

# Knowledge, Attitude, and Action of Community towards Waste Management in River Bank of Martapura

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**Abstract** The aim of this study was to assess the community's knowledge, attitude, and action toward waste management. It is expected to be the basis consideration for Banjar Government to solve waste management problem in a more effective, efficient and environmental-friendly manner on Martapura River Bank. This study used quantitative descriptive analysis. Results of this study indicated that the community's knowledge, attitude, and action on waste management at Martapura River Bank was in moderate level, with attitude as the main domain, followed by knowledge and action. Waste management problem along the river was very important to be investigated due to the waste problem which was caused by people's behaviour who carelessly littering. People who lived at Martapura River Bank did not actively participate in handling and managing the river waste. Thus, community's knowledge, attitude, and action need to be studied further to improve their awareness into better and responsible manner.

**Keywords** Knowledge, Attitude, Action, Waste management, Household waste, Quantitative descriptive

## 1. Introduction

Waste problems are not new for Indonesian. Waste volume is increasing along with human population growth and limited available lands for landfill. These problems need to be solved immediately. The problems caused by the surround population which littering to Martapura River. The littering causes waste accumulation that lead to environment degradation and negative impact on community. In addition, pollution of air, soil, and water caused by waste become a source of various diseases to humans.

In Banjar Regency, South Kalimantan, the waste volume has reached 1289.27 m<sup>3</sup> per day in 2012. The solid waste which is transported to the final waste processing sites (TPS) in 2012 only 11.64%, while remaining waste is disposed into informal and unmanaged sites such as rivers, vacant land or roadside [1]. The waste volume in study area of Antasan Senor Ilir Village are: household waste 7.34 m<sup>3</sup> per day, trading area 1.41 m<sup>3</sup> per day, regional public facilities for 2.07 m<sup>3</sup> per day and road for 1.23 m<sup>3</sup> per day. If it is not properly handled, it will generate environmental problems.

According to Government Regulation No. 81 of 2012 on the Management of Household and Household-like Waste, *household waste* defined as waste produced from household daily activities; but not include human faeces and specific waste. Types of waste produced in household scale are leftovers, papers, bottles, packaging waste, and plastic.

Basically, the waste is disposal materials as uneconomically used products of human activities or natural processes; it even possesses negative economic value if it was wrong handled or removal and the process require high cost [2-5]. While, waste management is a step by step activity to generate another form of waste, that it is more useful and harmless for environment [6-8]. In this study, waste management activities include in household level are reduce the using of undecomposed materials, waste separating, removing waste to temporary landfill, waste reusing, and environment cleaning.

One of the government efforts to solve and manage waste problem has been formulated in Law No. 18 of 2008 on Waste Management. In the act, there is an explanation concern waste management operation, consists of waste reducing and handling. Waste reduction activities include limitation of waste pilling up, waste recycling, and waste reusing. While waste handling activities may include waste separating and grouping according with the types, removing waste to temporary landfill and into final processing site.

Waste management is not only the government responsibility. Communities and businessman, as waste

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Published online at <http://journal.sapub.org/ijap>

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producer, must also responsible for protecting and keep the environment clean and healthy. This means that there must be good cooperation between the government, businesses man, and communities in solving the waste problems. Therefore, the change in attitude, behaviour and ethics of civilized environment need to be managed properly. Behaviour is all activity that can be directly or indirectly observed. Behaviour is the response or reaction to stimulus from the outside [9-14]. Behaviour divided into three domains to simplify the measurement, i.e. knowledge, attitudes and actions [15-17].

Waste management problem at the river banks need to be addressed so that we can know the community's knowledge, attitudes and actions toward waste management during this time; because the waste increased along with population growth. Based on its geographical and historical conditions, Martapura River becomes the centre of city development, transportation interest, life supporting, life orientation and community identity [18]. Increasing population and urban growth are causing cultural degradation at settlements along the river and lead to environmental degradation. This study was aimed to assess the community's knowledge, attitudes and actions towards waste management in Martapura River Bank. The results will become fundamental consideration for government of Banjar to solve waste management problem in a more effective, efficient and environmental

friendly manner, especially in Martapura River Bank.

## 2. Research Method

This study used quantitative approach with field observation and questionnaires method for data collection. The analysis was carried out using quantitative descriptive method. This descriptive analysis was aimed to obtain information about the knowledge, attitudes and actions at Martapura River Bank communities concerning the waste management practice.

### 2.1. Study Site Selection

The selection of location in this study is criterion based method. The selection was based on certain criteria in line with the research background and certain events to achieve completeness of the information [19]. Study area located at Martapura River Banks in Antasan Senor Ilir Village, Sub-district of East Martapura. This location selected based on some considerations: (1) the absence of waste management services from government and non-government organization; (2) poor (dirty) environment; (3) no water service (*PDAM*); (4) people's habit of littering to Martapura River; (5) there was no road for four wheels vehicles, and (6) toilet activities still dump into the river.



Figure 1. Location of Study (Source: Bapedda Banjar)

## 2.2. Data Collection

Data collection was carried out using questionnaire for household respondents in area around Martapura River. According to Solimun [20], number of samples was equal to five until ten times number of indicator variable from the total of latent variables. In this study, we used 33 indicators thus the sample size was  $5 \times 33 = 165$  respondents. However, to avoid data error, researcher added ten respondents to 175 persons. Thus, in this study we used 175 respondents as the subjects to represent households in area along the Martapura River. But, after sampling or collected data, there were two data of respondents which could not be used due to coding error. Finally, the total respondents were used in this study was 173.

## 2.3. Data Analysis

This study used quantitative descriptive analysis. The analysis was descriptively provided an overview on field data by interpretation of primary data into tabulation. This descriptive analysis aimed to get overview of variables studied, i.e. knowledge, attitude and actions in frequency and percentage form. It is also to get general overview on the characteristics of respondents [21]. Variable description, as a part of descriptive statistical analysis, was to determine the frequency distribution, which deeply described knowledge ( $X_1$ ), attitude ( $X_2$ ), and action ( $X_3$ ) variables. The frequency distribution obtained from tabulation of respondents scores.

Data in this study used semantic differential scale with produced score 1 to 5. Then, intervals scale was made to categorized the mean of respondents answer. This interval scale was calculated from the highest score minus the lowest score then divided by 5, resulted interval for the category of 0.80, thus the categories of respondent answers were determined based on the following scale in Table 1.

**Table 1.** Determining of score category based on respondent answers

No	Scale of answer category	Score category
1	1.00 – 1.80	lowest
2	1.81 – 2.60	low
3	2.61 – 3.40	moderate
4	3.41 – 4.20	high
5	4.21 – 5.00	highest

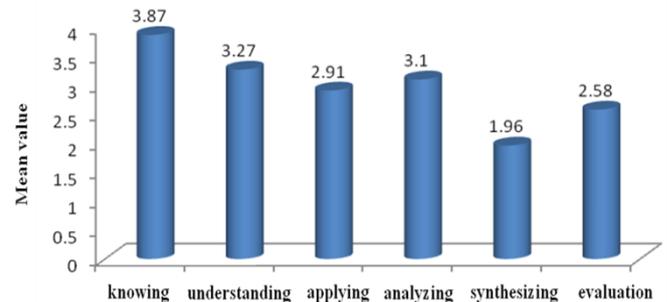
Source: Sugiyono [21]

## 3. Results and Discussion

### 3.1. Community's Knowledge

Knowledge variable consisted of knowing, understanding, applying, analysing, synthesizing, and evaluating indicators. *Knowing* defined as recalling a subject material that has been taught previously. While *Understanding* defined as ability to correctly explain about a known object and well interpreted the subject material. *Applying* was defined as ability to use

the learned subject material on real circumstances. Whereas *Analysis* is the ability to describe subject material or objects into components, but remain as a structured organization and related to the others. *Synthesizing* showed the ability to put or linked parts into a whole new form. *Evaluation* related to the ability to justify or assessment on a subject material or objects [32]. The description results of knowledge variable analysis were presented in Figure 2.



**Figure 2.** People knowledge on waste management in Maratapura River Banks

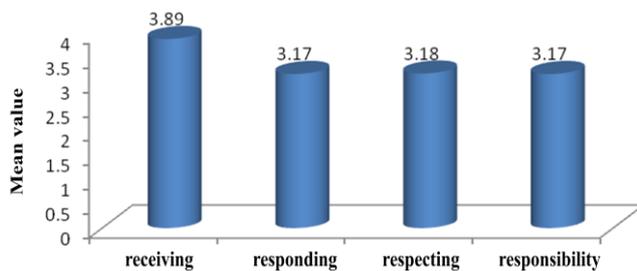
Community's knowledge toward waste management in Martapura River Bank was in moderate level, where the highest indicator was showed by first indicator (*knowing*) with mean value of 3.87. It means that respondents *knowing* the right place for waste disposal. The results were consistent with Eilam and Trop [22], stated that person's knowledge influenced by some factors, one of them was education. Education was a process of changing in attitude and behaviour of person *or* group of person. It also means an effort to bring into mature human being through teaching and training. However, in one side, knowledge played important role to the person behaviour in daily activities, mainly in accepting various things through media or someone else directly. Silgo and Massey [23] and Webb *et al.* [17] suggested that if the admission of new behaviour or adoption of behaviour was based on the knowledge, awareness and positive attitude, then the behaviour would be eternal. Conversely, if the behaviour was not based on knowledge and awareness, then it would not be lasted long. Thus, it was assumed that the people's education level could describe the effect of attitudes and behaviour on whole personal development and their participation in daily activities. Education was one of the social forces that formed the future so it also affected people discipline on waste management to achieve environmental health at Martapura River Bank. Thus, the respondents with low education level were expected to improve their knowledge more through depth observation in each process of waste management practice. It could be started from knowing, understanding, applying, and analysing so the knowledge could be improved more than before.

Knowledge was a cognitive component in behaviour. In accordance with the functional theory proposed by Katz, to understand whether behaviour was good or bad it should be started from the basic motivation. Basic motivation is behaviour function for the individual concern. For humans,

behaviour function had been formulated into four categories, one of them was knowledge. According to the knowledge function, humans had basic urge to want to know, reasoning and to organize, and experiencing. The existence of inconsistent experience elements with individual knowledge would be arranged, rearranged or modified to reach a consistency [17, 24, 25].

### 3.2. Community's Attitude

In an effort making people to know and aware toward the importance of waste management, the key factor was making them and community understand the problem. If the people had understood the problems, then they need to be given information about waste management at Martapura River Bank. Variables of attitude consisted of some indicators include *receiving*, *responding*, *respecting* and *responsibility*. Results of attitude variable analysis were presented in Fig.3.



**Figure 3.** People knowledge on waste management in Maratapura River Banks

Community's attitudes towards waste management in Martapura River Bank was in moderate level, with the highest indicator was *receiving*. This showed that for attitudes perspective, *receiving* indicator was mainly assessed. This indicator indicated the community's way of accepting waste management policy from the government. The attitude was a reaction or response of a person toward stimulus or object. The attitude had three main components, namely confidence, idea, concept of object; emotional life or object evaluation; and tendency to act [17, 26, 27].

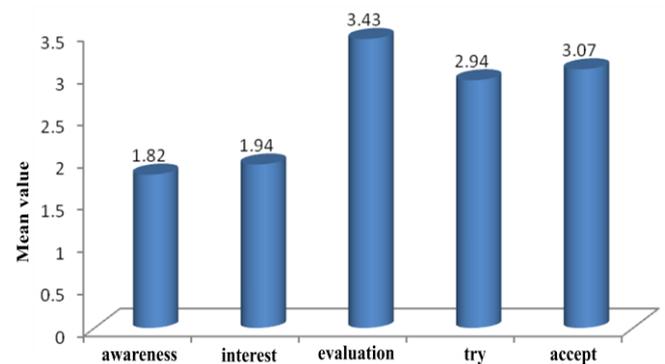
Mulasari [28] suggested that the habit emerged due to declining process of response tendency by using repetitive stimulation. Because of this process, new relatively permanent and automatic behaviour pattern emerged. Thus, it was assumed that due to experience and repetitive stimulant, people would have technical skill and able to be facing their life; including environmental protection. With more experience about technical and life practical skills, people would be able to increase their thinking ability to achieve or changed into person who had good attitude at the future.

Attitude affected the person behaviour, but not automatically realized in an action. It is because there were some supporting factors needed for the realization, such as facilities, support from the others, experience, environment, and motivation [8, 29-31]. The level of community's attitude was presumed to be affected by the level of public knowledge. According to Notoatmodjo [32-34], the attitude

was determined by level of knowledge. Attitude, knowledge, thought, belief and emotion played an important role. Attitude was determined as evaluative response. The response could only emerge when an individual faced stimulus which produce individual reaction. Evaluative response means that the rise of reaction as attitude expression was caused by individual evaluation process. This evaluation process concluded the stimulus into bad, positive-negative, pleasant and unpleasant, and then became potential reaction on the attitude object. Some study showed strong relationship between the attitudes and behaviour [35-37]. However, some others study showed the evidence of less relationship between attitudes and behaviour [38, 39].

### 3.3. Community's Action

Action variables consisted of *awareness*, *interest*, *evaluation*, *try* and *accept* indicators. Results of action variables analysis were showed in Figure 4.



**Figure 4.** Community action toward waste management practice in Martapura River Bank

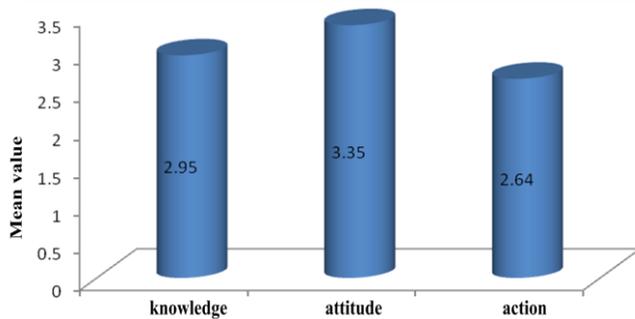
Community action toward waste management in Martapura River Bank was at moderate level with *evaluation* as the highest indicator. This indicated that the mainly assessed action was third indicator; mean that people did an evaluation on waste management practice. The action was a rule that done, do or make a rule, or overcome something or act. Some studies showed the relationship between attitude and actions [40-42]. Positive action was strongly influenced by people knowledge and attitude on accepting the changes and need supporting factors or condition such as facilities and support from the others [8, 43-45].

### 3.4. Community's Behaviour

Community's behaviour toward waste management at Martapura River Bank was also in moderate level with *attitude* as the highest variable and followed by knowledge, and action, respectively. Results of community's behaviour analysis were presented in Figure 5.

The results of this study lead to cognitive theory of Planned Behaviour, where this theory used to predict whether a person would perform or not perform behaviour [8, 46-50]. Based on the Theory of Planned Behaviour, community knowledge in Martapura River Bank toward waste management was formed by background factors, e.g.

age, gender, ethnic, socio-economic status, and knowledge that influenced individual attitude and behaviour on something. Basically, background factor was natural characteristic in the individual. In this category, Ajzen [46] used three background factors namely personal, social and information. Personal factor was general attitude towards something, personality, values of life, emotion and intelligence. Social factors consisted of age, gender, ethnic, education, income and religion. While information factor were experience, knowledge and expose to media [51, 53, 54]. Martapura River Bank communities had low education level (only graduates of elementary school), *Banjarese* (people of Banjar) lived along the river in their daily activities with low income.



**Figure 5.** Community's behaviour toward waste management practice in Martapura River Bank

Community's attitudes in Martapura River Bank toward waste management were major component in people behaviour formation. People could positively accept waste management by accommodating the suggestions from local government, although it was not realized yet. The government and public figure of *Banjarese* played important roles to persuade the other to know the importance of waste management practice in area along the river bank. Stone *et al.* [55] stated that the attitude was a tendency to respond positively or negatively to an object through persuasive approach, person or social group model. To change the attitudes, persuasive approach from person or social group (organization) who succeed was needed as example for the others.

Accepting attitude of community on waste management practice at Martapura River Bank was formed by subjective norm. It refers to individual motivation to follow others toward behaviour that would be done. Subjective norm described by Ajzen, whether an individual would obey the others or not that influence on his life (behaviour) [52, 56]. Furthermore, due to subjective norm factor, waste management practice would be done spontaneously with the presence of normative beliefs. It means individual belief toward social environment, especially peoples whom life were affected to make a decision [52, 57-59]. In Martapura communities, normative beliefs could be obtained from public figures such as *kyai* and *ustadz* in islamic boarding school. By their charisma, they would be able to persuade the people to actively support waste management practice in

their environment. Behavioural component in the attitude structure showed how individual behaviour or tendency to behave associated with the object. This association was based on assumption that the beliefs and feeling mostly influence behaviour. It means that people behaviour in certain situations would be largely determined by their beliefs and feeling toward the stimulus [8, 22, 57].

Martapura River Bank community action toward waste management practice was the weakest behaviour forming. This means that people still had not been able to apply their knowledge properly on good waste management practice. It was also added that community's attitude only accepted the suggestion. So, the community action toward waste management practice is highly depends on evaluation of management activity. Community's action of Martapura River Bank was formed by behavioural beliefs factor. It means the beliefs affectively obtained from knowledge or experience about the positive value of waste management practice [52, 60-62]. Furthermore, behavioural belief factors would increasingly become stronger with the attitude toward behaviour factors. The attitude toward behaviour factors means the emergence of attitudes to implement waste management practice in Martapura River with perception that the management practice would result good and clean environment. Motivation or intention of communities for waste management at Martapura River Bank was formed by control beliefs. It means that the beliefs on something could facilitate, to support waste management behaviour, such as the presence of temporary disposal sites (*TPS*) and city janitor worker who took the waste on the river every day.

## 4. Conclusions

Community's knowledge, attitude, and action toward waste management practice at the Martapura River Bank was at *moderate level*; with attitude as the main behavior indicator, followed by *action*. This study proved Theory of Planned Behaviour that used to predict whether a person would perform or not perform behaviour. Knowledge, attitudes and actions affected community's behaviour on waste management. Thus, in this study provided an overview if the Banjar government want to change the community's behavior toward waste management so they should make serious effort in improving knowledge and awareness about waste management. It would able to change people's attitude to be positive and also realized in positive action.

## ACKNOWLEDGEMENTS

The author would like to thank: The Government of Banjar; Rural Community of Antasan Senior Ilir; East Martapura, Banjar; UB rector; the Director of the Graduate Program UB; and the Rector of Lambung Mangkurat University.

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## REFERENCES

- [1] Office of Housing and Settlement Banjar Regency. 2012. Master Plan of Waste Management in Regency of Banjar. Banjar Regency.
- [2] Larsen, A.W., Merrild, H., Christensen, T.H., 2009. Recycling of glass: accounting of greenhouse gases and global warming contributions. *Waste Manage. Res.*, 27, 754–762.
- [3] Merrild, H., Damgaard, A., Christensen, T.H., 2009. Recycling of paper: accounting of greenhouse gases and global warming contributions. *Waste Manage. Res.*, 27, 746–753.
- [4] Damgaard, A., Riber, C., Fruergaard, T., Hulgaard, T., Christensen, T.H., 2010. Lifecycle-assessment of the historical development of air pollution control and energy recovery in waste incineration. *Waste Manage.*, 30, 1244–1250.
- [5] Astrup, T., 2011. Carbon in solid waste: is it a problem? *Waste Manage. Res.*, 29, 453–454.
- [6] Bovea, M.D., Powell, J.C., 2006. Alternative scenarios to meet the demands of sustainable waste management. *J. Environ. Manage.*, 79, 115–132.
- [7] Salhofer, S., Wassermann, G., Binner, E., 2007. Strategic environmental assessment as an approach to assess waste management systems. Experiences from an Austrian case study. *Environ. Model. Software*, 22, 610–618.
- [8] Sunarto, S., Bisri, M., Soemarno, Suyadi. 2014. Society behavior towards household waste management in Tulungagung. *Int. J. Appl. Sociol.*, 4 (3), 67-73.
- [9] Ballantyne, P.F. 1996. Dewey's muffled call for a larger unit of psychological analysis. Paper presented at the American Psychological Association meeting, Toronto, Canada.
- [10] Santrock, J.W. 2000. *Psychology: brief edition*. Boston: McGraw-Hill.
- [11] Tomporowski, P.D. 2003. The psychology of skill: a life-span approach. Westport, CT: Praeger.
- [12] Monroe, M. 2003. Two avenues for encouraging conservation behaviors. *Human Ecol. Rev.*, 10 (2), 113–125.
- [13] Frick, J., Kaiser, F.G., Wilson, M. 2004. Environmental knowledge and conservation behavior: exploring prevalence and structure in a representative sample. *Pers. Individ. Differ.*, 37 (8), 1597–1613.
- [14] Baum, W.M. 2005. *Understanding behaviorism: behavior, culture, and education*. Holden, MA: Blackwell.
- [15] Heimlich, J.E., Ardoin, N.M. 2008. Understanding behavior to understand behavior Change: a literature review. *Environ. Edu. Res.*, 14; 215-237.
- [16] Heimlich, J.E. 2010. Environmental education evaluation: reinterpreting education as a strategy for meeting mission. *Eval. Program Plan.*, 33, 180–185.
- [17] Webb, T.L., Sniehotta, F.F., Michie, S. 2010. Using theories of behaviour change to inform interventions for addictive behaviours. *Addiction*, 105, 1879-1892.
- [18] Liana, P., Bijaksana, U., Yunita, R., Itta, D. 2012. Kajian perilaku masyarakat membuang sampah di bantaran sungai Martapura terhadap lingkungan perairan. *Enviro Scientiae*, 8, 117-126.
- [19] Kanto, S. 2003. Sampling, validitas dan reliabilitas dalam penelitian kualitatif. dalam analisis data penelitian kualitatif, pemahaman filosofis dan metodologis ke arah penguasaan model aplikasi, Bungin, B. (Ed). PT Raja Grafindo Persada. Jakarta.
- [20] Solimun. 2011. Testing for mediation variable: what necessary?. International Conference of Basic Science. Faculty of Mathematics and Natural Sciences, University of Brawijaya. Malang.
- [21] Sugiyono. 2008. *Metode penelitian kuantitatif kualitatif dan R&D*. Alfabeta. Bandung.
- [22] Eilam, E., Trop, T. 2012. Factors influencing adults' environmental attitudes and behaviors and the role of environmental schools in influencing their communities. *Educ. Urban Soc.*, June, 1–30.
- [23] Silgo, F.X., Massey, C., 2007. Risk, trust and knowledge networks in farmers' learning. *J. Rural Stud.*, 23, 170-182.
- [24] Reckwitz, A. 2002. Toward a theory of social practices: a development in culturalist theorizing. *Eur. J. Soc. Theory*, 5, 243-263.
- [25] Meinhold, J.L., Malkus, A.J., Adolescent. 2005. Environmental behaviors: can knowledge, attitudes and self-efficacy make a difference? *Environ. Behav.*, 37, 511–532.
- [26] Jurin, R.R., Fortner, R.W. 2002. Symbolic beliefs as barriers to environmentally responsible behavior. *Environ. Edu. Res.*, 8 (4), 373–394.
- [27] Munro, S., Lewin, S., Swart, T., Volmink, J. 2007. A review of health behavior theories: how useful are these for developing interventions to promote long-term medication adherence for TB and HIV/AIDS? *Bmc Public Health*, 7.
- [28] Mulasari, S.A. 2012. Hubungan tingkat pengetahuan dan sikap terhadap perilaku masyarakat dalam mengolah sampah di Dusun Padukuhan Desa Sidokarto Kecamatan Godean Kabupaten Sleman Yogyakarta. *Jurnal Kes. Mas.*, 6 (3).
- [29] Osbeck, L., Nersessian, N. 2006. The distribution of representation. *J. Theory Soc. Behav.*, 36 (2), 141-160.
- [30] Merrild, H., Damgaard, A., Christensen, T.H. 2008. Life cycle assessment of waste paper management: the importance of technology data and system boundaries in assessing recycling and incineration. *Resour. Conserv. Recy.*, 52, 1391–1398.
- [31] Osbeck, L.M. 2010. Forms of positioning in interdisciplinary science practice and their epistemic effects. *J. Theory Soc. Behav.*, 40, 136-161.
- [32] Notoatmodjo. 2003. *Pendidikan dan perilaku kesehatan*. Rineka Cipta. Jakarta.
- [33] Notoatmodjo. 2007. *Kesehatan masyarakat (ilmu dan seni)*. Rineka Cipta. Jakarta.

- [34] Notoatmodjo. 2010. Ilmu Perilaku Kesehatan. Rineka Cipta. Jakarta.
- [35] Fauzee, M.S. 2002. An Examination of the transtheoretical model. *ICHPER-SD Journal*, 38 (4), 48–64.
- [36] Cardinal, B.J., Ksoma, M. 2004. Self-efficacy and the stages and processes of change associated with adopting and maintaining muscular fitness-promoting behaviors. *Res. Quarterly for Exercise and Sport*, 75 (2); 186–197.
- [37] Nersessian, N. J. 2006. The cognitive-cultural systems of the research laboratory. *Organ. Stud.*, 27 (1), 125-145.
- [38] Wegener, D.T., Carlston, E.E. 2005. Cognitive processes in attitude formation and change. in the handbook of attitudes and attitude change; Albarracín, D., Johnson, B.T., Zanna, M.P., Eds. Lawrence Erlbaum Associates: Mahwah, NJ, USA.
- [39] Stephenson, J., Barton, B., Carrington, G., Gnoth, D., Lawson, R., Thorsnes, P. 2010. Energy cultures: a framework for understanding energy behaviors. *Energ. Policy*, 38, 6120-6129.
- [40] Ekvall, T., Assefa, G., Björklund, A., Eriksson, O., Finnveden, G., 2007. What life-cycle assessment does and does not do in assessments of waste management. *Waste Manage.*, 27, 989–996.
- [41] Harré, R., Moghaddam, F., Cairnie, T. Rothbart, Sabat, S. 2009. Recent advances in positioning theory. *Theory Psychol.*, 19 (1), 5-31.
- [42] Blengini, G.A., Moris Fantoni, M., Busto, M., Genon, G., Zanetti, M.C. 2012. Participatory approach, acceptability and transparency of waste management LCAs: case studies of Torino and Cuneo. *Waste Manage.*, 32.
- [43] Sharp, V., Giorgi, S., Wilson, D.C., 2010. Methods to monitor and evaluate household waste prevention. *Waste Manage. Res.*, 28, 269–280.
- [44] Cox, J., Giorgi, S., Sharp, V., Strange, K., Wilson, D.C., Blakey, N., 2010. Household waste prevention – a review of evidence. *Waste Manage. Res.*, 28, 193–219.
- [45] Slagstad, H., Brattebø, H. 2012. LCA for household waste management when planning a new urban settlement. *Waste Manage.*, 32, 1482–1490.
- [46] Ajzen. 2001. Nature and operation of attitudes. *Ann. Rev. of Psychol.*, 52, 27–58.
- [47] Lowe, R., Eves, F., Carroll, D. 2002. The influence of affective and instrumental beliefs on exercise intentions and behavior: a longitudinal analysis. *J. Appl. Soc. Psychol.*, 32(6), 1241–1252.
- [48] Kobbeltvedt, T., Wolff, K. 2009. The risk as Feelings hypothesis in a theory of planned behavior perspective. *Judgment Decis. Making*, 4 (7), 567–586.
- [49] Baker, R. K., White, K. M. 2010. Predicting adolescents’ use of social networking sites from an extended theory of planned behavior perspective. *Comput. Human Behav.*, 26, 1591-1597.
- [50] Cameron, R., Ginsburg, H., Westhoff, M., Roque, V.M. 2012. Ajzen’s theory of planned behavior and social media use by college students. *Am. J. Psychol. Res.*, 8(1), 1-20.
- [51] Ajzen. 2002. Constructing A TPB questionnaire: conceptual and methodological considerations. <http://www-unix.oit.umass.edu/aizen/pdf/tpb.measurement.pdf>.
- [52] Ajzen. 2002. Perceived behavioral control, self-efficacy, locus of control, and the theory of planned behavior. *J. Appl. Soc. Psychol.*, 32 (4), 665–683.
- [53] Tudor, T.L., Barr, S.W., Gilg, A.W. 2008. A novel conceptual framework for examining environmental behavior in large organizations: a case study of the Cornwall National Health Service (NHS) In the United Kingdom. *Environ. Behav.*, 403, 426–450.
- [54] Southerton, S., McMeekin, A., Evans, D. 2011. International review of behaviour change initiatives: climate change behaviours research programme. Government Social Research Unit. London.
- [55] Stone, T. H., Jawahar, I. M., Kisamore, J. L. 2010. Predicting academic misconduct intentions and behavior using the theory of planned behavior and personality. *Basic Appl. Soc. Psychol.*, 32 (1), 35-45.
- [56] Hoie, M., Moan, I. S., Rise, J. 2010. An extended version of the theory of planned behaviour: prediction of intentions to quit smoking using past behaviour as moderator. *Addiction Res. Theory*, 18 (5), 572-585.
- [57] Burton, M., Marsh, S., Patterson, J. 2007. Community attitudes towards water management in the moore catchment, Western Australia. *Agricultural Systems*, 92.
- [58] Rigamonti, L., Grosso, M., Giugliano, M., 2010. Life cycle assessment of sub-units composing a MSW management system. *J. Cleaner Prod.*, 18, 1652–1662.
- [59] Niaura, A. 2013. Using the Theory of Planned Behavior to investigate the determinants of environmental behavior among youth. *Environ. Res., Eng. Manage.*, 63 (1), 74-81.
- [60] Ferreira, S., Gallagher, L. 2010. Protest responses and community attitudes toward accepting compensation to host waste disposal infrastructure. *Land Use Policy*, 27.
- [61] Singhirunnusorn, W., Donlakorn, K., Kaewhanin, W. 2012. Household recycling behaviours and attitudes toward Waste Bank Project: Mahasarakham Municipality. *J. Asian Behav. Stud.*, 2(6), 35-46.
- [62] Sunarto, S., Bisri, M., Soemarno, Suyadi. 2014. Influencing factors on society behavior towards household waste management in Tulungagung. *Am. J. Sociol. Res.*, 4 (4), 113-122.