Shaping and maintaining anti-littering behavior of the community in Indonesia

Darman Fauzan Dhahir
Balai Besar Pengembangan SDM dan Penelitian Komunikasi dan Informatika Makassar, Jalan Abdurrahman Basalamah II No. 25, Makassar 90231, Indonesia
E-mail: darm007@kominfo.go.id

Abstract. Littering behavior of the community is blamed as one of the causes of waste problems in Indonesia. Many efforts have been conducted, but unfortunately, the effects were sometimes not optimal or only successful temporarily. The current study was conducted using the literature review method to find a solution to this problem. The results indicate that to form anti-littering habits, it is necessary to increase knowledge, and correct perceptions about waste, establish communication, and collaboration of all stakeholders, set role models in action, law enforcement, environmental engineering, supervision, and provision of facilities. Meanwhile, to overcome the effects that are not yet optimal, collaboration and integration among all stakeholders and their policies need to be set. Combined problem solving, and quick responses are also needed. Besides that, to realize the sustainability of the program’s positive effects, stakeholders are encouraged to carry out sustained advocacy as well.

1. Introduction

Waste has become a problem in almost the entire world, especially East Asia and Pacific Region, where Indonesia is located. The region is the largest contributor to world garbage in 2016 [1]. Waste accumulation is an eyesore and harms the environment [2–4], the health [5], and the economy [1].

Littering behavior of the community is blamed as one of the causes of waste problems in Indonesia [6–10]. This behavior does not only have a local impact but can also have an impact on other regions, like what has happened on Dongsha Island, a remote island in the China Sea. The results of the study by Ko et al. show that large amounts of waste, especially Styrofoam and plastic bottles originating from China and Vietnam, are the two main sources of macro marine waste in the region [4].

Governments at the regional level have actually established and implemented several anti-littering policy programs, such as waste collection movement [11,12], sanctions for littering [9], provision of waste bins, 3R movements (reuse, reduce, recycle ) [7], and the scheduling for garbage disposal [13]. Indeed, these programs show the existence of progressive effects, but unfortunately have not shown the maximum impact on people's littering behavior [7,9,12,13], or only produce unsustainable impacts [14,15]. The results of recent researches on waste still illustrate a large amount of rubbish strewn due to the littering behavior in cities in Indonesia [8,16–18].

There have been many previous studies related to this problem, therefore the current study was conducted to synthesize the things that can form and/or enhance anti-littering behavior, as well as those, can sustain their effects. The results of this study are expected to be a reference for stakeholders in developing and implementing anti-littering programs in Indonesia.
2. Methods
The aim of many reviews is to integrate and generalize cross-unit findings, treatments, results, and settings [19]. Therefore, to achieve the objectives of this study, I conducted a literature review.

I use the phenomenological method consisting of bracketing to identify the problem under investigation, collecting data, identifying meaningful statements, giving meaning, and describing [19]. I learned a variety of empirical research results, experiments, and reviews to be able to form the forms of conditions and treatments that can form, which can shape and/or enhance anti-littering behavior in general. I also explore kinds of literature that illustrate the characteristics of the Indonesian people related to waste problems. Information about it needs to be collected and taken into consideration so that the solutions offered to suit the character of the society [20], and then proper to be implemented in Indonesia.

After that, I compiled the finding that I think have the potential for success to be implemented in Indonesia in the context of shaping, as well as maintaining the anti-littering behavior in the community.

In the current study, anti-littering behavior is defined as actions of the community that is contrary to the act of littering. Littering is the behavior when someone places litter improperly while moving or starts moving, or puts it while hangs out somewhere, then does not clean it when leaving later [21].

Furthermore, the shaping of anti-littering behavior is defined as the efforts to change the behavior of an entity from doing littering to not doing. Meanwhile, maintaining behavior is defined as efforts so that the expected behaviors of the community to last longer, and not return to the bad habits.

3. Results
There have been many studies that discuss matters relating to anti-littering programs. Based on the investigation, I found several interrelated things that have the potential to do to shape and enhance the anti-littering behavior of the community, such as:

3.1. Knowledge
Various studies indeed suggest that knowledge is closely related to the behavior of waste management. The better a person's knowledge of waste, the better the behavior related to waste tends to be. Raharjo and Indarjo concluded that knowledge has a significant influence on the habit of disposing of garbage in its place for children [10]. This is in line with the conclusions of Mulasari et al. that the behavior of littering is caused by the poor knowledge of the community about waste problems [7]. Sutrisnawati and Purwahita also blamed the lack of public understanding of the dangers of using plastic to health and the environment for the increasing volume of waste [8].

3.2. Perception
Rayon-Viña et al. found that public awareness and perception about waste correlated significantly with differences in the amount of waste [22]. Even, according to Dwiyanto, the main problem of waste management is the people's paradigm which cannot change from disposing of waste to taking advantage of waste [23]. Besides, Ojedokun found that individuals who have personality characteristics who do not like trash tend to be more involved in pro-environmental behavior. Therefore, psychologists must be involved in designing waste prevention strategies to ensure an integrated approach to waste prevention that combines empowering, cognitive, social, and technical solutions [24]. Research of Rath et al. shows that someone's perception of whether something is considered trash or not can be a predictor of whether he will be littering or not. Therefore, the message in the anti-littering campaign must emphasize that waste, even small objects such as cigarette butts are not only waste but also toxic and dangerous if disposed of improperly [25]. Meanwhile, according to Al-Khatib, the most effective element in preventing children from polluting the streets is the cultivation of moral and religious beliefs [20].
3.3. Communications and information

Communication is needed to shape and enhance anti-littering behavior. Wibowo argued that in dirty areas, there are used to be no highly influential and motivated people to lead, mobilize, and invite other residents to take actions to create and maintain clean environmental conditions. Very few, or even none of them routinely invited, reminded, urged residents to maintain environmental cleanliness, supervised and reprimanded if there were irregularities, though, in this case, direct communication is far more influential than mediated communication, such as newspapers, magazines, television, billboards, leaflets, and pamphlets [26]. This is in line with Hansmann and Steimer's conclusion that having face-to-face conversations with people from the target group is a promising way to ward off littering [27]. It was confirmed by Cingolani et al., who showed that personal requests combined with examples of garbage collection are effective in reducing waste [28]. Pratama strengthens this argument in the statement that people do littering around the final landfill because the guardian does not reprimand them [29].

However, posters can also be used. Hansmann and Steimer's findings also showed that intelligent and creative posters that focus on environmental benefits are more effective and are better received than authoritarian ones [27]. Besides, Sibley and Liu found that posted feedback delivered to people was able to reduce active littering behavior [30]. Experiments of Perrault et al. showed that messages containing a description of victims of the adverse effects of waste were effective in generating anti-littering activities. Using human and animal victims in messages will promote community empathy [31].

Moqbel et al. suggested motivating people intrinsically and extrinsically. Intrinsically, authorities are advised to praise and remind people of their core values, morals, and behavior of their children and the future. For extrinsic motivators, authorities are advised to promote anti-littering campaigns [32].

3.4. Collaboration

Even though no one likes dirt, but non-integrated waste management can cause a pile of waste. According to what Wibowo has found, occupants of dirty environments generally do not collaborate in handling waste, but instead, they work individually. They have no agreement on how to maintain the cleanliness of public spaces together. Likewise, the network of stakeholders is not well coordinated [26]. This conclusion is the same as the conclusion of Ramon and Afriyanto, which states that one of the causes of the accumulation of waste is the lack of coordination between the community and the government [9]. Similar to the results of Torgler et al. research that membership in environmental organizations strengthens commitments to indiscriminate anti-waste behavior, thereby supporting environmental quality improvement [33]. With the same conclusion, Dwiyanto proposed that the RT/RW board (the lowest level in the structure of government in Indonesia) take a role in helping realize the implementation of environmental cleanliness programs because according to him, their position is vital in bridging communication between the community and the government [23].

3.5. Role models

People often commit wrongdoing ‘because other people do it too’ as a reason [34,35]. Therefore, to form and enhance anti-littering behavior, role models are needed, both from the government, community leaders, and the surrounding community. Cingolani et al. show that personal requests, combined with examples of garbage collection, are effective in reducing waste [28]. Basto-Abreu et al. also argues that smoking outdoors is still common and is an important source of littering. Therefore, substantial public support is needed for smoking bans [36]. Besides, the results of the study of Rayon-Viña et al. suggesting that encouraging local populations to clean beaches will contribute to improving their perception of problems and their attitudes towards waste management actions [37].

3.6. Enforcement

It has long been recognized that law enforcement is an important element of regulatory policy design. Improved monitoring and inspection can increase compliance. Because this is not the only form of
compliant behavior, where many other things can influence behavior, law enforcement agencies become an important component of every enforcement [38]. This is consistent with the statement that the accumulation of waste is also caused by the lack of strict sanctions imposed on littering perpetrators. They are merely given a reprimand or appeal [9]. This is also in line with Moqbel et al. recommendation to provide reward and punishment in anti-littering policies [32].

3.7. Control
In addition to law enforcement, supervision is also needed to ensure compliance. Regulations are difficult to enforce if there is no good supervision [38]. Nakamata and Abe revealed that the presence of a security camera is effective in preventing fouling. Littering in front of a security camera facilitates discomfort, anger, and shame [39]. Bateson et al. found that people were more likely not to litter when there were other people around him than when there were none [40]. Taylor et al., who saw positive changes in the people who were targeted by the hygiene-campaign, which he observed, predicted that it was happening because people became more aware of the existence of the evaluation team [41].

3.8. Environmental engineering
Environmental conditions have the potential to influence whether one will do littering or not. The results of Nakamata and Abe's research revealed that the absence of existing waste, the presence of flower beds, plain soil, and signposts are effective for preventing fouling. Littering the flower plants causes discomfort, anger, shame, and sadness in Nakamata and Abe. Bateson et al. have found that displayed images of watching eyes in the environment made people less likely to litter [40]. Schultz et al. also found that the presence of existing waste positively influences people to carry out litter. Besides, the distance of the trash can also be a positive predictive for littering. The farther the distance, the more people will do littering [42]. Moqbel et al. found that the highest impact of children's extrinsic motivators for not littering is the existence of a clean place, comfortable facilities, and recycling program [32]. Al-Khatib stated that the next effective practice after education to prevent children from polluting the streets is to improve street cleanliness [20]. Al-Mosa et al. also found that environmental factors, such as the amount of rubbish available, beautification efforts, and distance to the rubbish bin, have a significant impact on littering behavior [43]. Therefore, environmental engineering (maintaining environmental conditions that are compatible with anti-littering behavior) must be created and maintained to ensure people are not littering.

3.9. Facilities availability
The inexistence of a trash can is a must to make people do littering. Where should I dispose of trash if there is no trash? Raharjo and Indarjo found that the availability of rubbish bins has a significant influence on the habit of disposing of garbage for children [10]. This is in line with the findings of Sibley and Liu, who revealed that the addition of a garbage container significantly reduces the active littering behavior [30]. Schultz et al. found that with the availability of rubbish bins, people were negatively expected to do littering [42]. Moqbel et al. argued that one of the highest effects of extrinsic motivators on children not littering is the increasing number of containers [32]. Besides, Taylor et al. stated that the increase in positive behavior related to waste is the result of infrastructure improvements in the form of trash bins [41].

3.10. The people’s characters
According to Al-Khatib et al., studying the socio-economic characteristics of the community is needed in formulating a potential waste prevention strategy [44]. Based on a search of the characteristics of people in Indonesia, although not all, some of them still have characters that can inhibit anti-littering programs.

Regarding knowledge, it has been revealed that somewhere in Indonesia, the public knowledge about waste is quite good, but the attitudes and actions of the community in managing household waste are still concerning [9]. Regarding perception, some people still think that waste is a trivial
problem, so littering is considered reasonable and will not cause big problems [8]. Regarding communication, Pratama found that people were still littering around the final landfill because the inspector did not reprimand them [29]. Related to role models and monitoring, not a few community leaders who are active to invite citizens to maintain cleanliness, even adamantly admonished if someone violates and conduct littering, but still more community members who do not actively participate in maintaining environmental cleanliness [45]. Collaboration among stakeholders on this issue is also lacking. Ramon and Afriyanto stated that one of the causes of waste accumulation was lack of coordination between the community and the government [9]. Also, Wibowo said there was no agreement among stakeholders about how to maintain the cleanliness of public spaces [26].

Regarding environmental engineering (creating a clean area so that people are not littering), Gunggut et al. who researched Sabah (whose population characteristics might be likely not much different from Indonesian people) stated that one of the obstacles to internalizing the anti-littering program was the inability to break free from past practices. Most local governments focus more on cleaning, not prevention. Likewise, communities tend to attribute the lack of cleanliness to the inefficiency of local authorities to clean up [46].

Some people are aware of the existence of local government regulations that prohibit littering, and even provide punishment, but they continue to do so for reasons that are easier, effortless, habitual, others do it, and the sanctions are not implemented by the law enforcement officers [47–50]. Regarding the availability of facilities, it turns out that even though garbage disposal has been provided, the level of littering is still high [7].

4. Discussion
Reflecting on the findings that offer several solutions to the formation of anti-littering behavior, such as increased knowledge and correct perceptions about the waste of the community, communication, and collaboration between stakeholders, role models in action, law enforcement, environmental engineering, supervision, and availability of facilities, and by considering the character of some Indonesian people who have been less affected by these solutions, then the things that might be potential problem-solving in achieving this goal of shaping and enhancing anti-littering behavior in Indonesia is formulated, as follows:

4.1. Collaboration and integration
Stakeholders (especially government agencies, environmental activists, and communities) must change from individual to collaborative actions of anti-littering because the problems cannot be effectively addressed without an integrated management strategy [51]. Problems from upstream to downstream should be handled one by one so that the problem is resolved to the maximum. For example, government regulations that stipulate that violators (littering perpetrators) are fined, must be supported by strict implementation actions by certain supervisors (if any), as well as existing agencies, such as RT/RW, Lurah, headman, police, and so on. Likewise, the campaign to dispose of waste in its place must be in line with educations, role models, supervisions, and provision of adequate facilities by each authorized stakeholder. To realize cohesiveness, of course, begins with harmonious communication between them.

4.2. Combined solutions
The combined (tested positive) treatments have the potential to produce better results. For example, Nakamata and Abe succeeded in demonstrating the effectiveness of a combination of security cameras, no existing trash, flower beds, plain land, pointing boards, and images from security cameras in preventing littering [39]. Likewise, the findings of Bateson et al. that people were less likely to litter when facilities available, and there were other people in the immediate vicinity than when there were not [40]. Maybe someone feels supervised by the presence of others.
4.3. Quick response
Some people do littering for reasons that are easier, effortless, habitual, others also do it, and indecisive sanctions from law enforcement officials [47–50]. Therefore, a quick response needs to be done. When someone does the littering, he should be immediately reprimanded/given warning, or immediately be given appropriate sanctions (carried out by the authorities). This will provide lessons and deterrent effects for him and other people [52].

4.4. Maintaining the effects of anti-littering programs in Indonesia
Some anti-littering programs only produce unsustainable effects [14,15]. An evaluation conducted by Yamin et al. on the implementation of a “waste collecting program” that has been initiated for 5 years shows that the program is less effective and has not been responded by the community. Initially, the program was carried out with socialization about the program, including its objectives and benefits, making stickers, banners, and billboards displayed in several aisles and roadside as a reminder for the community to maintain cleanliness, and procurement of cleanliness facilities in each RT and RW, such as organic waste bins and inorganic, as well as garbage banks in each village, but some people do not care, and still do littering. Also, they reasoned that the facilities and infrastructure were not sufficiently available [16]. Base on it, I assume that the program is not sustainable either (not implemented in a sustainable manner by each stakeholder according to its authority and responsibility) so that it produces an unsustainable effect as well. Therefore, whatever the policy, it should be implemented on a sustainable basis, like the results of Castaño et al. research that shows the daily messages could increase sustainability [53].

On the other hand, repeated (same) messages can lead to an increase in agreement with advocacy, but then decrease, then increase counter-argumentation, and increase thoughts that are not relevant to the topic [54]. Therefore, innovation is needed in implementing the policy. Policymakers can use the Hopkins A-Frame approach to work for the sustainability effects of the programs. The approach consists of six steps: analysis, strategy, mobilization, action, evaluation, and sustainability. The analysis is carried out to obtain accurate information about the existing problems, the parties involved, their policies, and character. The strategy is built based on the results of the analysis. Strategies are structured to direct, plan, focus efforts on the right goals, and place them on a clear path. Mobilization is the formation of coalitions to strengthen advocacy. In this step, all available resources are sought to have a maximum positive impact on the goals. The action was carried out to maintain attention to the existing issues. Furthermore, the advocacy team needs to monitor regularly to find out what has been achieved and what remains to be done, because sometimes new advocacy activities produce partial results. The final step is continuity. This step is to ensure that advocacy activities do not stop until the creation of a policy, but rather clarify long-term goals, maintain the integrity of the coalition's function, and adjust argumentation data as changes occur [55].

5. Conclusion
Many ways have been proven to have positive effects on shaping anti-littering behavior. In Indonesia, some of these methods may have been adopted. Unfortunately, sometimes the effect is not optimal or only temporary. To overcome the effects that are not optimal, the results of the study offer collaboration and integration between stakeholders and their policies, combined problem solving, and quick response. Meanwhile, to realize the sustainability of positive effects, stakeholders are encouraged to carry out sustained advocacy as well.

This study has limitations because it only relies on existing studies in formulating recommendations. Future researches may conduct experiments, surveys, evaluations, explorations, etc. to determine the best implementations in advocating anti-littering behavior in Indonesia.
Acknowledgment
I would like to thank Balai Besar Pengembangan SDM dan Penelitian Komunikasi dan Informatika Makassar for providing facilities to support this literature review activity. I also thank the editors and reviewers who have given their views on the improvement of this paper.

References
[1] Kaza S, Yao L, Bhada-Tata P, and Van-Woerden F 2018 What a Waste 2.0: A Global Snapshot of Solid Waste Management to 2050 (Washington, DC: The World Bank).
[2] Moore C J 2008 Synthetic polymers in the marine environment: A rapidly increasing, long-term threat Environ. Res. 108 131–9.
[3] Deudero S and Alomar C 2015 Mediterranean marine biodiversity under threat: Reviewing the influence of marine litter on species Mar. Pollut. Bull. 98 58–68.
[4] Ko C-Y, Hsin Y-C, Yu T-L, Liu K-L, Shah F-K, and Jeng M-S 2018 Monitoring multi-year macro ocean litter dynamics and backward-tracking simulation of litter origins on a remote island in the South China Sea Environ. Res. Lett. 13.
[5] Gulis G, Mulumba J A A, Juma O and Kakosova B 2004 Health status of people of slums in Nairobi, Kenya Environ. Res. 96 219–27.
[6] Yulida N, Suwarni A and Sarto S 2016 Analysis of community behavior on garbage disposing in Batang Bakarek-Karek river basin of Padang Panjang Ber. Kedokt. Masy. 32 373–8.
[7] Mulasari S A, Husodo A H and Muhadjir N 2016 Analisis Situasi Permasalahan Sampah Kota Yogyakarta dan Kebijakan Penanggulangannya J. Kesehat. Masy. 11 259–69.
[8] Sutrisnawati N K and Purwahita A A . R M 2019 Fenomena Sampah dan Pariwisata Bali J. Ilm. Hosp. Manag. 9 49–56.
[9] Ramon A and Afriyanto A 2017 Karakteristik Penanganan Sampah Rumah Tangga di Kota Bengkulu J. Kesehat. Masy. Andalas 10 24–31.
[10] Raharjo A S and Indarjo S 2014 Hubungan Antara Pengetahuan, Sikap, dan Ketersediaan Fasilitas di Sekolah dalam Penerapan PHBS Membuang Sampah pada Tempatnya (Studi di Sekolah Dasar Negeri Banjarsari 02 Kecamatan Gabus Kabupaten Pati ) Unnes J. Public Heal. 3 1–10.
[11] Perbawasari S, Sjoraida D F and Lestari V A 2016 Proses Public Relations Dalam Program Gerakan Pungut Sampah Pemerintah Kota Bandung J. Penelit. Komun. 19 95–108.
[12] Haerul, Akib H and Hamdan 2016 Implementasi Kebijakan Program Makassar Tidak Rantasa (MTR) di Kota Makassar J. Ilm. Ilmu Adm. Publik. 6 21–34.
[13] Sinaga P I D and Harahap T K 2017 Implementasi Kebijakan Peraturan Daerah Nomor 8 Tahun 2014 Tentang Pengelolaan Sampah Kota Pekanbaru(Studi Kasus Kecamatan Tampan) J. Online Mhs. Fak. Ilmu Sos. dan Ilmu Polit. Univ. Riau 4 1–12.
[14] Rochimah T H N 2013 Evaluasi Pelaksanaan Kampanye Sosial Perilaku Hidup Bersih dan Sehat untuk Menurunkan Angka Diare di Kabupaten Kulonprogo J. Ilmu Komun. 6 65–85
[15] Mahyudin R P 2016 Strategi Pengelolaan Sampah Berkelanjutan EnviroScientiae 10 33–40
[16] Yamin M N, Guntur M and Sakawati H 2019 Evaluasi program Makassar Ta’Tidak Rantasa di Kota Makassar Seminar Nasional LP2M UNM ed N A S Taufiq, A Bahri, Yusri, Baharuddin, A Rahman and Fadhilah (Makassar: Penerbit UNM) pp 327–32.
[17] Aini D Q, Muttaqien T Z and Pujiraharjo Y 2019 Alat Bantu Pengolahan Sampah Kemasan Minuman Plastik di Stadion UPI (berdasarkan Aspek Visual) eProceedings Art Des. 6 2710–7
[18] Sangkut E, Djuwita P and Dalifa D 2019 Penanaman Nilai-nilai Kepedulian terhadap Kebersihan Lingkungan pada Siswa Kelas III di Sekolah Alam Mahira Kota Bengkulu JURIDIKDAS J. Ris. Pendidik. Dasar 2 175–85.
[19] Randolph J 2009 A guide to writing the dissertation literature review Pract. Assessment, Res. Eval. 14, Article 13.
[20] Al-Khatib I A 2009 Children’s perceptions and behavior with respect to glass littering in developing countries: A case study in Palestine’s Nablus district Waste Manag. 29 1434–7
[21] Wever R, van Onselen L, Silvester S, and Boks C 2010 Influence of packaging design on littering and waste behavior Package. Technol. Sci. n/a-n/a.

[22] Rayon-Viña F, Miralles L, Gómez-Agenjo M, Dopico E, and Garcia-Vazquez E 2018 Marine litter in the south Bay of Biscay: Local differences in beach littering are associated with citizen perception and awareness Mar. Pollut. Bull. 131 727–35.

[23] Dwiyanto B M 2011 Model Peningkatan Partisipasi Masyarakat dan Penguatan Sinergi dalam Pengelolaan Sampah Perkotaan J. Ekon. Pembang. Kaji. Masal. Ekon. dan Pembang. 12 239–56.

[24] Ojedokun O 2011 Attitude towards littering as a mediator of the relationship between personality attributes and responsible environmental behavior Waste Manag. 31 2601–11

[25] Rath J M, Rubenstein R A, Curry L E, Shank S E, and Cartwright J C 2012 Cigarette Litter: Smokers’ Attitudes and Behaviors Int. J. Environ. Res. Public Health 9 2189–203.

[26] Wirbo I 2009 Pola perilaku kebersihan: Studi psikologi lingkungan tentang penanggulangan sampah perkotaan Makara, Sos. Hum. 13 37–47.

[27] Hansmann R and Steimer N 2015 Linking an Integrative Behavior Model to Elements of Environmental Campaigns: An Analysis of Face-to-Face Communication and Posters against Littering Sustainability 7 6937–56.

[28] Cingolani A M, Barberá I, Renison D and Barri F R 2016 Can persuasive and demonstrative messages to visitors reduce littering in river beaches? Waste Manag. 58 34–40.

[29] Pratama R A 2016 Perilaku Masyarakat dalam Membuang Sampah di Tempat Penampungan Sementara (TPS) di Kecamatan Pontianak Barat Kota Pontianak J. Teknol. Lingkung. Lahan Basah 4.

[30] Sibley C G and Liu J H 2003 Differentiating Active and Passive Littering Environ. Behav. 35 415–33.

[31] Perrault E K, Silk K J, Sheff S, Ahn J, Hoffman A and Totzkay D 2015 Testing the Identifiable Victim Effect With Both Animal and Human Victims in Anti-Littering Messages Commun. Res. Reports 32 294–303.

[32] Moqbel S, El-tah Z and Haddad A 2020 Anti-littering in developing countries: Motivating the people of Jordan Waste Manag. Res. 0734242X1990065.

[33] Torgler B, Garcia-Valinas M A and Macintyre A 2012 Justifiability of Littering: An Empirical Investigation Environ. Values 21 209–31.

[34] Drouin M, Miller D, Wehle S M J, and Hernandez E 2016 Why do people lie online? “Because everyone lies on the internet” Comput. Human Behav. 64 134–42.

[35] Roth W-M 1995 Inventors, copycats, and everyone else: The emergence of shared resources and practices as defining aspects of classroom communities Sci. Educ. 79 475–502.

[36] Basto-Abreu A C, Christine P J, Zepeda-Tello R, Romero-Martinez M, Aguilar Duque J I, Reynales-Shigematsu L M and Barrientos-Gutierrez T 2016 Behaviours and opinions towards outdoor smoking bans and cigarette littering in Baja California, Mexico Health Policy Plan. 31 309–13.

[37] Rayon-Viña F, Miralles L, Fernandez-Rodríguez S, Dopico E and Garcia-Vazquez E 2019 Marine litter and public involvement in beach cleaning: Disentangling perception and awareness among adults and children, Bay of Biscay, Spain Mar. Pollut. Bull. 141 112–8.

[38] Cohen M A 1998 Monitoring and Enforcement of Environmental Policy (Nashville: Vanderbilt University).

[39] Nakamata T and Abe T 2016 The effects of a security camera, past littering, environment, and signboards on littering prevention Japanese J. Psychol. 87 219–28.

[40] Bateson M, Robinson R, Abayomi-Cole T, Greenlees J, O’Connor A and Nettle D 2015 Watching eyes on potential litter can reduce littering: evidence from two field experiments PeerJ 3 e1443.

[41] Taylor A, Curnow R, Fletcher T, and Lewis J 2007 Education campaigns to reduce stormwater pollution in commercial areas: Do they work? J. Environ. Manage. 84 323–35.
[42] Schultz P W, Bator R J, Large L B, Bruni C M and Tabanico J J 2013 Littering in Context: Personal and Environmental Predictors of Littering Behavior Environ. Behav. 45 35–59.

[43] Almosa Y, Parkinson J and Rundle-Thiele S 2017 A Socioecological Examination of Observing Littering Behavior J. Nonprofit Public Sect. Mark. 29 235–53.

[44] Al-Khatib I A, Arafat H A, Daoud R, and Shwahneh H 2009 Enhanced solid waste management by understanding the effects of gender, income, marital status, and religious convictions on attitudes and practices related to street littering in Nablus – Palestinian territory Waste Manag. 29 449–55.

[45] Jumariah J 2018 Pengelolaan Sampah Rumah Tangga (Studi Penelitian di Desa Karang Intan Kecamatan Karang Intan Kabupaten Banjar) AS-SIYASAH J. Ilmu Sos. Dan Ilmu Polit. 2 118–25.

[46] Gunggut H, Hing C K, and Saufi D S N A M 2013 Internalization and Anti Littering Campaign Implementation Procedia - Soc. Behav. Sci. 85 544–53.

[47] Erliyani R, Zulaeha M and Sihite D 2010 Pengetahuan Masyarakat Pinggiran Sungai tentang Perda Nomor4 Tahun 2000 dan Perda Nomor 19 Tahun 2008 tentang Penyelenggaraan Kebersihan Terhadap Prilaku Membuang Sampah ke Sungai J. Cita Huk. 2 285–303.

[48] Doltianus, Masjaya and Kalalinggi R 2017 Analisis Implementasi Peraturan Daerah Nomor 05 Tahun 2013 Tentang Pengelolaan Sampah Di Kecamatan Barong Tongkok Kabupaten Kutai Barat J. Adm. Reform 4 34–47.

[49] Uje L, Fitriyah N and Paselle E 2017 Evaluasi Peraturan Daerah Nomor 02 Tahun 2011 Tentang Pengelolaan Sampah Di Kota Samarinda J. Adm. Reform 3 288–301.

[50] Syaiful Anwar A, Stephanie A, Harris Hibatullah V and Prasetya Adiwibawa B A 2018 Perancangan Logo-Motive Tanda Visual sebagai Sarana Memotivasi Masyarakat agar Membuang Sampah pada Tempatnya Desain Komun. Vis. Manaj. Desain dan Periklanan 3 18–31.

[51] Marais M and Armitage N 2004 The measurement and reduction of urban litter entering stormwater drainage systems: Paper 2 - Strategies for reducing the litter in the stormwater drainage systems Water SA 30 483–92.

[52] Walgito B 2004 Pengantar psikologi umum (Jakarta: Andi).

[53] Castaño P M, Bynum J Y, Andrés R, Lara M and Westhoff C 2012 Effect of Daily Text Messages on Oral Contraceptive Continuation Obstet. Gynecol. 119 14–20.

[54] McCullough J L and Ostrom T M 1974 Repetition of highly similar messages and attitude change. J. Appl. Psychol. 59 395–7.

[55] Cangara H 2015 Edisi Revisi Perencanaan & Strategi Komunikasi (Jakarta: Rajawali Pers).