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Understanding University Students' Green Purchase Behaviour

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Abstract: In recent years, universities have increasingly been treated as everyday laboratories for greener lifestyles, yet the link between what students say about the environment and what they actually buy is still quite uncertain. This study applies the Theory of Planned Behaviour to examine how Subjective Norms and Perceived Behavioural Control are connected to Green Consumption Attitude, Green Buying Intention and Green Purchase Behaviour among university students in China. Based on 181 valid questionnaires and analyses conducted with PROCESS Model 6, the findings suggest that both Subjective Norms and Perceived Behavioural Control are linked to more positive attitudes toward green consumption and higher levels of purchase intention. Green Buying Intention is found to be the most stable predictor of behaviour, whereas Green Consumption Attitude alone neither shows a significant direct effect nor serves as an effective single mediator. In most cases, the two predictors influence behaviour through a stepwise route in which changes in attitude are followed by shifts in intention and, only after that, by actual purchasing. This sequential pattern underlines the importance of intention in explaining why supportive environmental views do not always lead to consistent green actions, and it provides a basis for universities, public agencies and businesses to design more targeted measures that make green choices easier and more attractive for students.

Keywords: Green Consumption Attitude; Subjective Norms; Perceived Behavioural Control; Green Buying Intention; Green Purchase Behaviour; Theory of Planned Behaviour; University Students

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1.Introduction

Sustained pressure on natural resources and the continuing deterioration of environmental quality have pushed sustainability and green transition to the centre of policy discussions in many countries [1][2]. Governments are increasingly incorporating green lifestyles, lower-impact patterns of consumption and carbon-reduction measures into medium- and long-term development plans. Against this backdrop, China's dual-carbon strategy has brought green consumption to the foreground

as a basic pillar of ecological civilisation construction [3]. Green consumption now carries several tasks at once: it eases pressure on resources, supports environmental governance and facilitates adjustments in the structure of the economy, while also nudging growth trajectories toward lower-carbon modes [4][5]. Creating social conditions in which green consumption is widely recognised and routinely practised has therefore become a critical link in the chain leading to national carbon-reduction targets [6][7].

Among different social groups, younger generations hold a particularly prominent position in this shift toward greener ways of living, and university students form one of the most influential subgroups. Compared with many other consumers, they typically possess stronger educational backgrounds, respond more quickly to information and display heightened sensitivity to environmental problems. As a result, their attitudes towards green ideas are often relatively open and forward-looking [8][9]. On campus, everyday consumption does more than shape their own lifestyles. Through routine interaction and imitation, students' choices can influence classmates and family members, forming a chain through which green behaviour gradually spreads to wider social circles [7][9].

At the same time, existing studies repeatedly point to a clear mismatch between students' attitudes and their actions. Many university students agree that green consumption is important, yet their actual purchasing behaviour falls short of their stated values [10][11]. Practical barriers play a part in this. Higher prices, limited purchasing channels on or near campus and the difficulty of assessing the credibility of eco-labels all make it harder for students to act consistently with their environmental beliefs, and green ideals are therefore not always translated into everyday decisions [1][12].

To understand this attitude–behaviour gap more clearly, it is necessary to examine how students' green attitudes, intentions and behaviours differ, and which factors influence the conversion of intention into action [10][13]. The present study takes university students' green attitudes and behaviours as its main focus and adopts the Theory of Planned Behaviour (TPB) as the underlying analytical framework. By incorporating attitude, subjective norms and perceived behavioural control, TPB makes it possible to analyse, in a systematic way, how green consumption intentions are formed and how they are (or are not) reflected in actual behaviour, as well as how the attitude–behaviour gap manifests in this specific group [14][6]. As a classic framework for explaining behavioural change, TPB fits well with the characteristics of green purchasing and helps address the relative lack of research on youth subgroups in this field [14][11].

The significance of students' green purchasing behaviour goes beyond campus-based environmental activities. As a future core consumer group, their values and consumption patterns are likely to influence broader market trends. If students are able to maintain green habits over the long term, this can reduce resource wastage and contribute to environmental improvement, while also encouraging families and communities to experiment with greener lifestyles through everyday interaction and example [2][8]. Repeated exposure to and participation in green consumption can also deepen students' sense of environmental responsibility and gradually orient their values toward more sustainable choices. Such value shifts are likely to influence the kinds of options they make and the ways they engage in public life after graduation, once they move from campus into broader society [6][7].

2.Literature Review and Research Hypotheses

2.1 Green Consumption Aitude

Green Consumption Attitude (GCA) describes the general way individuals judge green products and the environmental benefits associated with them, and is usually regarded as a key antecedent in the Theory of Planned Behaviour [14]. Among university students, this attitude tends to grow out of several underlying concerns, such as attention to personal health, a felt responsibility for the natural environment and the degree to which green practices appear consistent with their own values and the values they perceive around them [6]. Studies in recent years point to a gradual strengthening of students' support for green consumption, helped by the wider promotion of green lifestyles, the increasing presence of green products and more frequent communication of policy messages related to sustainability [8].

The settings in which students live and study can also shape how GCA takes form. When family members, peers or online networks send repeated positive signals about green consumption, students are more inclined to develop favourable views of green products and to see them as a reasonable choice in everyday life [9]. Concrete conditions matter as well: whether such

products are easy to obtain, fall within an acceptable price range and can be reliably identified through labels all influence how positive their attitudes become [1][4]. Taken together, these findings indicate that GCA arises from both personal cognitive evaluations and the combined effects of social norms and perceived behavioural control. On this basis, the following hypothesis is proposed:

H3: Green Consumption Attitude (GCA) positively influences Green Buying Intention (GBI).

2.2 Subjective Norms

Subjective Norms (SN) describe the expectations that students perceive from significant others and from the wider social environment when they make consumption decisions, and they constitute an important source of social pressure around green choices [8]. In university settings, peer influence, the broader campus climate and green-related content on social media all contribute, to varying degrees, to shaping students' willingness to support green products [7][9]. For example, when green-themed events, public campaigns or classmates' pro-environmental actions become visible on campus, they often create a demonstration effect that makes students more inclined to adopt green purchasing patterns themselves [7].

SN do not only matter for attitudes; they can also work through intention to influence actual Green Purchase Behaviour (GPB) [11]. When the surrounding social environment sends clear and positive signals in favour of green consumption, students are more likely to develop Green Buying Intention (GBI) and then act on it in real situations [13]. Recent studies further point to a chained mechanism in which social expectations first shape attitudes toward green consumption, these attitudes then reinforce purchase intentions and, in turn, intentions give rise to behaviour [15]. Building on this line of reasoning, the following hypotheses are proposed:

H1: Subjective Norms (SN) positively influence Green Consumption Attitude (GCA).

H5: Subjective Norms (SN) indirectly influence Green Purchase Behaviour (GPB) through Green Consumption Attitude (GCA).

H6: Subjective Norms (SN) indirectly influence Green Purchase Behaviour (GPB) through Green Buying Intention (GBI).

H7: Subjective Norms (SN) influence Green Purchase Behaviour (GPB) through the sequential mediation of Green Consumption Attitude (GCA) and Green Buying Intention (GBI).

2.3 Perceived Behavioural Control

Perceived Behavioural Control (PBC) describes how students judge their own ability to carry out a particular behaviour, including whether they have enough time, money, knowledge and practical convenience to do so [1]. In green consumption settings, this judgement is closely tied to how students view green product prices, how easily such products can be purchased and whether environmental labels are clear and recognisable. When prices seem acceptable, products are not hard to find and labels are easy to understand, green consumption is seen as manageable rather than burdensome, and students tend to report more positive attitudes and stronger intentions toward green choices [3].

Within explanations of green purchasing, PBC usually enters the model as an important driver that shapes attitudes, intentions and behaviour at the same time. Empirical work finds that students who feel they have greater control are more likely to develop favourable views of green consumption and to include green products in their future spending plans [15]. Recent mediation-oriented studies further point to a stepwise pattern: higher perceived control can first lift attitudes, which then reinforce purchase intentions and, in a later stage, increase the probability that green purchasing behaviour will actually take place [13]. On this basis, the study proposes the following hypotheses:

H2: Perceived Behavioural Control (PBC) positively influences Green Consumption Attitude (GCA).

H8: Perceived Behavioural Control (PBC) indirectly influences Green Purchase Behaviour (GPB) through Green Consumption Attitude (GCA).

H9: Perceived Behavioural Control (PBC) indirectly influences Green Purchase Behaviour (GPB) through Green Buying Intention (GBI).

H10: Perceived Behavioural Control (PBC) influences Green Purchase Behaviour (GPB) through the sequential mediation of Green Consumption Attitude (GCA) and Green Buying Intention (GBI).

2.4 Green Purchase Intention

Green Purchase Intention (GBI) describes an individual's planned tendency to buy green products or to engage in environmentally friendly actions in the future, and it occupies a central mediating position in most models of green behaviour [13]. Existing studies generally find that when students hold more positive views of green products, they also report stronger intentions to purchase them [11]. In this sense, GBI plays a connecting role in the formation of green behaviour: it is shaped by prior attitudes and, at the same time, serves as an important predictor of actual Green Purchase Behaviour (GPB) [15].

Because intention is often the step that converts attitudes into concrete action, students with stronger green purchase intentions are more likely, in everyday consumption, to choose environmentally friendly products, reduce their use of disposable items or take part in environmental activities [15]. Against this background, the analysis pays particular attention to how Green Consumption Attitude operates as an antecedent of intention. On this basis, the following hypothesis is put forward:

H4: Green Buying Intention (GBI) positively influences Green Purchase Behaviour (GPB).

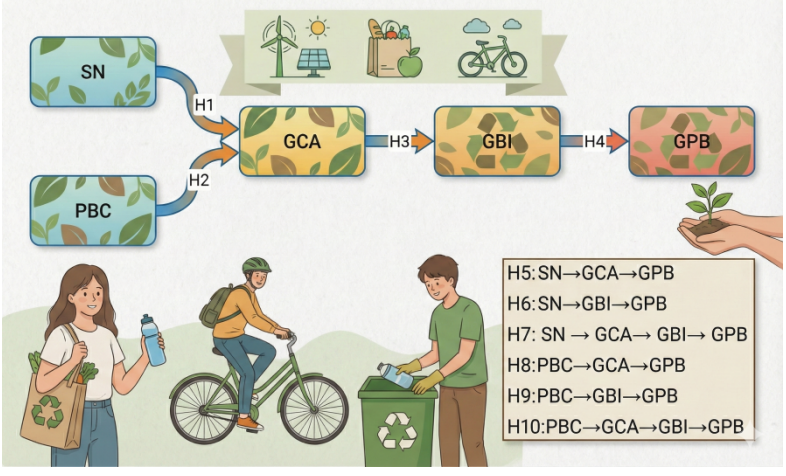
2.5 Green Purchase Behaviour

Green Purchase Behaviour (GPB) refers to the concrete actions through which consumers put green consumption into practice, for example buying environmentally friendly products, avoiding single-use items, choosing energy-saving appliances or supporting brands that stress sustainability [10]. Within the Theory of Planned Behaviour (TPB), Green Purchase Behaviour (GPB) usually appears at the end of the explanatory chain and is shaped jointly by Green Consumption Attitude (GCA), Subjective Norms (SN), Perceived Behavioural Control (PBC) and Green Buying Intention (GBI) [14].

Recent work also reminds that strong environmental concern does not automatically lead to consistent green purchasing among university students. In daily consumption, decisions are filtered through a series of practical considerations: green products often cost more, the reliability of eco-labels is sometimes questioned, suitable products are not always easy to find and conventional alternatives remain widely available and convenient [1][12]. At the same time, campus initiatives, the visible environmental conduct of teachers and peers and the steady flow of green messages on social media can gently push students in the opposite direction, making green options more noticeable and keeping environmental issues on their agenda [9][7].

Taken together, GPB captures the actual choices students make on the basis of their green values, while also reflecting the pressures and constraints of their social and material environment. Exploring how GPB is formed helps clarify how attitudes and intentions are—or are not—translated into action, and provides useful reference points for universities and other institutions seeking to encourage more sustainable consumption among young people. The overall research model used in this study is summarised in Figure 1.

Figure3: Research Model



3.Research Methods and Data Analysis

3.1 Research Methods and Design

The study uses a quantitative research design and focuses on students currently studying in Chinese higher education, including higher vocational colleges, undergraduate programmes and master's and doctoral courses [16]. Data were gathered

through an online questionnaire built on the Wenjuanxing platform and distributed by convenience sampling via university social media groups and peer forwarding. After questionnaires were returned, incomplete or clearly invalid responses were removed, and the remaining valid cases were used for the empirical analysis [14].

The survey was divided into two main sections. The first collected background information, including gender, year of study, type of institution and monthly living expenses. The second section comprised the core measurement scales for Subjective Norms (SN), Perceived Behavioural Control (PBC), Green Consumption Attitude (GCA), Green Buying Intention (GBI) and Green Purchase Behaviour (GPB) [17][18]. Most items were drawn from classic TPB-based instruments and prior green consumption studies, then slightly adapted to fit the linguistic and cultural context of Chinese university students. All items were rated on a five-point Likert scale (1 = strongly disagree, 5 = strongly agree) to ensure that respondents could understand and answer the questions with relative ease.

For the data analysis, SPSS 27 was used to organise and test the survey responses in a systematic way. The analysis started with descriptive statistics to outline the basic features of the sample and to observe how the main variables were distributed overall. Next, Cronbach's alpha was applied to assess the internal consistency of each scale. Only after the reliability indices reached an acceptable level was Exploratory Factor Analysis (EFA) carried out, in order to check whether the items clustered onto the constructs as expected and to evaluate the structural validity of the scales.

Once the measurement checks were completed, Pearson correlation coefficients were computed to examine the basic linear relationships among Subjective Norms (SN), Perceived Behavioural Control (PBC), Green Consumption Attitude (GCA), Green Buying Intention (GBI) and Green Purchase Behaviour (GPB). Before testing the main regression paths, background variables such as gender and monthly living expenses were also subjected to group comparison tests to see whether students with different characteristics showed significant differences in GCA, GBI and GPB. These results were then used to decide whether such variables should be included as controls in the subsequent models.

To test the statistical validity of the "dual-mediation" framework, the study finally employed the PROCESS macro (Model 6). In this specification, SN and PBC were treated as independent variables, GCA and GBI as serial mediators and GPB as the dependent variable. A bias-corrected bootstrap procedure was used to repeatedly resample the data and estimate indirect effects and their 95% confidence intervals, providing a basis for judging whether the individual mediation paths and the sequential mediation effects were statistically significant.

3.2 Descriptive Statistical Analysis

In total, 218 questionnaires were distributed and 203 were returned. After removing incomplete or clearly invalid responses, 181 valid cases were kept for analysis. Among these respondents, 116 were female, accounting for 64.1 % of the sample, and 65 were male (35.9 %). This gender split is broadly in line with what is often seen in university-based surveys.

With regard to study level, undergraduates made up the bulk of the respondents: 142 students, or 78.5 % of the sample. There were also 26 higher vocational students (14.4 %), eight master's students (4.4 %) and five doctoral students (2.8 %). Overall, the educational structure largely reflects the usual hierarchy found in Chinese universities, where undergraduate enrolment is dominant.

Monthly living expenses were mainly clustered in the middle band. Most students (n = 130, 71.8 %) reported spending between 1,500 and 3,000 yuan per month. A smaller group of 30 students (16.6 %) had living expenses of 1,500 yuan or below, while 12 students (6.6 %) fell in the 3,000–6,000 yuan range. Only nine respondents (5.0 %) reported monthly expenses above 6,000 yuan. This pattern suggests that the majority of respondents are situated around a moderate spending level, which matches the general consumption situation of many university students.

Overall, the sample is dominated by undergraduate students, and the observed distributions for gender, education level and living expenses are broadly consistent with the characteristics of typical student populations, providing a reasonably sound basis for the analyses that follow.

3.3 Reliability and Structural Validity Testing

Before looking at the main hypotheses, the quality of the measurement scales was checked in terms of both reliability and structure. Internal consistency was assessed with Cronbach's α, which shows whether items intended to measure the same

construct move together in a reasonably similar way [19][20][21].

Structural validity was examined using several commonly reported indicators. The Kaiser–Meyer–Olkin (KMO) statistic was used to judge whether the data were suitable for factor extraction, and Bartlett's test of sphericity was applied to see whether the correlation matrix differed sufficiently from an identity matrix. Based on these preliminary checks, an Exploratory Factor Analysis (EFA) was then conducted to see how the items grouped in practice and whether this pattern was in line with the theoretical structure of the constructs [22]. The outcomes of these tests were used as a basic quality check before proceeding to the later modelling steps.

Table 1. Reliability and Validity Summary

Variable	Items	Cronbach's α	KMO	Bartlett's Test (χ^2, df, p)	Overall Assessment
GCA (Green Consumption Attitude)	4	0.897	0.842	$\chi^2 = 423.291$, df = 6, $p < .001$	Reliability and validity are good
SN (Subjective Norms)	5	0.881	0.878	$\chi^2 = 443.400$, df = 10, $p < .001$	Good reliability and validity
PBC (Perceived Behavioural Control)	4	0.855	0.809	$\chi^2 = 310.389$, df = 6, $p < .001$	Good reliability and validity
GBI (Green Purchase Intention)	3	0.788	0.696	$\chi^2 = 162.499$, df = 3, $p < .001$	Acceptable, meets basic standards
GPB (Green Purchase Behaviour)	4	0.814	0.79	$\chi^2 = 231.831$, df = 6, $p < .001$	Good reliability and validity

As shown in Table 1, the reliability indicators are satisfactory. The Cronbach's α values for Green Consumption Attitude (GCA), Subjective Norms (SN), Perceived Behavioural Control (PBC) and Green Purchase Behaviour (GPB) are all above 0.80, which points to good internal consistency for these four scales. Green Buying Intention (GBI) has an α of 0.788. Although this is slightly lower than the others, it is still above the usual cut-off of 0.70 often used in social science studies, so the reliability of this construct can be regarded as acceptable. On this basis, all five core variables meet the basic requirements for subsequent statistical analysis.

For structural validity, the KMO statistics fall between 0.696 and 0.878. Apart from GBI, whose KMO value of 0.696 is marginally below 0.70 yet still close to that benchmark, the remaining variables fall within the moderate to good range. In addition, Bartlett's test of sphericity is significant at the $p < .001$ level for all scales, indicating that the correlation matrices differ significantly from an identity matrix and that factor analysis is appropriate. Taken together, the reliability and validity results show that the scales used in this study possess satisfactory internal coherence and a reasonably stable factor structure, providing a sound basis for subsequent confirmatory analyses and mediation modelling.

3.4 Correlations Among Key Variables

To improve the accuracy of the subsequent model estimation, the analysis first considered whether students with different background characteristics scored differently on the main variables. In particular, mean scores on Green Consumption Attitude (GCA), Subjective Norms (SN), Perceived Behavioural Control (PBC), Green Buying Intention (GBI) and Green Purchase Behaviour (GPB) were compared between male and female students and across groups with different levels of monthly living expenses. Where clear group differences exist, these background factors need to be treated as control variables in later models so that they do not distort the relationships among the core constructs. The difference tests therefore serve mainly to decide whether such background variables should enter the mediation analysis as controls, thereby improving the precision of model interpretation.

Before turning to these group comparisons, the Pearson correlation matrix was examined to gain an initial view of the direction and strength of associations among the key variables. As reported in Table 2, GCA is positively and significantly related to SN, PBC, GBI and GPB ($p < .01$), with correlation coefficients ranging from .752 to .871. SN also shows strong positive correlations with the other constructs, all above .786, and the links among PBC, GBI and GPB are likewise highly significant. These patterns indicate a set of stable, mutually reinforcing positive relationships among the five core variables, consistent with theoretical.

Table 2. Pearson Correlation Matrix

Variable	GCA	SN	PBC	GBI	GPB
GCA (Green Consumption Attitude)	1	.871**	.793**	.768**	.752**
SN (Subjective Norms)	—	1	.819**	.816**	.786**
PBC (Perceived Behavioural Control)	—	—	1	.812**	.804**
GBI (Green Purchase Intention)	—	—	—	1	.830**
GPB (Green Purchase Behaviour)	—	—	—	—	1

Notes: N = 181. All correlations significant at the 0.01 level (two-tailed). "—" indicates values omitted due to matrix symmetry (upper triangular matrix only).

3.5 Difference Testing of Background Variables

To see whether students with different backgrounds respond differently on the green-consumption variables, three sets of comparisons were carried out for gender, educational level and monthly living expenses. Because gender includes only two groups, it was examined using an independent samples t-test [23], whereas educational level and monthly living expenses, which contain multiple categories, were analysed using One-Way ANOVA to test for between-group differences [24].

As reported in Table 3, female respondents score higher than males on all five key variables—Green Consumption Attitude (GCA), Subjective Norms (SN), Perceived Behavioural Control (PBC), Green Buying Intention (GBI) and Green Purchase Behaviour (GPB)—and these differences are statistically significant at $p < .05$. The effect sizes are also substantial, with Cohen's d ranging from 0.96 to 1.02, indicating a large practical impact. In other words, compared with male students, female students tend to hold more positive attitudes toward green consumption, perceive stronger social expectations, feel more able to act in environmentally friendly ways, express clearer purchase intentions and engage more actively in green purchasing.

Table 3. Gender Differences: Independent Samples t-Test

Variable	Male Mean (n=65)	Female Mean (n=116)	t	p	Cohen's d	Conclusion
GCA (Green Consumption Attitude)	3.52	4.23	-4.52	< .001	1.02	Higher in females
SN (Subjective Norms)	3.51	4.08	-3.74	< .001	0.97	Higher in females
PBC (Perceived Behavioural Control)	3.37	3.83	-2.93	0.004	1.02	Higher in females
GBI (Green Purchase Intention)	3.39	3.84	-2.86	0.005	1.02	Higher in females
GPB (Green Purchase Behaviour)	3.5	3.86	-2.4	0.018	0.96	Higher in females

A further look at Table 4 shows clear differences across educational levels. The One-Way ANOVA results indicate that higher vocational students, undergraduates and postgraduates score differently on all five main variables, with F values ranging from 12.812 to 31.174 and all p-values below .001. In practical terms, students with more advanced educational backgrounds tend to show more developed green values, a sharper sensitivity to social expectations and more consistent patterns of green consumption behaviour. Variations in academic training, the depth of environmental knowledge and differences in how students approach and process information are likely to contribute to these group distinctions.

Table 4. One-Way ANOVA for Education Level

Variable	F	p	Conclusion
GCA (Green Consumption Attitude)	31.174	< .001	Significant differences between groups
SN (Subjective Norms)	19.194	< .001	Significant differences
PBC (Perceived Behavioural Control)	16.847	< .001	Significant differences
GBI (Green Purchase Intention)	12.989	< .001	Significant differences
GPB (Green Purchase Behaviour)	12.812	< .001	Significant differences

Table 5 reports the differences across monthly living expense groups. All five core variables vary significantly by expenditure level ($p < .05$). Students with higher living allowances generally have more discretionary income, making it easier for them to set aside money for green products; at the same time, their value orientations and consumption habits appear more inclined towards supporting environmentally responsible options. These findings suggest that family economic conditions, to some extent, shape how students view green consumption, how willing they are to act on it, and how steadily they maintain green purchasing behaviour.

Table 5. One-Way ANOVA for Monthly Living Expenses

Variable	F	p	Conclusion
GCA (Green Consumption Attitude)	5.508	0.001	Significant group differences
SN (Subjective Norms)	4.565	0.004	Significant differences
PBC (Perceived Behavioural Control)	2.893	0.037	Significant differences
GBI (Green Purchase Intention)	3.907	0.01	Significant differences
GPB (Green Purchase Behaviour)	4.052	0.008	Significant differences

Taken together with the earlier results, it is clear that gender, educational level and monthly living expenses all exert significant influence on students' scores for GCA, SN, PBC, GBI and GPB.

3.6 Empirical Examination of the Mediation Model

3.6.1 Effects of Independent Variables on Mediators and Outcome Variables (Direct Effects)

To examine how Subjective Norms (SN) and Perceived Behavioural Control (PBC) operate within the model, the analysis first focuses on their direct effects on Green Consumption Attitude (GCA), Green Buying Intention (GBI) and Green Purchase Behaviour (GPB). The corresponding estimates are reported in Table 6, with separate panels for the SN and PBC models. This layout allows the direct links from each independent variable to the two mediators and to the behavioural outcome to be viewed and compared in a straightforward way.

Table 6. Main Effects Regression Results (SN and PBC Models)

Path	β	SE	t	p	95% CI
SN → GCA	0.9304	0.0392	23.7396	< .001	[0.8531, 1.0078]
SN → GBI	0.6271	0.0891	7.0413	< .001	[0.4513, 0.8028]
GCA → GBI (SN model)	0.2281	0.0834	2.7353	0.0069	[0.0635, 0.3926]
SN → GPB (direct effect)	0.2042	0.0872	2.3423	0.0203	[0.0322, 0.3762]
GBI → GPB (SN model)	0.5072	0.0649	7.8167	< .001	[0.3792, 0.6353]
PBC → GCA	0.8229	0.0472	17.4242	< .001	[0.7297, 0.9161]
PBC → GBI	0.5486	0.0673	8.1516	< .001	[0.4158, 0.6814]
GCA → GBI (PBC model)	0.3202	0.0649	4.937	< .001	[0.1922, 0.4482]
PBC → GPB (direct effect)	0.2867	0.0685	4.1824	< .001	[0.1514, 0.4219]
GBI → GPB (PBC model)	0.4361	0.0651	6.6948	< .001	[0.3076, 0.5647]

In the SN model, Subjective Norms (SN) show a strong, positive effect on Green Consumption Attitude (GCA) ($\beta = 0.9304$, $p < .001$). When students feel that family members, friends or other important groups expect them to consume in a more environmentally friendly way, their overall evaluation of green consumption becomes noticeably more favourable. In the SN model, Subjective Norms (SN) also show a clear direct effect on Green Buying Intention (GBI) ($\beta = 0.6271$, $p < .001$). When students feel that people around them expect them to consume in a greener way, they are more likely to plan to buy green products. Green Consumption Attitude (GCA) is likewise a significant predictor of GBI ($\beta = 0.2281$, $p = .0069$), which means

that more favourable views of green consumption tend to go hand in hand with stronger intentions to purchase such products.

At the behavioural level, SN continues to play a role. Its direct effect on Green Purchase Behaviour (GPB) remains significant ($\beta = 0.2042$, $p = .0203$), while the coefficient for GBI is even larger ($\beta = 0.5072$, $p < .001$). These results indicate that intention stands closest to actual behaviour in the overall chain and has substantial weight in explaining whether green purchases take place.

The PBC model points in a similar direction. Perceived Behavioural Control (PBC) has a significant positive effect on GCA ($\beta = 0.8229$, $p < .001$), suggesting that students who believe they have enough time, money, information or convenience to act in an environmentally friendly way tend to hold more positive attitudes toward green consumption. PBC also predicts GBI ($\beta = 0.5486$, $p < .001$), implying that a stronger sense of being able to act makes students more likely to plan green purchases. In this model, GCA once again shows a significant association with GBI ($\beta = 0.3202$, $p < .001$), confirming that attitude remains an important part of intention formation.

For GPB, PBC's predictive effect is likewise significant ($\beta = 0.2867$, $p < .001$), implying that higher perceived capability is associated with both stronger willingness and more frequent green purchasing in practice. GBI continues to show a robust positive effect on GPB ($\beta = 0.4361$, $p < .001$), consistent with the SN model.

Taken together, both SN and PBC significantly affect GCA, GBI and ultimately GPB, and the direction of these links fits well with the logic of the Theory of Planned Behaviour. Social expectations and perceived capability jointly shape students' attitudes and intentions and, through them, their actual purchasing choices. These direct-effect results provide a solid base for the subsequent tests of single and serial mediation.

3.6.2 Testing of Single Mediation Paths

To test whether Subjective Norms (SN) and Perceived Behavioural Control (PBC) indirectly shape Green Purchase Behaviour (GPB) via Green Consumption Attitude (GCA) or Green Buying Intention (GBI), the study applied a bootstrap-based mediation analysis. Using 5,000 resamples, the indirect effects along each path were estimated and their confidence intervals derived. The detailed results of these single mediation tests are summarised in Table 7.

Table 7. Single Indirect Effects (SN and PBC Models)

Mediation Path	Effect	Boot SE	95% CI	Significance
SN → GCA → GPB	0.1309	0.0781	[-0.0326, 0.2722]	Not significant
SN → GBI → GPB	0.3181	0.0718	[0.1950, 0.4773]	Significant
PBC → GCA → GPB	0.1157	0.0623	[-0.0064, 0.2432]	Not significant
PBC → GBI → GPB	0.2392	0.053	[0.1425, 0.3494]	Significant

In the SN model, the indirect effect for the path running from Subjective Norms (SN) to Green Purchase Behaviour (GPB) via Green Consumption Attitude (GCA) is 0.1309, with a 95 % bootstrap confidence interval of −0.0326 to 0.2722. Because the interval crosses zero, this mediation path is not statistically supported. In other words, stronger social expectations do raise GCA, but this attitudinal gain does not, by itself, bring about a stable increase in green purchasing.

By contrast, the path from SN to GPB through Green Buying Intention (GBI) shows clear evidence of mediation. The indirect effect is 0.3181, and the 95 % confidence interval of 0.1950 to 0.4773 lies entirely above zero. This pattern indicates that the influence of SN on behaviour operates mainly by reinforcing GBI, rather than through changes in attitude alone.

A comparable picture appears in the PBC model. The indirect effect of Perceived Behavioural Control (PBC) on GPB via GCA is 0.1157, with a confidence interval of −0.0064 to 0.2432 that includes zero, so this route is not statistically significant. Even when students believe they possess the resources or ability needed for green consumption, improvements in attitude do not reliably translate into actual purchasing. In contrast, the pathway from PBC to GPB mediated by GBI is significant: the indirect effect is 0.2392, and the confidence interval of 0.1425 to 0.3494 excludes zero. A stronger sense of behavioural control therefore tends to foster purchase intentions, which subsequently raise the probability of engaging in green purchasing.

Across both models, only the intention-based mediation paths are consistently significant, whereas the attitude-based paths fail to reach statistical significance. These results highlight the pivotal role of GBI in the development of green purchasing behaviour and accord with the Theory of Planned Behaviour, which treats intention as the most immediate determinant of action.

3.6.3 Testing of the Sequential Mediation Path

To clarify whether Subjective Norms (SN) and Perceived Behavioural Control (PBC) shape Green Purchase Behaviour (GPB) through a stepwise psychological process in which Green Consumption Attitude (GCA) precedes Green Buying Intention (GBI), the analysis applied PROCESS Model 6 to test sequential mediation. Indirect effects were estimated using 5,000 bootstrap resamples, and the resulting coefficients and confidence intervals are summarised in Table 8.

Table 8. Serial Mediation Effects from GCA through GBI to GPB

Serial Path	Effect	Boot SE	95% CI	Significance
SN → GCA → GBI → GPB	0.1076	0.0534	[0.0022, 0.2142]	Significant
PBC → GCA → GBI → GPB	0.1149	0.0379	[0.0462, 0.1955]	Significant

In the SN model, the sequential mediation effect of Subjective Norms (SN) on Green Purchase Behaviour (GPB) via Green Consumption Attitude (GCA) and then Green Buying Intention (GBI) is 0.1076, with a 95 % bootstrap confidence interval of [0.0022, 0.2142]. Because the interval does not include zero, this chain is statistically significant. The result indicates that social expectations first shape students' overall attitudes towards green consumption, these more positive attitudes then strengthen their intention to buy green products, and the reinforced intention ultimately promotes greener purchasing behaviour.

In the PBC model, the sequential pathway from Perceived Behavioural Control (PBC) through GCA and GBI to GPB shows an indirect effect of 0.1149, with a 95 % bootstrap confidence interval of [0.0462, 0.1955], again entirely above zero. This pattern suggests that when students believe they have sufficient ability, resources or conditions to practise green consumption, they tend to develop more favourable attitudes. These more positive attitudes then feed into stronger purchase intentions, and students who report higher levels of intention are, in turn, more likely to engage in green purchasing in everyday life.

Looking across both models, a similar pattern appears. No matter whether the starting point is social pressure captured by Subjective Norms (SN) or a stronger sense of capability reflected in Perceived Behavioural Control (PBC), the influence on Green Purchase Behaviour (GPB) passes through the same chain: attitudes become more positive, intentions grow stronger and behaviour follows. Green Buying Intention (GBI) sits at the centre of this process as the main link between the psychological drivers and the eventual purchasing choices. This structure is highly consistent with the Theory of Planned Behaviour, which views intention as the closest step before action.

3.7 Summary of Hypothesis Testing Results

Across the analysis, both Subjective Norms (SN) and Perceived Behavioural Control (PBC) are linked with higher scores on Green Consumption Attitude (GCA), Green Buying Intention (GBI) and Green Purchase Behaviour (GPB). This suggests that what students think others expect of them, and how capable they feel of acting, are two important external forces behind green purchasing. At the same time, the mediation tests show an interesting imbalance. GCA does not emerge as a significant single mediator, whereas GBI plays a steady and comparatively stronger mediating role. In other words, many students agree with green ideas at the level of belief, but these beliefs rarely move straight into behaviour; it is intention that acts as the more decisive psychological driver [25][26]. The sequential mediation results add to this picture: once GCA is activated and then reinforces GBI, the two together form a psychological chain that supports the emergence of green purchasing behaviour [27].

The direct-effect estimates point in the same direction. SN and PBC both show significant positive links with GCA (supporting H1 and H2), and higher levels of GCA are associated with stronger GBI (supporting H3). GBI, in turn, remains the most stable predictor of GPB (supporting H4), outlining a pathway through which intention channels internal motivation into observable behaviour. In the single mediation tests, the indirect paths via GBI are significant for both SN and PBC (supporting H6 and H9). By contrast, the indirect paths via GCA do not reach statistical significance (not supporting H5 and H8), echoing

earlier evidence that attitude alone does not reliably trigger behavioural change [25][28].

The chained mediation results add further nuance. SN and PBC both give rise to a continuous process in which more favourable attitudes strengthen intentions, and stronger intentions subsequently raise the likelihood of green purchasing. Both sequential paths reach statistical significance (supporting H7 and H10). GCA therefore plays more of a preparatory role: although it cannot independently predict GPB, it contributes to the formation of GBI, which then converts motivation into behaviour [29][26].

In sum, eight of the ten hypotheses are supported, indicating that the overall framework is highly consistent with the logical structure of the Theory of Planned Behaviour. The results also pinpoint Green Buying Intention as the central psychological mechanism linking attitude to behaviour. This helps explain why many university students report strong environmental attitudes yet display relatively modest behavioural engagement, and it offers concrete empirical evidence for understanding the dynamics of green consumption among young people. The full set of hypothesis results is summarised in Table 9.

Table 9. Summary of Hypotheses Testing

Hypothesis	Description	Supported
H1	Subjective norms have a positive effect on green consumption attitude	Yes
H2	Perceived behavioural control has a positive effect on green consumption attitude	Yes
H3	Green consumption attitude has a positive effect on green purchase intention	Yes
H4	Green purchase intention has a positive effect on green purchase behaviour	Yes
H5	Subjective norms influence green purchase behaviour through green consumption attitude	No
H6	Subjective norms influence green purchase behaviour through green purchase intention	Yes
H7	Subjective norms influence green purchase behaviour through the sequential mechanism of green consumption attitude and green purchase intention	Yes
H8	Perceived behavioural control influences green purchase behaviour through green consumption attitude	No
H9	Perceived behavioural control influences green purchase behaviour through green purchase intention	Yes
H10	Perceived behavioural control influences green purchase behaviour through the sequential mechanism of green consumption attitude and green purchase intention	Yes

4.Conclusions and Recommendations

4.1 Research Conclusions

Building on the Theory of Planned Behaviour (TPB), the analysis links two core external conditions—social expectations and perceived capability, captured by Subjective Norms (SN) and Perceived Behavioural Control (PBC)—to the internal psychological processes of Green Consumption Attitude (GCA) and Green Buying Intention (GBI), and finally to Green Purchase Behaviour (GPB). Together, these elements form an integrated framework for understanding how green purchasing develops among university students.

The empirical results show that both SN and PBC significantly reinforce students' attitudes toward green consumption. Signals from family, peers and the wider social environment, as well as students' own judgements about whether they have sufficient time, resources and ability, are all associated with more positive evaluations of green products and practices [30][14]. The findings further point to a clear progression: more favourable attitudes are associated with stronger purchasing intentions, and intention, in turn, is a powerful predictor of actual behaviour, outlining a relatively stable chain from attitude to intention and then to green purchasing [31].

The mediation results refine this picture. SN and PBC influence GPB primarily through GBI, whereas the single mediation paths that rely only on GCA do not reach statistical significance. This pattern indicates that intention functions as the main psychological driver of green purchasing, exerting a stronger and more direct influence than attitude on its own [25][16]. At the

same time, the sequential pathway shows that SN and PBC first help to build more positive green consumption attitudes, and these enhanced attitudes then strengthen intention before behaviour takes shape [14].

Taken together, the evidence suggests that university students' green purchasing behaviour arises from the combined effects of social influence, perceived capability, attitude formation and purchase intention. Among these, intention consistently emerges as the pivotal component linking upstream psychological factors with downstream action [25][16]. This also helps to explain why many students report strong environmental attitudes yet do not always display equally strong behavioural engagement. The findings are broadly consistent with TPB and offer a clearer account of the psychological mechanisms underlying the attitude–behaviour gap often observed in studies of green consumption [31][14].

4.2 Research Recommendations

The results indicate that students' green consumption behaviour is shaped jointly by social expectations, perceived capability, attitudes and intentions. These interacting factors create multiple entry points for intervention across higher education, public policy and commercial practice [14][32][33][34][35][36].

The empirical evidence also shows that perceived behavioural control plays a central role in shaping attitudes, intentions and actions. Universities can respond by improving access to green consumption resources, such as increasing the number of outlets selling green products, promoting second-hand exchange platforms and offering low-carbon delivery options or reusable everyday items. Reducing the time, effort and financial cost required to act in environmentally friendly ways lowers the practical threshold for participation and encourages students to view green consumption as achievable rather than aspirational [37][38][39].

Commercial actors around university campuses reinforce or weaken these tendencies. Retailers and service providers around university campuses can also shape how far students move from intention to concrete green purchasing. When green products are easy to find, straightforward to use and perceived as reliable, students are less likely to abandon their plans at the decision stage [31][40]. Tactics such as temporary price discounts, simple loyalty programmes or deposit–refund and reusable packaging schemes can further raise the appeal of sustainable options and keep students choosing them even when money is tight [41][38]. Public policy can reinforce these efforts by building incentives for sustainable behaviour into everyday campus life [42][43].

5.Research Limitations

Despite offering both theoretical and practical insights, the study still has several limitations that leave room for improvement in future work. The use of self-administered questionnaires means that the data are likely to be affected by social desirability bias, as some respondents may give answers that appear more environmentally responsible than their actual behaviour. Later studies could combine questionnaires with behavioural tracking data, field or laboratory experiments and real purchasing records, so that green purchasing behaviour is observed in a more objective and verifiable way.

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