Social media impact on sustainable intention and behaviour: a comparative study between university students in Malaysia and Indonesia

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Abstract

Purpose – The use of social media for sustainable information is important since it has the potential to influence people's intentions and behaviour towards sustainability. As previous studies on social media and sustainable development have primarily focused on Western viewpoints, this study presents a comprehensive Asian perspective by investigating the impact of social media on sustainable intention and behaviour amongst Malaysian and Indonesian undergraduate university students.

Design/methodology/approach – A campus-wide online survey was conducted with 953 students from Malaysia and Indonesia. The researchers collected data through an online questionnaire and a two-week quantitative survey of undergraduate students in Malaysia and Indonesia. Quantitative data were analysed by SmartPLS software and comparative studies were conducted.

Findings – The result of the survey indicated that Facebook and Instagram were mainly used by Malaysian students to obtain and communicate about sustainability information, whilst Instagram was mainly used by Indonesian students. The findings also discovered that social media usage and social media effectiveness and usefulness are statistically significant predictors of sustainable intention amongst the students in Malaysia and Indonesia. Sustainable intention is also a statistically significant predictor of sustainable behaviour amongst the students. Additionally, this study also found that Malaysian students appeared to have a high level of the effect of sustainable intention on sustainable behaviour and the effect of the effectiveness and usefulness of social media to sustainable intention compared to Indonesian students. On the contrary, their use of social media related to sustainable behaviour was relatively low compared to Indonesian students.

Originality/value – Overall, the findings can contribute to the presently scant empirical works that focus on social media's influence on sustainability and sustainable development. Furthermore, the findings contribute to the growing body of knowledge related to sustainability communication and sustainable education, particularly in terms of the use of social media in the learning and teaching process. Future research could focus on studying postgraduate students and university students from other Asian countries. Moreover, using qualitative methods like in-depth interviews or focus group discussion and applying other theories might unveil further results.

Keywords Social media, Sustainable intention, Sustainable behaviour, Malaysia, Indonesia

Paper type Research paper
who are considered as the large social media users block (Buschlen et al., 2019). Social media users (e.g. university students) utilise these platforms to fulfil several different purposes, such as getting information and knowledge, interaction and communication, leisure, entertainment or following the latest news (Fauzi et al., 2023; Chan, 2017; Bikanga Ada et al., 2017). By their very nature, the amalgamation of social media is not only changing the dynamic of the communication mode from face-to-face to a virtual medium, but also consequently establishing virtual communities that allow people to share and exchange information, opinion and share a common experience (Liao et al., 2022) amongst millions of users who are not limited to their own bubble (Saeed et al., 2019) via the application of amazing features such as text-based posts, pictures, video or chat-based communications (Pelletier et al., 2020). Interestingly, the ubiquitous usage of social media has been found to reduce loneliness amongst users with frequent usage (Ye et al., 2021).

Amongst the numerous types of users, young adults, including the university student, are considered amongst the most active users who access social media for several purposes including social contact, entertainment and learning. Regardless of some negative social outcomes of social media (e.g. social isolation) (Ferguson, 2021), in the education context, there are much evidence supported the positive impacts of social media usage in university (Verdugo and Villarroel, 2021). Students are encouraged to access learning materials via social media as it has positively influenced the way they think on one particular matter that is of relevance to this study (Wickramanayake and Muhammad Jika, 2018), which is sustainability. Al-rahmi et al. (2017) in their study involving Malaysian students found that social media is useful in improving the learners’ performance as the latter deem it enjoyable and easy to use. Another study on Indonesian students conducted by Mulyono et al. (2021) found that the usage of social media, particularly WhatsApp, for learning is common amongst the students, as it made them more engaged with learning during the challenging year of pandemic COVID-19. In the same vein, De Man et al. (2021) emphasise the importance of the online research especially during critical time such as COVID-19 period. In other works, the pandemic has transformed the traditional method of teaching and learning into a completely online format. In recent years, in the wake of a myriad of environmental and sustainability problems occurring, it is therefore pertinent for the university to increase students’ sustainability knowledge (Michel and Zwickle, 2021) either via formal or non-formal medium such as social media.

As a learning platform, social media has been recognised for its ability to effectively influence the sustainable intention and behaviour amongst users, including students. Through social media engagement, especially with peers, the user is able to learn about social and environmental issues, which consequently influences their sustainable purchasing behaviour (Zhao et al., 2019). In fact, the use of communicative features in social media such as emojis has been shown to enhance the engagement and sustainable behavioural intentions amongst the users (Baek et al., 2021). Similarly, the features of high-quality visual content (Alsaleh et al., 2019) and search and share button in social media allow the users to be active, beside also influencing their behaviour and increasing their concern on environment and sustainability issues (Salem and Alanadoly, 2021).

For instance, social media platforms TikTok is algorithm-driven, which allows users to view their preferred content (Anderson, 2020). Thus, social media act as an important engagement and promotional platform that can influence their users’ (including university students) awareness and behaviours regarding sustainability (Gulati, 2021).

Active engagement in social media shows a significant effect on university students’ attitudes, subjective norms and perceived behavioural control (Konstantoulaki et al., 2022). With these factors (attitude and perceived behavioural control) as motivation, university students tend to expand their social circle, learn new ideas and seek more information through social media (Raza et al., 2020). Furthermore, attitudes and prosocial norms strengthen the relationship between social media and college students’ behavioural
intentions, which makes social media a psychological antecedent of university students’ social activities (Shahzalal and Adnan, 2022). Therefore, the effect of social media on university students’ sustainable behaviours cannot be ignored, especially when the students have positive intentions (Karimi et al., 2021).

Sustainable attitudes, knowledge and behaviours amongst university students are all found to be more favourable than those amongst the general public (Kirby and Zwickle, 2021). In order to motivate university students’ sustainable behaviours, the environmental attitudes, self-efficacy perceptions and sustainable behaviour perceptions that social media brings to them are essential (Shafiei and Maleksaeidi, 2020). In addition, pro-environmental education courses provided by universities also provide university students with environmental knowledge and actively and effectively promote their engagement in sustainable behaviours (Jamnaimool and Khajohnmanee, 2019). University students show a preference for new products and cleaner alternative energy sources, as well as a greater willingness to engage in warning, volunteering, material recycling and participatory sustainable behaviours (Boca and Saraçi, 2019).

In sustainable education at universities, social media provides diverse and informal learning scenarios through participatory digital culture (Greenhow and Lewin, 2019). Social media has demonstrated openness in university education, providing learners with motivation to use and interact and is being strategically incorporated into classroom instruction (Manu et al., 2021). Higher education, enhanced by technology created by social media, has made up for the shortcomings of limited sustainable education resources and formed new teaching forms (Vandeyar, 2020). An empirical study shows that groups in social media provide good channels for learners to communicate, share and distribute information, which are more popular amongst learners than scientific databases (Aleksandrova and Parusheva, 2019).

Nonetheless, despite growing interest on research related to social media impacts on the user, existing studies on understanding the role of social media in promoting sustainable attitudes and behaviours are scant (Zafar et al., 2021; Sujata et al., 2019), even amid continued debates on the role of social media in influencing users’ behaviour (Young et al., 2017; Grainger and Stewart, 2017). Considering the importance to understanding the source from which university students obtain information to learn about a particular phenomenon (Michel and Zwickle, 2021), in this case, sustainability, this study sought to fill this dearth in existing studies by empirically examining the effect of social media usage and its effectiveness on the sustainable intention and behaviour of two distinct group of undergraduate university students in Malaysia and Indonesia. The results of this study would offer a unique contribution to the interrelated fields of sustainability communication and social media. In the context of developing countries like Malaysia and Indonesia, where sustainability efforts are still largely in progress, this study could provide useful reference for understanding the usefulness of social media in influencing the sustainable behaviours amongst students.

**Theoretical foundation**

Theory of planned behaviour (TPB) is a well-established and influential behavioural theory (Kwon and Silva, 2020; Longo et al., 2019; Heeren et al., 2016) that has been widely applied in sustainability studies (Banyte et al., 2020). Lertpratchya et al. (2017) applied TPB in evaluating the mid-western undergraduate university students’ sustainability attitude and behaviour that are influenced by sustainability communication in the campus. They discovered that students who have been in the campus for a longer period have received more exposure on sustainability communication, which subsequently resulted in them having increased positive attitudes towards sustainability behaviours. Another study by Heeren et al. (2016) applied TPB in conducting an online survey with 500 students in the USA to...
evaluate the relationship between knowledge and sustainable behaviour, which they found to be not significantly correlated.

In TPB, intention is defined as the effort that an individual exerts in performing an expected behaviour (Ajzen, 1991). Intention is important as it is a motivational factor that determines the behaviour of individual (Cheung and To, 2017). In other words, intention with regards to sustainability is believed to lead or motivate the sustainable behaviour of an individual, such as the university student. According to TPB, the intention of performing behaviour is influenced by three factors: the individual’s attitude towards the expected behaviour, subjective norms from external influences and perceived behavioural control. Subsequently, intention and perceived behavioural control directly affect specific behaviours (Ajzen, 1991). Thus, based on TPB, a person’s actual behaviour can be predicted via their intention to perform (Vlaanderen et al., 2020). Within the perspectives of this study, in line with TPB, the researchers postulated that Malaysia and Indonesian university students’ actual sustainable behaviour can be predicted via their sustainable intention.

According to Ajzen (1991) information and social factors (e.g. sustainability information on social media) can affect one’s intention and behaviour. As was noted previously, social interaction in social media can also be affected by subjective norms and attitudes, which influence the individual’s proclivity to engage or not to engage in certain behaviour (Namkoong et al., 2017). In this context, Namkoong et al. (2017), Anser et al. (2020) and Yang and Wu (2021) mentioned the ability of social media in influencing behavioural intention. Following, this study is also intended to investigate the usage and effectiveness of social media on influencing the sustainable intention and behaviour amongst university students in Malaysia and Indonesia.

Hypotheses formulation
Based on the theoretical foundation laid out above, the hypotheses for the study are formulated as follows:

**Social media usage**
Social media usage is determined by the frequency of use by the user, be it either daily or weekly (Zafar et al., 2021). The research by Zhao et al. (2019) on clothing companies and policy makers shows that the use of social media, especially WeChat, affects the consumers’ intentions to purchase environmentally sustainable clothing. Social media has an impact on consumer attitudes, subjective norms, behavioural motivations and ultimately affects the intention to purchase green products, which is similarly observed by Pop et al. (2020). Thus, the following hypothesis is proposed:

**H1.** Social media usage has a positive effect on sustainability intention.

The attitude and self-efficacy of social media users can strongly predict their intention to recycle and have the effect of cultivating recycling behaviour (Sujata et al., 2019). Online sustainability initiatives use social media to focus group behavioural intentions and denounce companies that are socially irresponsible in order to achieve power balance between companies, governments, social movement organisations and consumers (Langley and van den Broek, 2010). Anser et al. (2020) reported that users’ attitude and intention mediate the relationship between their social media usage and Bitcoin adoption. Similarly, Jain et al. (2020) revealed that purchase intention mediates the relationship between social media usage and purchasing behaviour. Thus, the following hypothesis is proposed:

**H1a.** Social media usage indirectly effects sustainable behaviour through sustainability intention.
Social media usefulness and effectiveness
Social media operators must provide users with necessary services to ensure that users can perceive the usefulness of the services and continue to use them. And this perceived usefulness has a positive effect on continuous intentions (Ruangkanjanases et al., 2020). The effectiveness of social media influencers as advertising spokespersons can increase the success rate of environmental advertising by influencing the sustainable attitudes and intentions of users (especially millennials) (Awang et al., 2021). In addition, social media marketing has established an effective and useful two-way communication mechanism between marketers and customers, which has a positive impact on consumers' purchase intentions (Gautam and Sharma, 2017). Thus, the following hypothesis is proposed:

H2. Social media usefulness and effectiveness has a positive effect on sustainable intention.

Consumers’ intention to purchase sustainable products depends on their demand for sustainable information on social media, and this intention is the main driving factor for their purchase of products (Ben Abdelaziz et al., 2015). Lee (2011) extended the TPB theory to develop a set of attitude-intention-behaviour path models. This model pointed out that the context of media has a great effect on the values and environmental attitudes of young people. Values influence environmental intentions through environmental attitudes and ultimately affect the environmental behaviour. Tran (2020) suggests that online trust can mediate the relationship between the perceived effectiveness of social media platforms and purchase intention. In a similar study, Lal and Sharma (2021), attempt to examine the mediating role of brand consciousness on the association of effectiveness of social media influencers and online purchase behaviour. Thus, the following hypothesis is proposed:

H2a. Social media usefulness and effectiveness indirectly effects sustainable behaviour through sustainable intention.

Sustainable intention
Research shows that the intention-behaviour gap exists, indicating that people do not always act according to their intentions. The reason for this gap is the lack of information about the sustainability of the product, but this gap can be closed once users obtain sustainable recommendations (Tomkins et al., 2018). Additionally, research by Swaim et al. (2014), reported that the path from intention to behaviour demonstrated that the intention of personal sustainable behaviour through daily practice can affect behaviour in the workplace, which makes the popularisation of sustainable education possible. Moreover, research by Defloor and Bleys (2017) shows that sustainable intentions present diversity in the relationship between behaviours. In the case of sustainable meat consumption, intentions strongly determine behaviour, but there is no effect in the case of carbon footprint. Thus, the following hypothesis is proposed:

H3. Sustainable intention has a positive effect on sustainable behaviour.

Drawing upon the theories and hypotheses formulation from past studies, a theoretical framework for this study has been proposed, as shown in Figure 1 below.

Methodology
This study was conducted amongst undergraduate university students in Malaysia and Indonesia. The study was undertaken to compare two countries with a great number of similarities. Both countries share similarities in terms of geographical region, culture and religion. Additionally, they are both developing and collectivist nations. Moreover, both countries have high Internet penetration and active social media users (Idris et al., 2022) and
both of them are concerned about environmental and sustainability issues and have insights towards sustainable development (Suhartanto et al., 2022; Mohamad Saleh et al., 2022a, b). Data were collected over two weeks in April 2021 using an online survey distributed to students’ universities in both countries. The major reason of using an online survey for this study is due to its strength especially in terms of reaching the respondents without barriers, as well as its flexibility, speed and convenience, amongst other factors (Evans and Mathur, 2018). At the time of data collection, the researchers believe that the online survey was a suitable research tool during the COVID-19 pandemic when both countries were still undergoing state-sanctioned movement restrictions. Due to this reason and the fact that any physical interaction was not allowed, the online survey was thus deemed as the best option to collect data (Koay et al., 2022).

The survey questions were aimed at gauging Malaysian and Indonesian university students’ sustainability intention and sustainable behaviour, besides examining their predictors of intention (social media usage, usefulness and effectiveness). The questionnaire consisted of five sections including the demographic information such as gender, country of study, university, year of study and questions related to the objectives of the study. The questionnaire items used in this study were adapted from existing studies on same topics (Table 1). The items of social media usage were adapted from Sujata et al. (2019). The items of social media usefulness and effectiveness were adapted from Huang et al. (2019), and the items of sustainable intention and behaviour were adapted from Michalos et al. (2012).

A non-probability sampling technique was used to collect 953 valid respondents, 461 respondents (48%) were from Indonesia and 492 respondents (51.2%) were from Malaysia. Only active undergraduate university students from Malaysia and Indonesia were qualified to answer the online survey. Alumni and postgraduate students from all the universities were excluded from this study. A five-point Likert-type scale ranging from 1 (strongly agree) to 5 (strongly disagree) measured all the study variables. As the survey was internet-based, it was tested multiple times by the researchers by using several devices, to ensure it is accessible before sharing it to the respondents (Berg and Kaur, 2021). The survey data were then subjected to a data cleaning process (Lin et al., 2021) where incomplete questionnaires were deleted from the analysis. The survey data were analysed using the Statistical Package for the Social Sciences (SPSS) and SmartPLS software.

Findings

Demographic profile

Table 2 below shows the demographic profile of undergraduate university students from Malaysia and Indonesia. From a total of 953 respondents, most respondents were female (Malaysia, N = 380; Indonesia, N = 291) and in their second year of study (Malaysia, N = 209; Indonesia, N = 168). Generally, most of the respondents attended what they consider as
sustainable universities (Malaysia, N = 390; Indonesia, N = 361). In addition, the table also presents the frequency of social media use for communicating sustainability in terms of obtaining and communicating information. In both aspects, Instagram was the most used social media in Indonesia to obtain sustainability information (N = 334) and to communicate about sustainability information (N = 321). On the other hand, Malaysia data report Facebook as the most used social media to obtain sustainability (N = 169), whereas Instagram is the most used social media to communicate about sustainability information (N = 166).

**Analysis**

The research model, which includes the current study’s measurement and structural models, was assessed applying variance-based structural equation modelling. SmartPLS Version 3.0 software was used to assess the constructs included in the model of this study. The measurement model was examined for convergent and discriminant validity, whilst the reliability of the constructs was inspected using Cronbach’s alpha and composite reliability (CR) (see Table 3). The structural path analyses were also examined to access the hypotheses proposed in the above section. In addition, a Multi-Group Analysis was executed to see if there are statistically significant differences between Malaysians and Indonesian samples within the same model (Hair et al., 2017).

**Measurement model**

From Table 3, the convergent validity was assessed through factor loadings and average variance extracted (AVE). All loadings were greater than 0.4 and the AVEs were greater than
<table>
<thead>
<tr>
<th>Demographics</th>
<th>Malaysia (N = 491)</th>
<th>Indonesia (N = 462)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gender</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>111</td>
<td>171</td>
</tr>
<tr>
<td>Female</td>
<td>380</td>
<td>291</td>
</tr>
<tr>
<td><strong>Year of study</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1st year</td>
<td>169</td>
<td>65</td>
</tr>
<tr>
<td>2nd year</td>
<td>209</td>
<td>168</td>
</tr>
<tr>
<td>3rd year</td>
<td>91</td>
<td>91</td>
</tr>
<tr>
<td>4th year</td>
<td>20</td>
<td>101</td>
</tr>
<tr>
<td>5th year and above</td>
<td>2</td>
<td>37</td>
</tr>
<tr>
<td><strong>Type of university</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sustainable</td>
<td>390</td>
<td>361</td>
</tr>
<tr>
<td>Unsustainable</td>
<td>2</td>
<td>19</td>
</tr>
<tr>
<td>Not Sure</td>
<td>99</td>
<td>82</td>
</tr>
<tr>
<td><strong>Social media use to get sustainability information</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Facebook</td>
<td>169</td>
<td>19</td>
</tr>
<tr>
<td>Twitter</td>
<td>57</td>
<td>56</td>
</tr>
<tr>
<td>Instagram</td>
<td>152</td>
<td>334</td>
</tr>
<tr>
<td>YouTube</td>
<td>66</td>
<td>32</td>
</tr>
<tr>
<td>TikTok</td>
<td>21</td>
<td>17</td>
</tr>
<tr>
<td>Others</td>
<td>26</td>
<td>4</td>
</tr>
<tr>
<td><strong>Social media use to communicate sustainability information</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Facebook</td>
<td>129</td>
<td>16</td>
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<td>Twitter</td>
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<td>54</td>
</tr>
<tr>
<td>Instagram</td>
<td>166</td>
<td>321</td>
</tr>
<tr>
<td>YouTube</td>
<td>16</td>
<td>6</td>
</tr>
<tr>
<td>TikTok</td>
<td>12</td>
<td>3</td>
</tr>
<tr>
<td>Others</td>
<td>104</td>
<td>62</td>
</tr>
</tbody>
</table>

Table 2. Demographic profile of respondents
Source(s): Authors’ own creation

<table>
<thead>
<tr>
<th>Constructs</th>
<th>Items</th>
<th>Loadings</th>
<th>Cronbach's alpha</th>
<th>AVE</th>
<th>CR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social media usage (SMU)</td>
<td>SMU1</td>
<td>0.915</td>
<td>0.929</td>
<td>0.875</td>
<td>0.955</td>
</tr>
<tr>
<td></td>
<td>SMU2</td>
<td>0.918</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>SMU3</td>
<td>0.904</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Social media usefulness and</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>effectiveness (SMUE)</td>
<td>UESM1</td>
<td>0.924</td>
<td>0.896</td>
<td>0.827</td>
<td>0.935</td>
</tr>
<tr>
<td></td>
<td>UESM2</td>
<td>0.931</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>UESM3</td>
<td>0.873</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sustainable intention (SI)</td>
<td>SI1</td>
<td>0.944</td>
<td>0.942</td>
<td>0.896</td>
<td>0.963</td>
</tr>
<tr>
<td></td>
<td>SI2</td>
<td>0.953</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>SI3</td>
<td>0.942</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sustainable behaviour (SB)</td>
<td>SB1</td>
<td>0.869</td>
<td>0.938</td>
<td>0.728</td>
<td>0.949</td>
</tr>
<tr>
<td></td>
<td>SB2</td>
<td>0.854</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>SB3</td>
<td>0.894</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>SB4</td>
<td>0.822</td>
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<td></td>
<td>SB5</td>
<td>0.812</td>
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<tr>
<td></td>
<td>SB6</td>
<td>0.822</td>
<td></td>
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<tr>
<td></td>
<td>SB7</td>
<td>0.895</td>
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</tbody>
</table>

Table 3. Validity and reliability for constructs
Source(s): Authors’ own creation
0.5. For the internal consistency reliability, Cronbach’s alpha and CR were executed. The value of both Cronbach’s alpha and CR for all constructs lies above the recommended limit of $\geq 0.60$ (Avkiran and Ringle, 2018). However, in this study CR values have exceeded 0.90, which suggests non-desirability because it may indicate redundancy of items employed (Sarstedt et al., 2017).

Subsequently, discriminant validity, which refers to the degree to which indicators differentiate across constructs was assessed via the heterotrait-monotrait ratio of correlations (HTMT) rather than the Fornell–Larcker due to the superior performance of the former (Avkiran and Ringle, 2018). Table 4 shows the establishment of the discriminant validity where the HTMT values do not exceed 0.90 (Avkiran and Ringle, 2018). The results above demonstrate an adequate internal consistency in the proposed model of this study.

**Structural model**

The reason behind assessing the structural model was to investigate the relationships between constructs within a theoretical model. Therefore, to assess the structural model of this study, bootstrapping resampling with 5,000 re-samples and 95% bias-corrected and accelerated (BCa) was applied to examine the significance of structural path coefficients and the coefficient of determination ($R^2$).

Furthermore, looking at the coefficient of determination ($R^2$) helps to indicate the extent to which the exogenous construct(s) are explaining the endogenous construct(s). Figure 2 shows the results of the structural model with the path coefficients and based on the result, $R^2$ value shows 0.619 or 61.9% from the effect of social media usage and social media effectiveness and usefulness on sustainable intention. This number is considered a moderate value and 55.9% from sustainable intention to sustainable behaviour.

### Table 4.

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Sustainable behaviour</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Sustainable intention</td>
<td>0.786</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Social media usage</td>
<td>0.763</td>
<td>0.712</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Social media effectiveness and usefulness</td>
<td>0.831</td>
<td>0.829</td>
<td>0.786</td>
<td></td>
</tr>
</tbody>
</table>

**Source(s):** Authors’ own creation

![Figure 2. Structural model (direct effect and effect size)](image-url)
The results in Table 5 show that all three hypotheses of the direct effect in the model are supported. Both independent variables are positive and significant predictors of sustainable intention, with social media usage ($\beta = 0.233, p < 0.00$) and social media effectiveness and usefulness ($\beta = 0.602, p < 0.00$). Whilst the sustainable intention also positively affects sustainable behaviour ($\beta = 0.748, p < 0.00$).

Moreover, Table 6 reveals that the two hypotheses of the indirect effect in the model are supported. The finding shows that social media usage had a significant indirect effect on sustainable behaviour, which confirmed that sustainability intention towards sustainable behaviour mediated the relationship between the social media usage and sustainable behaviour. Likewise, social media usefulness and effectiveness also had a significant indirect effect on sustainable behaviour, which confirmed that sustainable intention towards sustainable behaviour mediated the relationship between the social media usefulness and effectiveness and sustainable behaviour.

**Multi-group analysis**

The data for this study were collected from university students in two countries, i.e., Malaysia and Indonesia. One of the current study objectives was to test whether differences exist between the two groups (Malaysian and Indonesian). This study looked at the difference that might occur on the bath coefficients amongst the model constructs (structural model). In other words, multi-group analysis (MGA) was executed to determine if there are any differences between the two groups through bath coefficients amongst the variables.

The results displayed in Table 7 reveal the significant differences between the two groups of students who study in Malaysia and Indonesia for three of the relationships. The results of the MGA shown in Table 6 found that the positive impact of social media effectiveness and usefulness on sustainable intention and the impact of sustainable intention on sustainable behaviour is stronger for the Malaysia sample ($\beta = 0.729, p < 0.01$), ($\beta = 0.805, p < 0.01$). In contrast, social media usage is stronger on the sustainable intention for the Indonesian sample ($\beta = 0.373, p < 0.05$).

<table>
<thead>
<tr>
<th>Hypothesis/Relationship</th>
<th>Original sample (O)</th>
<th>Sample mean (M)</th>
<th>Standard deviation (STDEV)</th>
<th>t-value</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>H1 Social media usage $\rightarrow$ Sustainable intention</td>
<td>0.233</td>
<td>0.233</td>
<td>0.033</td>
<td>7.069</td>
<td>0.000</td>
</tr>
<tr>
<td>H2 Social media effectiveness and usefulness $\rightarrow$ Sustainable intention</td>
<td>0.602</td>
<td>0.603</td>
<td>0.030</td>
<td>19.903</td>
<td>0.000</td>
</tr>
<tr>
<td>H3 Sustainable intention $\rightarrow$ Sustainable behaviour</td>
<td>0.748</td>
<td>0.748</td>
<td>0.014</td>
<td>53.144</td>
<td>0.000</td>
</tr>
</tbody>
</table>

**Source(s):** Authors’ own creation

<table>
<thead>
<tr>
<th>Hypothesis/Relationship</th>
<th>Original sample (O)</th>
<th>Sample mean (M)</th>
<th>Standard deviation (STDEV)</th>
<th>t-value</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>H1a SMU $\rightarrow$ SI $\rightarrow$ SB</td>
<td>0.174</td>
<td>0.174</td>
<td>0.025</td>
<td>6.945</td>
<td>0.000</td>
</tr>
<tr>
<td>H2a SMUE $\rightarrow$ SI $\rightarrow$ SB</td>
<td>0.450</td>
<td>0.451</td>
<td>0.025</td>
<td>18.083</td>
<td>0.000</td>
</tr>
</tbody>
</table>

**Source(s):** Authors’ own creation
Discussion

Social media has significantly influenced student life, interaction and learning. Through social media, people can share their thoughts, experiences and knowledge (Bacaksiz et al., 2020) about sustainability. Thus, social media has become a vital source for users to find and obtain sustainability related information (Saeed et al., 2019). This present study which has been conducted during the pandemic COVID-19 has discovered that most Malaysian and Indonesian university students utilise Facebook and Instagram compared to other social media platform to obtain and communicate information on sustainability to other people. This is not surprising, as data show that university students from both nations rely on Instagram for sustainability communication activities. This is because most Instagram users have been reported to look for exciting posts on sustainability (Testa et al., 2021) with high visual communication value and therefore popular amongst the millennials (like university students) who prefer short messages and images (Copeland and Zhao, 2020). Both Facebook and Instagram are useful for communication (such as sustainability) as the stored function allows the user to obtain saved information whenever it is needed for further discussion (Kim et al., 2020). This result is also in line with Technology Acceptance Model proposed by Davis (1989) that reported that when individuals consider a new technology as “useful” and “easy to use”, they would show their intention to use the new technology (Chatterjee et al., 2021). Furthermore, the perceived ease of use, enjoyment and usefulness of social media affect attitude towards using social media (Kim et al., 2018).

Moreover, the results of this study are consistent with Chatterjee et al. (2021), whose study found that the technical usefulness of social media and its ease of use have positive effects on the users’ intention to participate and can motivate them to practice specific behaviours. Using social media allows university students to share their opinions (including on sustainability) on the global scale and social media also provides an effective mechanism that offers easier, more economical and more efficient publicity and services (Chatterjee et al., 2021). In addition, a study on university students' enthusiasm for using various social media applications showed that the ease of use and usefulness of social media motivates positive attitude towards using social media (Kim et al., 2018), which supports the application of TPB theory as a valid argument for this research.

In addition, the empirical investigation of this study discovered that social media usage and social media effectiveness and usefulness are statistically significant predictors of sustainable intention amongst university students in Malaysia and Indonesia. This result is

<table>
<thead>
<tr>
<th>Relationships</th>
<th>I</th>
<th>M</th>
<th>(I-M) Path coefficients</th>
<th>STDEV</th>
<th>t-value</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>H1. Social media usage → Sustainable intention</td>
<td>0.373</td>
<td>0.121</td>
<td>-0.252</td>
<td>0.048</td>
<td>7.709</td>
<td>0.000</td>
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<tr>
<td>H2. Social media effectiveness and usefulness → Sustainable intention</td>
<td>0.449</td>
<td>0.729</td>
<td>-0.280</td>
<td>0.048</td>
<td>9.405</td>
<td>0.000</td>
</tr>
<tr>
<td>H3. Sustainable intention → Sustainable behaviour</td>
<td>0.710</td>
<td>0.805</td>
<td>-0.095</td>
<td>0.020</td>
<td>35.795</td>
<td>0.000</td>
</tr>
</tbody>
</table>

Note(s): I = Indonesia, M = Malaysia
Source(s): Authors’ own creation

Table 7. Results of multi-group analysis
in line with Jain et al.’s (2020) study who also found that social media not only connects millennials, but also influences their green purchase intention. Similarly, a study by Verdugo and Villarroel (2021) also revealed that higher social media use is associated with higher value to sustainability entrepreneurship. Verdugo and Villarroel also added that social media is a good source for teaching sustainability information. Thus, the results of this study provide valuable meaning that social media, especially Facebook and Instagram, can be worthy tools for sustainable education amongst university students in developing countries like Malaysia and Indonesia. Social media as a growing platform provides opportunities for students in education (Bacaksiz et al., 2020). Therefore, this research in particular can offer useful input for educational stakeholders, especially to better understand consumer behaviour in the information age. The development of information and communication technology has encouraged students to have greater control over the process of meeting their needs, as today’s consumers have shifted from being merely passive to much more active and informed consumers.

As the data show, sustainable intention is a statistically significant predictor of sustainable behaviour. This result is consistent with previous studies such as Swaim et al. (2014), Sujata et al. (2019) and Al Mamun et al. (2018). However, when compared with Sujata et al.’s (2019) result regarding the effect of social media usage on the sustainable intention behaviour, the current study demonstrated a high level of influence than in Sujata et al.’s (2019) study. For instance, this study recorded $\beta = 0.121, p < 0.05$ for the Malaysian sample, whilst Sujata et al.’s (2019) study recorded $\beta = 0.085, p < 0.05$.

This study which has been conducted during the COVID-19 pandemic presented a novel focus, in particular in introducing a comparative investigation on the differences between the effects of social media on sustainable intention, as well as the differences in influence in sustainable intention on sustainable behaviour amongst Malaysian and Indonesian university students. The MGA results demonstrate differences between Malaysian and Indonesian students in terms of the usage of social media and its usefulness and effectiveness. However, Malaysian students recorded high levels on the effect of sustainable intention to sustainable behaviour and the effect of the effectiveness and usefulness of social media to sustainable intention compared to their Indonesian counterparts. On the contrary, however, their use of social media that is related to sustainable behaviour was quite low compared with the Indonesian students. This result is in parallel with past studies such as Abdul Hamide et al. (2013), which found that university students in Malaysia mostly use social media for entertainment purposes, besides other activities such as communication with family and friends and searching for information, amongst other. Thus, it is not surprising that the usage of social media related to sustainable behaviour amongst Malaysian students is lower than Indonesian students.

Conclusion
The results of the research have implications for understanding the importance of social media usage and effectiveness to sustainable intention and behaviour amongst university students in Malaysia and Indonesia. Although Malaysia and Indonesia are neighbouring countries that share a similar education background, the findings of the study nonetheless show that the Malaysian students recorded higher levels on the effect of sustainable intention to sustainable behaviour and the effect of the effectiveness and usefulness of social media to sustainable intention compared to Indonesian students. However, in terms of the social media usage related to sustainable behaviour, their Indonesian counterparts recorded higher levels than their Malaysian ones.

Overall, this study’s findings contribute to the growing body of knowledge related to sustainability communication and the education field (i.e., the learning and teaching process),
especially on the effects of social media (communication tool) on the learning and teaching process and the students’ sustainable behaviour by examining the influence of two determinants (i.e., social media usage and social media effectiveness and usefulness) on students’ sustainable intention and its effect on their sustainable behaviour within Asian countries. In this case, attention to sustainable issues in education needs to be an important focus for educational institutions. Attention to the sustainability aspect can be attached to the branding of educational institutions and should be effectively communicated to stakeholders, including prospective international students. This is related to public attention to the issue of a sustainable future and the influence of sustainable brands on students’ intention to study at the university (Mohamad Saleh et al., 2022a, b).

Additionally, this study has contributed to the existing literature by demonstrating the role of social media to sustainability in general and in particular in so-called sustainable universities. Specifically, the study has shown how this type of communication (i.e., social media or network) could influence someone’s intention to act sustainably. All in all, this research has implications for both academia and society. The results of this research could assist the government of both countries to develop the ideal sustainability educational programmes that utilise social media especially Facebook and Instagram amongst the undergraduate students. In addition, various universities not only in Malaysia and Indonesia may benefit from the findings of this study to develop their sustainable communication strategies with various stakeholders (e.g. students, staff, suppliers, investors) also, it can be a starting point for future scholarly work.

Considering this study’s limitation, future research could focus on studying postgraduate students and university students from other Asian countries. The use of qualitative method like in-depth interviews and focus group discussion can be applied by future researchers to understand more about the perception of university students on the usefulness of social media in sustainability communication and education. Moreover, applying other theories might unveil different results.

References


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