

Towards a Sustainable Campus: Study of Pro-Environmental Behavior of Canteen Traders at XYZ Private University

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ABSTRACT

Recently, environmental issues on campuses have raised concerns, including low awareness of environmental protection, excessive consumption of energy and water resources, and poor waste management. These issues can lead to environmental pollution and pose risks to human health. Therefore, involving various stakeholders, including faculty canteen traders, is crucial in addressing environmental problems and promoting a sustainable campus. This research aims to understand pro-environmental behavior within the Theory of Planned Behavior (TPB) framework. Qualitative research methods were employed, including observation and interviews with canteen traders at a private university in Surabaya. Six traders were observed, and two traders and campus management were interviewed as a comparison. The focus was on energy conservation, waste reduction, and recycling. The qualitative exploration revealed that traders exhibited some pro-environmental behaviors, such as reducing electricity usage, avoiding the direct provision of plastic bags, and using cardboard/paper packaging - however, other behaviors like waste sorting and recycling still needed to be established. Thematic analysis identified several reasons for the lack of these behaviors. These included unclear university rules, personal evaluation of the implications and plans for behavior (perspectives and attitudes), the absence of examples and reprimands from authoritative figures (subjective norms), and difficulties in implementing behavior despite the knowledge and available facilities (perceived behavioral control). In order to encourage pro-environmental behavior among the traders, interventions should focus on improving knowledge and internal motivation, regularly enforcing and communicating university regulations, monitoring and imposing consequences for misconduct, and providing adequate facilities.

Keywords: pro-environmental behavior, canteen traders, universities, theory of planned behavior

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INTRODUCTION

Lately, various environmental issues have increasingly disrupted the welfare of people's lives, such as waste accumulation, high levels of pollution and contamination, energy crises, climate change, and global warming. For instance, excessive energy consumption in daily life can lead to the accumulation of carbon emissions in the atmosphere, resulting in unpredictable weather patterns and other ecological damage (Zein & Alfian, 2018). Furthermore, improper waste management can create unsightly views, unpleasant odors, environmental pollution, and a source of diseases (Iskandar, 2016). Therefore, environmental management is crucial for all stakeholders, including the university.

One of the parties that need to be involved in environmental management is the university canteen trader. Apart from the use of electrical energy, canteens are one of the largest sources of waste in universities. Until December 2022, XYZ University produces approximately 45m³ of domestic and garden waste each week. Three times a week, waste is transported using Fuso trucks from the university's temporary disposal site (TPS) to the final disposal site (TPA) in Benowo (Security and Environmental Hygiene Manager, personal communication, December 2022).

A study at XYZ University revealed differences in waste composition among each faculty and campus facility. In the engineering faculty, 70% of the waste is inorganic materials, while the remaining 30% is organic waste. The inorganic waste primarily includes plastic bottles and food packaging remnants. Conversely, most organic waste comprises economically valuable materials, such as white paper, brown paper (food packaging remnants), cardboard, and beverage containers. Additionally, a small portion of non-economically valuable organic waste consists of food leftovers and garden waste, such as grass and leaves. This composition is undoubtedly different from the waste generated by the canteen, which is likely to have a more significant proportion of food leftovers (Simangunsong, 2017). Considering the waste generation and composition described above, it is essential for all university stakeholders, including faculty canteen traders, to participate in campus waste management actively. One effective way to contribute is by adopting behavioral changes and prioritizing environmental concerns (Iskandar, 2016).

Pro-environmental behavior can be defined as awareness to minimize the negative impact of one's actions on the environment, such as limiting resource consumption, reducing energy consumption, using non-toxic materials, and reducing waste production (Kollmuss & Agyeman, 2002). This behavior is expected to effectively protect a sustainable environment (Tian & Liu, 2022). According to Larson et al. (2015), the aspects of pro-environmental behavior include conservation lifestyle, land stewardship behaviors, social environmentalism, and environmental citizenship behaviors. Conservation lifestyle refers to individual behaviors aimed at protecting the environment, such as recycling or reusing products, conserving energy or water, minimizing waste generation, and engaging in environmentally friendly consumption. On the other hand, Kaiser et al. (2007) mentioned aspects of pro-environmental behavior, such as energy conservation, mobility and transportation, waste avoidance, product use or consumption, recycling, and other behaviors related to conservation.

The theory employed in this study is the Theory of Planned Behavior (TPB), which is widely utilized and has yielded significant findings in research on pro-environmental behavior. Within the framework of TPB, researchers investigate the impact of attitudes, subjective norms, and perceived behavioral control on behavioral intentions. This theory builds upon the Theory of Reasoned Action (TRA) proposed by Fishbein and Ajzen in 1975, with the addition of the variable of perceived behavioral control by Ajzen. The theory assumes that humans are rational beings who systematically employ available information. Individuals contemplate the consequences of their actions before deciding whether to engage in or abstain from specific behaviors. The central aspect of this theory is individual interest, wherein attitudes and subjective norms are posited to influence intentions. Furthermore, perceived behavioral control is incorporated as an additional factor influencing behavior through its impact on intentions. TPB also suggests that human actions are guided by three types of beliefs: behavioral beliefs, normative beliefs, and control beliefs (Thobagus Mohammad & Nur Pratiwi, 2021).

Several studies have uncovered pro-environmental behavior among traders, specifically waste sorting behavior (Afifah & Djuwita, 2019). However, there is currently no research that



qualitatively examines pro-environmental behavior among faculty canteen traders at XYZ University. Therefore, this study aims to address three main questions: (1) What is the overview of pro-environmental behavior among faculty canteen traders at XYZ University? (2) What information do faculty canteen traders at XYZ University possess in their efforts to preserve the environment? and (3) What factors influence pro-environmental behavior among faculty canteen traders at XYZ University?

This research aims to investigate and understand the pro-environmental behavior, knowledge, and factors influencing the pro-environmental behavior of traders at XYZ University during their sales activities. The benefits of this research include gaining a general understanding of the pro-environmental behavior of the traders, examining effective ways to reduce energy consumption and canteen waste production, providing input for policies and regulations related to university environmental management, and achieving a sustainable campus at XYZ University.

METHOD

In this study, qualitative methods such as observation and interviews were conducted to understand the context, describe pro-environmental behavior, gather information related to conservation efforts, and identify factors influencing the formation of pro-environmental behavior among traders in the Faculty of XYZ University.

Observation Method

The first step in conducting the observations is to determine the aspects of pro-environmental behavior the researcher can observe. From the detailed aspects of pro-environmental behavior mentioned earlier, three aspects were identified along with their operational definitions, including several forms of behavior to be monitored. First, the aspect of energy conservation has an operational definition of reducing electricity consumption. The forms of behavior in this aspect include not using lights during the day when there is sufficient natural light, using energy-efficient lights such as LED bulbs, and using energy-saving and environmentally friendly appliances.

The second aspect is waste avoidance, which involves reducing the potential for waste, mainly related to using single-use plastic and paper packaging. The forms of behavior in this aspect include not providing plastic bags, charging an additional fee for customers who request plastic bags, providing recyclable packaging, asking customers about their shopping bags, asking customers to bring their cutleries, and offering payment methods such as transfers or QR codes. The third aspect is recycling, which can be defined as the process of transforming and reusing waste to create different products. This aspect includes separating organic and inorganic waste, managing organic waste such as composting, and managing inorganic waste such as collecting and delivering it to recycling centers.

The observation was conducted on six faculty traders selling food and drinks to students and university staff. These six stalls consisted of permanent and non-permanent setups, namely Stall 1, Stall 2, Stall 3, Stall 4, Stall 5, and Stall 6. This study employed anecdotal, checklist, and tally recording methods for the observations. The observation was also done using field setting, event sampling, and immediate recording. It involved directly observing without controlling the situation, waiting for specific predetermined behaviors, and

recording them immediately during or after the observation. The observation occurred twice a day, during lunchtime and stall closing, for four days in November 2022.

Interview Method

Next, data collection was conducted through interviews. Open-ended interview techniques were used in this study. Additionally, the interviews were recorded, and field notes were taken to enhance data collection accuracy and ensure comprehensive results of participant experience descriptions. The main participants in this study met several inclusion criteria. First, participants were traders in the faculty canteen who had been previously observed. Second, participants tended to exhibit pro-environmental behavior compared to other traders. Third, participants represented both permanent and non-permanent stalls. There were two main participants in this study, but another source was also interviewed, including the Security and Environmental Hygiene Manager of XYZ University. This interview was done to triangulate the methods by gathering additional information from different perspectives.

The interview guide was developed based on the three aspects of pro-environmental behavior: energy conservation, waste avoidance, and recycling activities. In the initial stage, general questions about environmental conservation behavior were added. The questions provided to the participants were compiled using the TPB theory framework by Ajzen (Afifah & Djuwita, 2019). Due to the limited availability of time for the traders, the interviews were conducted using a directive approach, face-to-face interviews, and moderately scheduled interviews. The questions primarily consisted of open-ended, follow-up, and spontaneous inquiries.

The interview was initiated by visiting the faculty canteen and requesting several canteen traders to participate in the study. Following that, sellers who were not occupied with customers at their counters were approached and asked if they would be willing to be interviewed. At first, some sellers declined the invitation due to time constraints. However, ultimately, the two traders agreed and arranged interview schedules.

The interviews with the main participants took place in a field setting, where the traders attended to their counters. During one of the interviews, there were occasional interruptions as the participant served customers, while the other interview was conducted when the stall was closed. The interviews were held once for all participants between November and December 2022. The main participants were interviewed at the faculty canteen of XYZ University, while the additional participant was interviewed at the XYZ University Library. All interview sessions were recorded with the participant's consent.

After the interview process was completed, both main participants were given incentives as a form of appreciation for their participation in the conducted research. The interview results were then analyzed. The data analysis process involved several steps, including transcribing and verbatimizing the interviews, carefully reading all the data, collecting and preparing analysis materials, developing themes, presenting descriptions and formed themes, and making interpretations within categories (Afifah & Djuwita, 2019).

RESULT

Observation Results

The observation involved three traders from permanent stalls (Stall 1, Stall 2, and Stall 3) and three from non-permanent stalls (Stall 4, Stall 5, and Stall 6). Most traders were male, except for Stall 4 and Stall 6, which had female traders. The canteen had clean tables, chairs,



and floors, and the staff promptly cleaned any trash. Cats were present in the canteen but did not cause any significant issues. There was no noticeable odor, except near the waste disposal area. The weather varied from sunny to rainy during the data collection period. Socially, the canteen was busy with many customers throughout the day. Traders took orders, prepared food and drinks, and accepted payments. Queue lengths differed among the stalls. Towards the canteen's closing time at around 4:30 PM, traders started cleaning utensils, storing unsold food, tidying their stalls, and disposing of waste. Occasionally, traders interacted while washing utensils together in the shared kitchen.

Table 1 summarizes the pro-environmental behaviors of the traders. It indicates that all traders displayed behaviors related to energy conservation and some behaviors related to waste avoidance. However, none of the traders exhibited behaviors related to recycling. The following describes each aspect.

Regarding energy conservation, three of six traders did not use additional lights in front of their display cases, while the other three used LED lights. Regarding the use of appliances, it is observed that the faculty canteen did not have air conditioning. All canteen traders used electric stoves or fryers. Several traders used rice cookers, fans, and refrigerators. Only one trader used steamer, microwaves, and TV to display menus.

Table 1 Quantitative Results of Pro-Environmental Behaviors of Faculty Canteen Traders

Aspect and Operational Definition	Behavior Form	Average Behavior (Stall)					
		1	2	3	4	5	6
Energy Conservation (Reducing electricity usage)	Not using lights during the day if there is sufficient natural light.	1	1	1	1	1	1
	Using energy-efficient lighting (e.g., LED lights).	1	1	1	0	0	0
	Using energy-efficient and environmentally friendly appliances.	1	1	1	1	1	1
Waste Avoidance (Reducing waste generation, especially single-use plastic and paper packaging)	Not providing plastic bags.	6.25	2	12.25	4.5	7	1.25
	Charging an additional fee for customers requesting plastic bags.	0	0	0	0	0	0
	Providing recyclable packaging.	6.25	2	12.25	4.5	7	1.25
	Asking customers about their reusable shopping bags.	0	0	0	0	0	0
	Asking customers about their cutleries.	0	0	0	0	0	0
	Providing payment options such as bank transfers or QR codes.	1	1	1	1	1	1
Recycling (Process of converting waste into reusable materials)	Separating organic and inorganic waste.	0	0	0	0	0	0
	Managing organic waste (e.g., collecting and composting).	0	0	0	0	0	0
	Managing inorganic waste (e.g., collecting and delivering it to recycling centers).	0	0	0	0	0	0

Regarding waste avoidance, observations revealed various behaviors related to the use of plastic bags. Only one trader directly provided plastic bags, while others offered them to customers upon request. None of the traders charged an additional fee for plastic bags. Regarding packaging, three traders used cardboard containers, one used thin paper, and two used plastic mika. None of the traders inquired about customers' shopping bags or cutlery. Most traders provided plastic cutlery such as spoons, forks, and straws, while three offered wooden skewers. Payment options include bank transfers and QRIS, with most customers using these methods for payment.

Regarding recycling activities, observations revealed that no traders separated their waste before disposing of it in the bins. There was no evidence of traders managing organic or inorganic waste. Traders from Stalls 1, 2, and 3 washed their cooking utensils in their kitchens and disposed of their waste in the rear bin of the canteen. Traders from Stalls 4, 5, and 6 washed their cooking utensils in a shared kitchen and disposed of their waste in the side bin of the canteen.

Interview Results

The interviews with the main participants yielded several themes related to pro-environmental behaviors. These themes covered energy conservation, waste avoidance, and recycling activities. The participants were asked about their opinions, motivations, influential factors, facilitators and barriers to engaging in these behaviors, knowledge about university programs, provision of facilities, and satisfaction with these facilities.

The first participant, Adi (ADI), is a canteen trader from Jember City who learned about the job through his sister. He has been in this occupation since 2018 and finds satisfaction in being a canteen trader within the faculty. The second participant, Wawan (WWN), is an alumnus of XYZ University and started selling in 2015 before transitioning to the faculty canteen in 2017. The Security and Environmental Hygiene Manager (MKL) has served in the general services department at XYZ University for 12 years. Pseudonyms were assigned to protect the participants' identities. The following section presents the emerged themes from the interviews with both participants.

Knowledge of Faculty Canteen Rules

Based on the interviews, both participants were aware of the university's regulations, which emphasized maintaining cleanliness and tidiness in the canteen, replacing plastic containers with cardboard or paper, and practicing waste sorting.

"Kami ada tanggung jawab, sekarang kan yang pegang kantin beda orang. Dulu ini kak, ngga boleh naruh barang berserakan gitu. Harus rapih, harus bersih pokoknya enak dipandang gitu kak." (ADI_b.43-45)

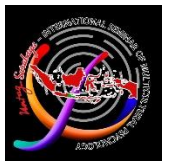
"Iya kak, (sampah kantin) dibedain mana yang plastik mana yang organik gitu." (ADI_b.159)

However, the university's communication of the rules has been inadequate. Adi mentioned the lack of discussions among canteen traders regarding waste management. Additionally, Wawan stated that traders primarily relied on the bins at the back of the canteen and noted the absence of waste sorting activities by students and cleaning services.

"Kalau pemilahan sampah kita kan mengikuti yang disediakan di belakang sini. Cuman, kalau menurut saya lihat itu, Cleaning Service (CS) nya ngga memisah gitu. Dari pihak mahasiswanya juga sebelum masa Corona itu mereka ngga memilah, hanya 3 dari 10 orang yang memilah. Akhirnya sampahnya kecampur-campur lagi, jadi ke TPA sudah tercampur." (WWN_b.25-28)

This contradicts the Security and Environmental Hygiene Manager's statement, which highlighted the significance of waste sorting and the provision of separate bins for traders. The manager also mentioned that the university had communicated this rule to traders through the contract agreement.

"Kantin udah dikasih tahu pemilahannya sampah. Kebetulan di situ juga ada toh bak sampah kering, bak sampah basah, terus semua itu sudah dipilah-pilah sama mahasiswa. Katakanlah ini sampah plastik dipilah, sampah basah dipilah." (MKL_b.14-17)



Pro-Environmental Behaviour

Regarding energy conservation, both participants mentioned that the electricity expenses incurred during their operations at the faculty canteen were considerably high. Consequently, they made efforts to reduce electricity usage. For instance, Adi minimized the usage of rice cookers, while Wawan intended to replace all the lights with LEDs.

"Kita mengantisipasinya itu kaya ada tempat wadah kaya gitu kak, tempat wadah nasi yang besar itu kak, nah kita salin ke situ kalau udah mateng", "Kalau misalnya tempat wadahnya mateng kita matiin kak." (ADI_b.102-103, 107)

"Sebagian besar LED, yang itu lampu tengah LED, yang atas lampu TL neon memang kita ada stok sisa kan eman kalau ngga dipake gitu, akhirnya kita pake. Tapi kalau misalnya lampunya sudah mati baru kita ganti yang LED gitu." (WWN_b.53-54)

The interview findings on waste avoidance revealed efforts to reduce plastic bag usage. Adi and Wawan offered plastic bags but did not provide them directly to customers. However, the bags were given for free when customers requested them. Neither participant asked about customers' shopping bags or containers/cutlery. They also noted that it was rare for customers to bring their bags or containers/cutlery.

"Kita menawarkan kak, mau pake kantong plastik atau ngga gitu." (ADI_b.134)

"(Plastik diberikan) hanya (untuk) yang membutuhkan." (WWN_b.197)

Regarding recycling, both participants mentioned that they did not sort their waste. Adi noted that the dedicated waste bins for traders, located adjacent to and behind the canteen, were not sorted.

"Dicampur kak, kalau (untuk pedagang) di belakang itu dicampur kak, nanti ada yang milah.", "Iya kalau pedagang masih dicampur kak." (ADI_b.185, 189)

"Kita hampir ga pernah melakukannya karena sejak awal pun sendiri sampahnya juga dicampur lagi." (WWN_b.141-142)

Adi did not manage inorganic waste and mentioned that the cleaning service collects items like plastic bottles for selling purposes. On the other hand, Wawan used gallon containers to purchase and refill ingredients, such as cooking oil. Once accumulated, Wawan collected these gallon containers to sell. Neither trader engaged in composting organic waste.

"Itu kan sebenarnya, selama ini kan kalau beli bahan-bahan kan pakai galon. Jadi galonnya itu refill kaya terutama minyak. (Salah) satu (alasan)nya lebih murah, kita juga dapat galon. Kalau misal galonnya banyak itu kan bisa dijual." (WWN_b.147-150)

Attitudes towards Behavior

Mandatory regulations concerning environmentally responsible behavior ensure that traders comply and understand the significance of such conduct. However, the university has not issued any guidelines to traders regarding energy conservation. Consequently, both participants' attitudes on conserving energy have not yet been established.

"Oh kalau masalah listrik itu saya kira belum pernah yah. Karena kan dari kantin itu udah ada tokennya sendiri, jadi mereka bayar sendiri. Jadi di situ setiap bulannya habis berapa kita cek langsung kena bayar berapa gitu." (MKL_b.136&138)

However, regarding waste avoidance, both participants had a positive attitude toward the behavior of using cardboard packaging. The rules for using cardboard have been implemented since the Covid-19 pandemic.

"Itu udah aturan kampus kak.", "Iya, sekarang ngga boleh pake sterofoam ataupun pake mika." (ADI_b.136&138)

"Salah satunya kita ada permintaan dari universitas, kedua kita ngga mau dipusingkan kalau cuci-cuci, kalau misalnya kita pakai piring untuk makan di tempat." (WWN_b.107&110)

In waste sorting and recycling, the attitude component includes an individual's belief in the consequences of their actions, including the affective consequences they perceive (Afifah & Djuwita, 2019). Difficulties in waste sorting were associated with negative affective consequences. These challenges arose because the participants were occupied with serving customers and the limited stall space, making waste separation difficult.

"Tidak memilah (sampah).", "Kaya lebih efisien aja kak.", "Iya biar cepet juga. Sama kapasitas ruangnya sama sempit juga." (ADI_b.191,193,195)

"Secara pribadi kita pemilahan sampah agak susah, kita hampir ga pernah melakukannya karena sejak awal pun sendiri sampahnya juga dicampur lagi." (WWN_b.141-142)

Subjective Norms Influencing Behavior

Subjective norms are individual perceptions of social pressure to behave under the expectations of the social environment. During the interviews, there was no evidence of subjective norms related to energy conservation among both participants. However, a notable observation was made in terms of waste avoidance, particularly concerning the usage of plastic bags. Adi expressed worries about being viewed as neglecting canteen cleanliness if he washed dirty plastic bags. On the other hand, Wawan considered offering plastic bags to customers as a gesture of hospitality.

"Kaya dalam sehari itu plastik itu numpuk banyak kak di (tempat) sampah, kaya kantong plastik, ngga mungkin dicuci gitu kak. Kita kan juga menjaga kebersihan juga di sini, takutnya dicap apa gitu." (ADI_b.229-231)

"Iya kitanya sih ngga papa, tapi kembali lagi ke pelanggan sendiri pelanggannya banyak yang minta, kalau kita ngga menyediakan, kan juga ya hospitality kita kan juga dipertanyakan gitu lho." (WWN_b.87-88)

In essence, individuals in authoritative positions, like canteen supervisors, can play a role in emphasizing the significance of pro-environmental actions. The interview results regarding waste avoidance and recycling activities revealed a lack of supervision and penalties/fines enforced by XYZ University regarding eco-friendly packaging and waste sorting.

"Kalau semuanya kita pakai itu kan (karton) harganya terlalu tinggi, jadi kita setidaknya 80% pemakaian kita harus pake paper, kan sudah. Kita lakukan ada yang melakukan. Nah konsekuensinya adalah ada yang melakukan ada yang tidak melakukan. Dan pihak universitas tidak ngecek." (WWN_b.163-165)

"Kurang memperhatikan gitu sih mana yang melakukan mana yang tidak melakukan.", "Iya monitoring tuh ngga ada, terus kemudian selain monitoring kan, kaya misalnya yang menjalankan ya bukan diapresiasi sih, cuman yang tidak menjalankannya itu tidak ada punishment-nya. Jadi pokoknya mereka diomeli ya sudah gitu doang." (WWN_b.167-168, 170-172)

XYZ University justifies the absence of supervision. The Manager of Security and Environmental Hygiene explained that the university had communicated the relevant regulations and relied on the self-awareness of the canteen traders and third parties to engage in waste sorting.

"Kalau untuk monitoring, saya kira kita belum dilaksanakan tapi saya kira sudah dikasih tahu semua sama PT-nya, tolong yah ini benar-bener harus dipilah, untuk buangnya ke sana otomatis dari TPA itu lebih memudahkan seperti itu. Katakanlah daun-daun kering angkutnya sendiri, terus dari kantin ntar sendiri, terus ini ada sampah yang katakan kertas-kertas gitu di pilah-pilah sendiri di sana." (MKL_b.25-29)

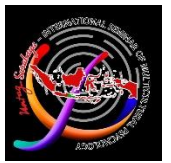
Perceived Behavioral Control of Behavior

Both participants generally considered pro-environmental behavior in all aspects studied non-obligatory, except for using cardboard containers. Furthermore, they perceived such behavior as challenging and burdensome to engage in.

"Soalnya kak saya tiap hari itu bersinggungan dengan plastik kak. Kayanya susah juga sih lepas dari plastik gitu." (ADI_b.177-178)

"Kedua kita ngga mau dipusingkan kalau cuci-cuci, kalau misalnya kita pakai piring untuk makan di tempat." (WWN_b.107-108)

The availability of proper waste sorting facilities increases individuals' confidence in waste sorting and is crucial for effectively implementing waste sorting practices. These facilities go beyond providing separate waste bins and include visible infrastructure to ensure correct and separate waste sorting. This assurance gives individuals a sense of purpose in their sorting efforts. During the interview, Wawan expressed reluctance to sort waste due to



concerns about waste being remixed.

“Terus ya kita kan juga harus hemat tenaga juga. Karena kan daripada kita paksakan untuk harus dipilah ujung-ujungnya dicampur lagi, kita kan juga kerjanya mubazir.”
(WWN_b.143-144)

Motivation and Intention to Behavior

Both participants showed motivation and intention to practice waste avoidance. Wawan expressed concerns about food waste in Indonesia and actively took measures to minimize it by controlling portion sizes. Adi, on the other hand, aimed to reduce the use of plastic bags but felt limited in available alternatives and options.

“Iya kalau kita berusaha manusiawi kita ngelihatin dampak ekonominya. Dan kalau sekarang foodwaste-nya bisa dipotong sampai 90% aja. Karena kan ekonomi kita orang ngga akan susah mencari makan, berapa banyak pengusaha makan yang ujung-ujungnya mereka rela buang makanan, supaya mereka makanan mereka tuh tidak dijual rendah.” (WWN_b.187-180)

“Keinginan itu, ada kak sebenarnya. Tapi kaya tiap hari berkesinambungan dengan plastik juga. Ngga bisa apa-apa juga kak seperti saya gitu. Kalau ada sih ada.”
(ADI_b.226-227)

DISCUSSION

Observation and Interview Results Comparison

Through the observations and interviews conducted with both participants, certain aspects were not apparent during the observations but were revealed during the interviews. The following explains the integrated results between the observations and interviews. Both participants demonstrated energy conservation behaviors such as reducing their electricity usage, utilizing LED lights, and using eco-friendly electronic devices, as observed qualitatively and quantitatively. The participants' responses further supported these findings, as both made conscious efforts to minimize energy consumption due to the high cost of electricity while renting at the faculty canteen.

The observations regarding waste avoidance demonstrated various behaviors, such as not directly providing plastic bags to customers, using cardboard/paper containers, and offering transfer services and QRIS payment methods. However, there was no recorded behavior of charging extra for plastic bags, inquiring about customers' shopping bags, or asking about their food containers/cutlery. Similar to the previous aspect, these observations were consistent with the interview findings.

However, based on the motivation for engaging in pro-environmental behavior, both participants did not yet demonstrate environmental concern. Their motivation to provide plastic only to customers who needed it was primarily driven by hospitality rather than environmental awareness. Meanwhile, their decision to switch to cardboard and paper containers was mainly based on obligations or compliance with the university's rules. In the previous observations, one of the participants was observed using mica plastic packaging. During the interview, the participant cited the high cost of cardboard packaging as their reason.

Furthermore, during the interviews, exciting findings emerged regarding the recycling aspect. The observations indicated that neither participant sorted, composted, or managed inorganic waste. However, waste sorting behavior was observed among the cleaning staff who collected inorganic waste, particularly beverage bottles. Additionally, one of the participants exhibited a sorting waste behavior. This participant used refillable bottles/jugs to store cooking

oil, tomato sauce, and chili sauce. These bottles/jugs were also sold when a significant amount had accumulated.

Formed Themes Categorization

The topics from the previous interviews were categorized into two groups for theoretical analysis, as shown in Figure 1. The first category, Knowledge and Regulation, encompasses understanding the rules governing the faculty canteen, subjective norms that influence behavior, and perceived behavioral control over one's actions. The second category, Enacting Pro-Environmental Behavior, incorporates aspects such as motivation and intention to behavior, attitude towards behavior, and pro-environmental behavior.

Knowledge and Regulation

The interview findings reveal a need for clarity concerning waste sorting behavior among the traders. Conflicting information was observed, as evidenced by the disparities between the statements from the manager and the traders' perspectives. The traders assumed the cleaning service staff were responsible for the waste sorting activity. This misunderstanding can be attributed to a lack of proper dissemination of regulations and insufficient supervision from the university. Moreover, the absence of continuous monitoring has resulted in negative subjective norms regarding pro-environmental behavior in energy conservation, waste avoidance, and recycling among traders.

According to the Theory of Planned Behavior, perceived behavioral control refers to an individual's belief in their capability and control over engaging in pro-environmental behavior (Afifah & Djuwita, 2019). For instance, both participants encountered challenges in waste sorting, leading to their reluctance to participate in this behavior. Perceived behavioral control can be influenced by rule socialization as well, wherein the process of socialization can improve an individual's knowledge and competence in performing pro-environmental behavior.

Moreover, the inadequate waste sorting facilities, where the canteen waste was combined, have resulted in dissatisfaction among traders (Zhang et al., 2016). Additionally, it has been discovered that the university waste is further mixed at the temporary disposal site (TPS) before being transported to the final disposal site (TPA) in Benowo. Proper waste sorting bins can influence how people perceive their ability to control their behavior.

Enacting Pro-Environmental Behavior

Masson dan Otto (2021) summarized the various motivations that drive individuals to engage in pro-environmental behavior, such as hedonic, financial, social, or normative values, identity, or attachment to a physical place. The interview results indicate that one of the traders is primarily motivated by financial considerations. To promote pro-environmental behavior, increasing traders' intrinsic motivation, such as fostering a genuine concern for the environment, is crucial.

Both participants also expressed insecurity and powerlessness when confronted with environmental issues in the faculty canteen, particularly due to the lack of adequate waste sorting facilities. The conflicting decision of the traders to refrain from engaging in environmentally friendly activities can be attributed to self-serving denial. In pro-environmental behavior, self-serving denial refers to rejecting the moral obligation to adopt pro-environmental behavior to justify environmentally harmful actions (Lindenberg & Steg, 2007). This rejection can arise when individuals need a more comprehensive understanding of environmental issues, underestimate their contribution to the problem, perceive the supporting facilities for



such behavior as inadequate, and place responsibility on other parties, such as the university and government, for environmental concerns.

Clear and obligatory regulations will support the traders in adopting pro-environmental behavior. When these behaviors are mandated, the traders will perceive them as important and necessary. For instance, explicit rules concerning plastic usage and waste sorting influence individuals' belief in the significance of such behavior. Consequently, the traders' attitudes still need to be established due to the lack of clarity surrounding energy conservation, waste avoidance, and recycling regulations in the faculty canteen. Besides personal values, behavior outcomes also contribute to the attitude dimension (Afifah & Djuwita, 2019; Ajzen, 1991). One of the traders holds a positive attitude towards using single-use food containers. He mentioned that using such containers can harm the environment. In general, canteen traders have the potential to exhibit pro-environmental behavior. Although not all behaviors have been formed, this finding represents a promising initial step towards fostering canteen traders who are more environmentally aware.

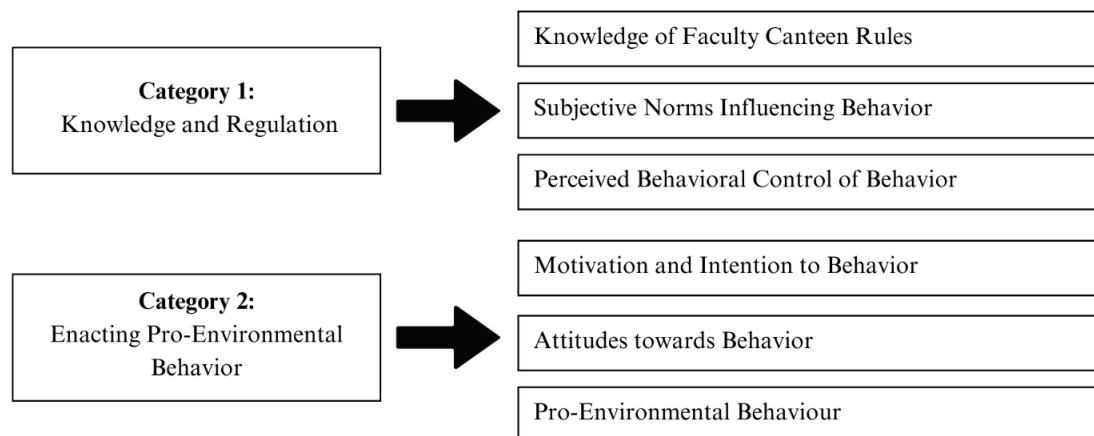


Figure 1 The Categorization and Thematic Framework of Participant Interviews Regarding Pro-Environmental Behavior (Arrows Indicate the Themes within Each Category)

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