Using Certainty Factor Method To Determine Work Commitment Generation Y

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Abstract. At present, in the world of work there are three generations that color the workforce, namely baby boomers born in 1943-1960, generation X 1961-1979 and generation Y 1980-1994. Generation Y is an individual born in the development of information technology and a high level of education so that Generation Y is very achievement-oriented, hard-working and will strive to achieve success but Generation Y has a tendency to move around at work, lack of work commitment so that this causes companies to experience difficulties in determining the performance commitment of generation Y if this continues it will have an impact on the sustainability of a company, so we need a certainty factor method to determine the work commitment of generation Y. from research that has been done by taking one sample by applying the certainty factor method produced that one of the Y generation has a commitment to the feeling of love in an organization that raises the willingness to stay and foster social relationships and appreciate the value of relationships with the organization because it has become a member or ganisasi (Affective commitment)

Keyword: Certainty Factor (CF), Work Commitment, Generation Y

1. Introduction

At present, in the world of work, including three generations that describe labor, namely baby boomers born in 1943-1960, generation X 1961-1979 and generation Y 1980-1994 (Jorgensen, 2003), Gargiulo reporter CNN (2012), states the baby boomers will leave their jobs, so generation Y will occupy the largest proportion of the workforce in the next 10 years. Other studies from VanMeter *et. al* (2013) shows the potential proportion of generation Y increasing in 2020 which is likely 46% of generation Y dominates the world of work (VanMeter, Grisaffe, Chonko, & Roberts, 2013). Generation Y is an individual born in the development of information technology and higher education (Bolton et al., 2013). Generation Y is very achievement-oriented, hard-working and will strive to achieve success (Zemke, Raines, & Filipczak, 1999). This is because Generation Y defines success as judged by how much material he gets and they are also very interested in status or prestige in his career (Morton, 2002). On the other hand, Y lesions in the workplace easily express their opinions, prioritize their needs, like challenges, be independent, have a low tolerance for boredom, want recognition, and require constant feedback (Tan, Lew, & Sim, 2019), whereas in research conducted by Wan Fadzilah et. al said that generation Y is lazy, wants things that are instant, disloyal, selfish and spoiled (Wan Fadzilah Wan Yusoff, Abdelbaset Queiri, Sabarudin Zakaria, Raja Rizal Iskandar Raja Hisham, 2013). The characteristics of generation Y in the world of work cause generation Y to frequently move jobs. This is supported by research (Lancaster & Stillman, 2003); (Smola & Sutton, 2002) said generation Y considered change a positive and desirable thing that caused generation Y to become easily bored and made them unwilling to stay in one job for a long time. A survey conducted by The Boston Consulting Group in 2014 said 60% of employees were fresh graduates (generation Y) changing jobs in the first three years, 6% of respondents said they had changed jobs three times during the first three years, then as many as 29% of respondents said that they moved workplaces two to three times within a

period of three years (Reisenwitz, 2009). This causes some companies to experience difficulties in determining the performance commitments of Generation Y. If viewed from the background above to overcome the problems that occur in Generation Y, it requires the application of Certainty Factor (CF) to determine the level of work commitment of Generation Y. supported by the results of Krahn & Galambos research states generation Y has a tendency of 2 times greater than generation X to quit their jobs after 1 year of work (Krahn & Galambos, 2014). The tendency of generation Y to leave the organization is due to low organizational commitment (Salahudin, Alwi, Baharuddin, & Abd Samad, 2016). This, as stated (Queiri, Wan Yusoff, & Dwaikat, 2015); (Krahn & Galambos, 2014) that the high turnover and absence of employees at the company due to the low level of commitment possessed by employees. Low employee commitment can be seen from the work attitude of employees who look unproductive and lazy at work which will cause difficulty in achieving organizational goals and reduce organizational effectiveness. To avoid the above problems, companies must act more quickly in understanding the Y generation's work commitments before recruiting employees from Generation Y, so that the turnover does not increase which results in adverse impacts on the company in the future. and to avoid the above problems, certainty factor method is needed to determine the value of certainty of Y generation's work commitments

2. Methodology

2.1 Komitmen

Organizational commitment can be defined as a condition where individuals reflect an affective orientation towards the organization, understand the costs or losses incurred due to leaving the organization and the moral obligation to be in the organization (Meyer & Maltin, 2010) and Rerisenwitz stated in their research that organizational commitment has 3 components, namely affective commitment, continuance commitment or normative commitment. Employees who have affective commitment have emotional attachment to the organization at work. So that employees with affective commitment will show better work performance compared to employees who are dominated by continuance commitment or normative commitment (Reisenwitz, 2009)

2.2 Certainty Factor (CF)

One theory that can be used to solve the problem of uncertainty in an object. Certainty Factor or CF is a value to measure expert confidence and CF was introduced by Shortliffe Buchanan in making the MYCIN expert system

to show the amount of trust where CF shows the certainty measure of a fact or rule the highest value in CF is + 1.0 (definitely true or Definity not) and the lowest value in CF is -1.0 (definitely wrong or Definity not) a positive value percentages the degree of confidence, while a negative value percentages the degree of uncertainty (Krause, Clark, Krause, & Clark, 1993)

Certainty Factor is defined as follows:

$$CF (H,E) = MB (H,E) - MD (H,E)\ldots\ldots\ldots\ldots(1)$$

Where:

CF (H,E) = certainty factor

MB (H,E) = measure of confidence / level of confidence in hypothesis H, if given / influenced by evidence e (between 0 and 1)

MD (H,E) = measure of mistrust / level of uncertainty of hypothesis H, if given / influenced by E evidence (between 0 and 1)There are two ways to get the level of confidence from a rule, namely:

a. The Net Belief Method proposed by E.H. Shortliffe and B.G. Buchanan (Swartout, 1985)

$$CF (Rule) = MB (H,E) \ldots\ldots(2)$$

$$MB(H,E)= \begin{cases} 1 & P(H)= 1 \\ \dfrac{\max[P(H|E),\ P(H)]- P(H)}{\max [1,0]- P(H)} \end{cases} \ldots\ldots\ldots\ldots\ldots(3)$$

$$MD (H,E)= \begin{cases} 1 & P(H) = 0 \\ \min [P(H|E), P(H)]- P(H) \end{cases}\ldots\ldots\ldots (4)$$

Where:

CF (Rule) = Certainty Factor

MB(H,E) = measure of belief (a measure of confidence in hypothesis H, if given E evidence (between 0 and 1).

MD (H,E) = measure of disbelief (evidence of mistrust) of E evidence (between 0 and 1).

P(H) = probability of the truth of hypothesis H.

P(H|E) = the probability that HP is true because of the fact E.

b. By interviewing an expert.

The value of CF (rule) is obtained from the interpretation of the term from the expert, which is converted into a certain CF value according to the following table 1

Table 1 The Value of Certainty Factor

Uncertain term	CF
Certainly not	-

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	1.0
Almost certainly not	-0.8
Most likely not	-0.6
Probably not	-0.4
Do not know	-0.2 to 0.2
Maybe	0.4
Most likely	0.6
Almost certain	0.8
certainly	1.0

The basic formula is used if there is no CF value for each symptom work commitment. Certainty factor combinations used to diagnose the work commitmentare:

Certainty factors for rules with a single premise / symptoms:

CF $_{\text{the symptoms}}$ = CF [user] * CF [expert]........................(5)

1. If there are rules with similar conclusions or more than one symptom, then the next CF is calculated by the equation:

   CF $_{\text{combine}}$ = CF old+ CF $_{\text{the symptoms}}$* (1-CF$_{\text{old}}$.......................(6)

2. Meanwhile, to calculate the percentage of work commitment, use the equation :

   CF $_{\text{persentase}}$ =CF$_{\text{combine}}$ * 100.........................(7)

In the work commitment session, interpretation options are given, each of which has the following CF values:
- Not at all = 0.0
- (Yes) Not sure = 0.1- 0.3
- (yes) a little sure = 0.4- 0.5
- (yes) pretty sure = 0.6- 0.7
- (yes) sure = 0.8- 0.9
- (yes) very confident = 1.0

The process of calculating the percentage of beliefs begins with the breakdown of rules that have multiple rules, into rules that have a single phenomenon. Then each new rule is calculated by using the CF equation 5. but what if there are more than one symptom, the CF work commitment is calculated by equation 6.

3. Result and Discussion

Generation Y of employee commitment organizational code y	Commitment Features
K01	Enjoy the work

K02	Loyalty
K03	Be emotionally attached to the company
K04	Acceptance of organizational culture
K05	Have the same goals as the company
K06	Work is full of challenges
K07	Varying work
K08	Feel a conducive work environment
K09	There is clarity in career path
K10	The existence of a clear remuneration system
K11	There is a fair work system
K12	Recognition of the work
K13	An appreciation for the work
K14	Feeling in accordance with company rules
K15	There is a moral obligation to company facilities
K16	Tied to a work contract

Table 2. type of Commitment

Commitment type code	Name of commitment
JK 1	Affective commitment
JK 2	Continuance commitment
JK 3	Normative commitment

Table 3. Interview data

Commitment code	Name the commitment characteristics	CF JK 1	CF JK 2	JK 3
k01	Enjoy the work	0,8		
K02	Loyalty	0,4		
K03	Be emotionally attached to the company	0,6		
K04	Acceptance of organizational culture	0,2		
K05	Have the same goals as the company	0,4		
K06	Work is full of challenges	1,0		
K07	Varying work	0.2		
K08	Feel a conducive work	0,4		

	environment			
K09	There is clarity in career path		1,0	
K10	The existence of a clear remuneration system		1,0	
K11	There is a fair work system		0,6	
K12	Recognition of the work		0,4	
K13	An appreciation for the work		0,2	
K14	Feeling in accordance with company rules			1,0
K15	There is a moral obligation to company facilities			0,6
G16	Tied to a work contract			1,0

Table 4 interpretation of user weight values

User answer	Weight
Do not know	0,0
Not confident	0,2
not enough confident	0,4
Confident enough	0,6
Confident	0,8
Very confident	1

Table 5. Conclusions presentation table

NO	Percentage rate	Value of confidence
1	0%- 60%	Few possibilities or small possibilities
2	61% - 79%	Most likely
3	80% - 99%	Almost certain
4	100%	certainly

Tabel 6 kaidah aturan rule

No	Rules of rule
1	IF Enjoying work (K1) AND loyalty (K02) AND emotionally attached to the company (K3) AND acceptance of organizational culture (K4) AND has the same goals as the company (K5) AND challenging work (K6) AND varied jobs (K6) K7) THEN feels the work environment is conducive (AFFECTIVE)
2	IF Clarity of career path (K9) there is clarity of remuneration system (K10) AND there is a fair work system (K11) AND there is recognition of work results (K12) THEN there is an appreciation for work results (Continuance commitment)
3	IF feels compatible with company rules (K14) AND there is a moral obligation to company facilities (K15) THEN is bound by a work contract (Normative commitment)

after we follow the rules in determining the work commitment of generation Y, the next step to get the value of the generation Y work commitment is to combine CFold and CFcombine, table 7 is the CFold CF combine value

Tabel 7 Value $CF_{Old}CF_{Combine}$

Commitment code	Name the commitment characteristics	CFJK1	CFJK2	CFJK3	CFUser	CFCombine	CF_{Old} $CF_{Combine}$
k01	Enjoy the work	0,8			1,0	0,8	0,8
K02	Loyalty	0,4			1,0	0,4	0,4
K03	Be emotionally attached to the company	0,6			1,0	0,6	0,6
K04	Acceptance of organizational culture	0,2			1,0	0,2	0,2
K05	Have the same goals as the company	0,4			1,0	0,4	0,4
K06	Work is full of challenges	1,0			1,0	1,0	1

K07	Varying work	0.2			1,0	0,2	0,2
K08	Feel a conducive work environment	0,4			1,0	0,4	0,4
K09	There is clarity in career path		1,0		1,0	1	1
K10	The existence of a clear remuneration system		1,0		1,0	1	1
K11	There is a fair work system		0,6		1,0	0,6	0,6
K12	Recognition of the work		0,4		1,0	0,4	0,4
K13	An appreciation for the work		0,2		1,0	0,2	0,2
K14	Feeling in accordance with company rules			1,0	1,0	1	1
K15	There is a moral obligation to company facilities			0,6	1,0	0,6	0,6
G16	Tied to a work contra			1,0	1,0	1	1

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4. Conclusion

1. From the results of the research that has been done, the percentage determines that the Y generation work commitments by applying the CF 100% method, so that it can be stated that with the predetermined symptoms, the company can decide on the Y generation commitments.
2. With the application of the CF method in determining the work commitment of generation Y can help companies to be able to know the characteristics of generation Y, this can help the sustainability of a company in the future.
3. Further research will discuss about determining the Work Value Generation Y using the CF Method

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