Materi Pelatihan terpadu untuk Kepala Sekolah'. Nasional Departemen Pendidikan . *Jakarta. Direktorat Jenderal Pendidikan dasar dan Menengah. Direktorat Pendidikan Lanjutan Tingkat Pertama* 2002.
- [Masch ()] 'Return to the "natural" process of decision-making leads to good strategies'. Vladimir A Masch . *Journal of Evolutionary of Economics* 2004.
- [Jensen and Meckling ()] 'Specific and General Knowledge, and Organizational Structure'. M ; W Jensen , Meckling . *Journal of Applied Corporate Finance* 1995. 8 (2) p. .
- [Choban et al. (2008)] *Strategic planning and decision making in higher education: what gets attention and what doesn't. Assessment Update. Progress, Trends, and Practices. in Higher Education*, Michael C Choban , Gary M Choban , David Choban . <http://www.abn.org.au/site/article/organisational-dynamics> 2008. March -April 2008. 2012. February 2012. Wiley Interscience 14. Cremona, Katina. 20. (A framework for understanding organisational dynamics)
- [Benveniste et al. ()] *Survival Incident Bureaucracy*, Guy Benveniste , G Anthony , M Mc Grow . 1974.
- [Mintzberg et al. ()] 'The structure of 'unstructured' decision processes'. Henry Mintzberg , Raisinghani , & Durum , Andre Theoret . *Administrative Science Quarterly* 1976. 21 (2) p. .
- [Acevedo and Krueger ()] 'Two egocentric source of the decision to vote: The voter's illusion and the belief in personal relevance'. M Acevedo , J I Krueger . *Political Psychology* 2004. 25 p. .
- [Weighing the past and the future in decision making European Journal of Cognitive Psychology] 'Weighing the past and the future in decision making'. DOI: 10. 1080/09541440440000159. *European Journal of Cognitive Psychology* 17 (4) p. .