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Review

Going beyond Good Intentions for the Sustainable Conservation of Built Heritage: A Systematic Literature Review

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Abstract: This research addresses the performance gap between intentions towards a sustainable conservation of built heritage and its actual implementation. Socio-psychological models of human behaviour, such as the theory of planned behaviour (TPB), have been studying this dissonance between intention and behaviour, and allow to recognise latent critical factors. This paper provides a systematic literature review of research publications on the intersection of the topics of human behaviour, heritage, and sustainability. It aims to analyse how the TPB has been used in the field of sustainable conservation of built heritage. The studies are categorised according to the type of heritage, main actors targeted, aims, and methodology. A total of 140 publications were analysed. The results show a recent field of research. In the domain of built heritage conservation, behaviour is commonly addressed as a synonym of performance, targeting the building itself. Most publications relating socio-psychological constructs of behaviour and heritage sustainability can be found in the tourism and hospitality field, focusing on tourists' and residents' behaviours. The review shows that practitioners are still absent from the literature. However, research addressing other stakeholders shows that the theoretical framework can play an important role in the implementation of sustainable conservation practices in the built heritage.

Keywords: behavioural intentions; built environment; heritage; sustainability; conservation

1. Introduction

The inclusion of heritage on the global agenda for sustainable development [1] has raised awareness for the importance of bridging the concepts of heritage and sustainability. Today, the concept of sustainable conservation can be defined as an extension of sustainable development, recognizing the value of the inheritance from the past for present and future generations [2]. As stated by the Recommendation on the Historic Urban Landscape, heritage conservation is a condition sine qua non for sustainable development [3].

As a driver of sustainable development [4], the benefits of heritage range from improving social cohesion and wellbeing [5] to contributing to local economies as a focus of attractiveness and economic growth [6]. But significant contributions can also be found on the environmental dimension, as heritage is a knowledge capital on how to cope with the environment [7], on circular economy and/or on reduced carbon footprint [8].

In the last decades, many studies have focused on the different connections between heritage and environmental sustainability. These studies highlighted the benefits of traditional passive solutions for energy efficiency (e.g., [9–11]), the advantages of natural materials for healthy indoor environments (e.g., [12]), or the effectiveness of resilience strategies to face natural hazards (e.g., [13,14]). Tools to support decision-making have been developed to encourage design decisions to integrate economic aspects, cultural significance, and environmental performance [15–17]. However, despite the information, standards and tools already developed, a common question still emerges in the literature: why are sustainable conservation approaches not more widely implemented in the built heritage field [18–20]?

This research aims at contributing to going beyond good intentions towards the sustainable conservation of the built heritage [21]. It uses a systematic literature review to understand how behavioural sciences, which for long proved the correlation between intention and behaviours [22–27], can support the identification of the main factors that are today undermining the implementation of sustainable conservation practices in the built heritage.

1.1. Theoretical Framework

The intention–behaviour gap is addressed in psychology as cognitive dissonance. Sociopsychological models, such as the theory of reasoned action (TRA [28]) and the theory of planned behaviour (TPB [23]), are based on the premise that "the immediate antecedent of behaviour is the person's intention to perform the behaviour" [23]. However, these theories also recognise that intentions and behaviour do not always match, due to low facilitating conditions and to intervening events [25,29]. Understanding these facilitating conditions is essential to design effective interventions, where participants implement their positive intentions, since the gap between intention and behaviour can mainly be attributed to inclined abstainers, meaning persons who intend to act, but fail to implement their intentions [30,31].

According to the Theory of Planned Behavior [22,23], intentions are influenced by three considerations: 1) beliefs about consequences of an action, determining favourable or unfavourable personal evaluations (attitude); 2) beliefs about normative expectations, resulting from external social pressures (subjective norm); and 3) beliefs about factors that may impede performance, or the perceived behavioural control (PBC). Although these aspects may impact the actual performance of intentions, attitudes and subjective norms tend to be moderated by perceived behavioural control, since "participants do not generally intend to perform behaviours they perceive to be outside their control" [30]. Knowledge, ability, resources, availability, opportunity, and cooperation are the main factors affecting the perception of control [30].

To secure intention implementation, "people need to initiate, maintain and close goal pursuit" [27], and challenges may be found in the three steps. According to Pieters and Zeelenberg [32], intention–behaviour inconsistency induces regret in abstainers, as an indicator of a failed decision process. While good intentions alone may not be sufficient to change behaviours, high levels of perceived behavioural control are more likely to be converted to performance [33]. According to Sheeran [30], even if external pressures (i.e., obtaining approval, rewards or punishment from others) have a role in determining intention, self-chosen intentions resulting from personal beliefs are more likely to be successfully implemented. Thus, interventions should be directed to the internal motivations of participants and to increasing the perceived behavioural control, empowering the target group acting on the specific factors that are affecting performance.

The TRA and the later extended TPB define a framework with a limited set of psychological constructs (attitudes, subjective norms, perceptions of control, intentions) that can be used to predict and understand behaviours in multiple domains. While the behaviour itself is domain-specific, and defined in the scope of each specific research, Fishbein and Ajzen [34] suggest that the basic four psychological constructs can be applied, as long as they are defined in a consistent way (focusing the same action and target, in the same context, at the same time). These models to analyse and predict

behaviours have been frequently used in the scope of health-related behaviours, such as medication, self-examination or nutrition [35–38], and to understand consumers' decisions in market studies [39]. More recently, the scope was broadened to studies on entrepreneurship [31], job search decisions [33], or sustainable consumption patterns [40,41].

In the context of a sustainable built environment, the TPB has been used to profile users according to predictable behaviours, to establish recommendations and policies for planning and design. Sang, Yao, Zhang et al. [42] identified the factors affecting consumers' willingness to buy green-labelled houses. It showed that internal psychological factors play a role side by side with design and government measures for implementation [42]. Du Toit, Wagner and Fletcher [43] profiled householders based on their recycling behaviours and housing type, identifying critical factors behind the practices. Ortiz and Bluyssen [44] profiled home occupants based on their energy consumption patterns, creating a tool that allows interventions to be better tailored to specific user needs.

This paper presents a literature review of studies that use the methodological insights of behavioural sciences to address challenges related to heritage conservation, and more specifically to its sustainability. The main goal is to grow understanding of how the TPB can be applied to promote the implementation of good practices on sustainable conservation of built heritage, going beyond good intentions.

2. Materials and Methods

This research follows a systematic literature review methodology [45,46], aiming at answering the question of how the TPB has been used to instigate practitioners' behavioural change in the field of sustainable conservation of built heritage.

Data were searched for on Web of Science bibliographic database, on 16 June 2020, considering the presence of key terms in "all fields." A scoping search on the Web of Science bibliographical database focused on the specific topic of the application of the TPB in the field of heritage and sustainability (heritage AND theory of planned behav* AND sustain*) results in only 14 publications. To attain a more complete picture of the field, the main search uses broader search syntaxes: "heritage AND sustain* AND behav*", "heritage AND sustain* AND intention", and "heritage AND theory of planned behav*". The search operator "*" was used as a wildcard, to search for variations of the word. Given the low quantity of results obtained during the process, no limitations were applied regarding date or type of publication, allowing to understand tendencies on how this issue has been explored in the last decades.

The data extraction was organised in a sequential selection of publications (Figure 1), with different inclusion and exclusion criteria. In the first step, the 1058 results obtained using the search syntaxes were filtered according to scope. Duplicates were eliminated, as well as publications considered out of the scope of this research. Papers were included when they mention "heritage" or semantically related expressions, such as "historical buildings", "monuments", or "cultural value". When the use of the keywords "heritage" and "intention" was found circumstantial and not fundamental (for instance "the intention of the paper is"), papers were also excluded. No requirements were applied to the meaning of "behaviour" at this stage. It resulted in a total of 506 publications, after eliminating duplicates.

In the second step, data were organised and classified in data extraction tables and excluded from further analysis if they were not related to human behaviour, and if they were not published in English.

In the third step, the 140 remaining publications were analysed considering, as key variables, type of heritage; type of stakeholder; aims and methodology. Lastly, 30 studies with clear methodological frameworks related to the TPB or the TRA, behavioural intentions, behavioural change, and decision-makers were analysed in-depth, considering study scale and sample, and conclusions. From these studies, 4 were related to behavioural change, 3 to built heritage, and only 1 focused on decision-makers.

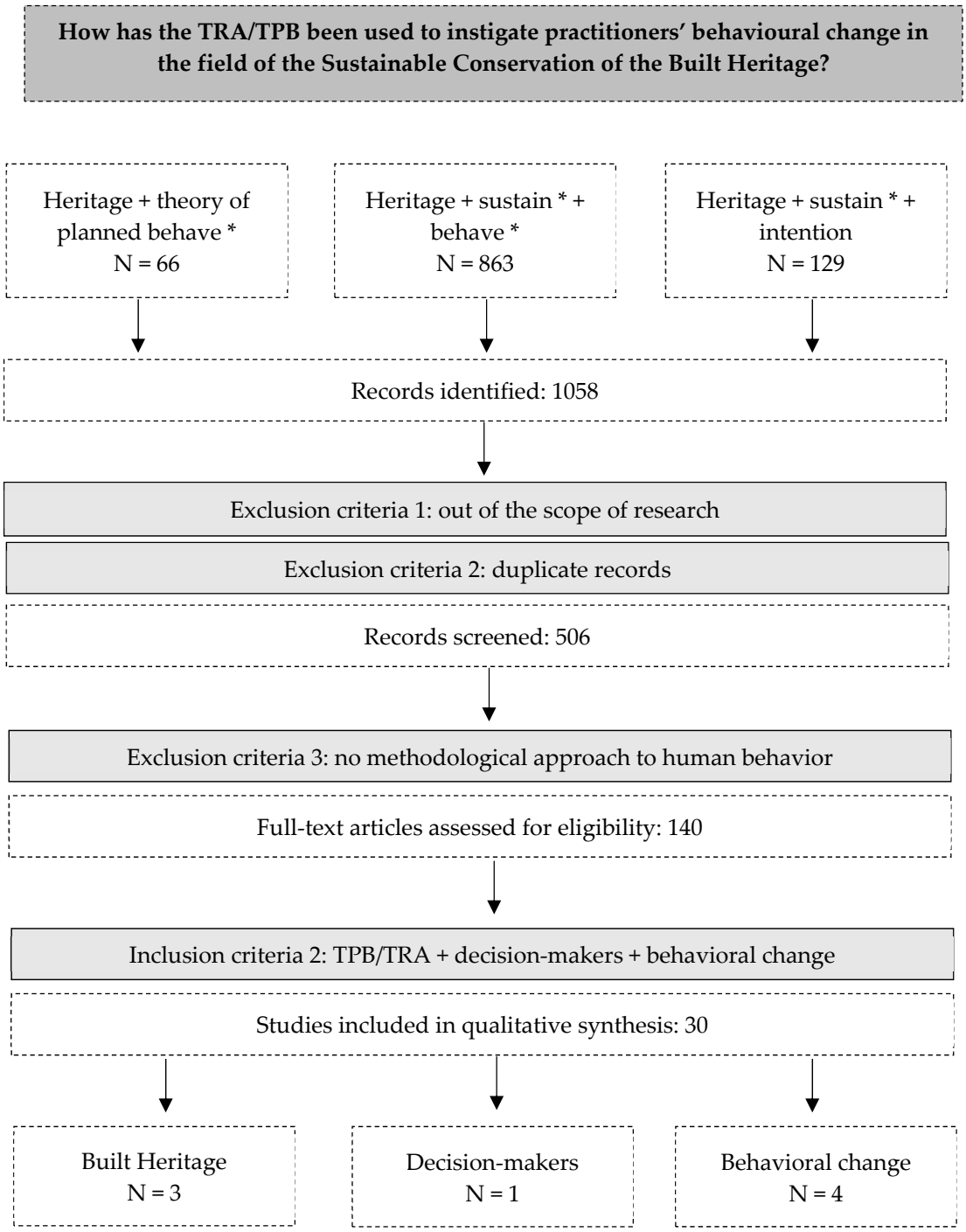

Figure 1. PRISMA flow diagram with inclusion and exclusion criteria for the selection of literature.

3. Results

3.1. General Overview

From the selected 506 papers, almost a third (154 papers) were related to built heritage. However, only 33 of those refer to human behaviour. In the 121 remaining publications about built heritage, the term behaviour was used to refer to the building's performance: either structural behaviour or hygrothermal and energy behaviour.

Therefore, building performance in the built heritage context is tackled as: (1) Structural behaviour (representing 44% of the publications about built heritage) which includes seismic vulnerability assessment of existing buildings (e.g., [47–50]), structural health monitoring (e.g., [51–54]), or mechanical properties of construction materials (e.g., [55–59]). (2) Hygrothermal and energy performance of buildings (representing a quarter of the publications on built heritage); integrates publications about bioclimatic strategies (e.g., [60,61]), strategies for energy renovation (e.g., [62–65]), or hygrothermal performance of traditional building systems (e.g., [66–69]).

In parallel with the use of the concept of behaviour as performance, the findings also show the use of the concept as background or factor. In 10% of the cases, human behaviour is mentioned as the publication background, referring, for instance, to past behaviours of a community in the scope of archaeological research [70]. In 19% of the cases, behaviour is recognised as a factor that can influence the findings. As examples, Mutani et al. mention that "energy models should take into account also the urban morphology, people's behaviour, social and economic conditions, local and national regulation, and the use of outdoor public spaces" [71]; while Galvin et al. state the need to consider "consumer behaviour issues such as the rebound effect" for sustainable thermal retrofit of existing buildings [72]. However, the topic is not explicitly addressed in those studies, highlighting the importance of further research from a behavioural perspective.

The findings show that this is a recent field of research. Around 40% of the results were published since 2018; 75% after 2015. Publications before 2008 are only residual (less than 4%). There is a great geographic diversity in the origins of the publications, with Italy (15%) and China (10%) leading the results. However, most publications (63%) from southern Europe (Portugal, Spain, and Italy) use behaviour to refer to the building's performance, leaving China and Australia as the major contributors in the topics of human behaviour, heritage, and sustainability. In the same way, the exclusion of papers that consider behaviour as performance results in a significant reduction of the papers in the research field of engineering, and building technology and construction, falling from 32% to only 9% of the overall selection. The selected publications are concentrated on the research fields of social sciences (39%), science and technology (30%), and environmental sciences and ecology (27%). A resulting set of 140 publications with a methodological approach to human behaviour in the scope of sustainable heritage was further analysed in the following section.

3.2. Methodological Approaches to Human Behaviour

3.2.1. Aims

By analysing the aims of the studies, a total of 23 common themes emerged, showing the predominant focus of studies in certain actors and objectives, as shown in Table 1.

Almost a quarter of the publications (22%) are related with behavioural intentions: either measuring factors affecting tourists' cultural intentions (e.g., [73–76]) and intention to revisit a destination (e.g., [77–80]), the residents' intention to participate in heritage tourism (e.g., [81,82]), or the business intentions of tourist operators and investors (e.g., [83]). However, no studies were found directly targeting the cognitive dissonance between intentions and behaviours, and the factors affecting this gap, even if 6% of the publications refer to behavioural change [84–87].

Satisfaction is a common construct in the literature, used to assess visitors' experiences in the scope of marketing management on touristic destinations (e.g., [88–91]). Willingness-to-pay is used to analyse residents' and visitors' disposition to support the costs of the preservation of cultural and natural heritage, allowing to identify and prioritise values (e.g., [92–96]). The publications referring to segmentation studies aim at typifying profiles of tourists (e.g., [97–100]) or local communities [101] according to behavioural characteristics, such as motivation to visit heritage sites [101] or awareness of the World Heritage brand [102], for instance.

Table 1. Thematic analysis of the main constructs and main aims identified in the literature

Actors	Main Construct	Aim	%
Residents (n = 38)	Attitudes towards tourism	Measure residents' attitudes towards heritage tourism	6%
	Intentions towards tourism	Measure residents' intentions to support tourism	6%
	Value recognition	Measure residents' awareness of heritage values	5%
	Pro-environmental attitudes	Measure residents' pro-environmental attitudes	3%
	Conservation behaviours	Identify factors affecting the conservation of natural and cultural heritage	3%
	Willingness to pay	Residents' willingness to pay for the preservation of values	2%
	Segmentation	Profile residents based on behavioural characteristics	1%
	Integration behaviour	Measure residents' urban integration and willingness to relocate	1%
Tourists (n = 79)	Satisfaction	Measure tourists' satisfaction in heritage destinations	11%
	Spatial behaviour	Identify travel and movement patterns	7%
	Behavioural intentions	Identify factors affecting tourists' behavioural intentions	6%
	Willingness to pay	Measure tourists' willingness to pay for the preservation of values	5%
	Segmentation	Profile tourists based on behavioural characteristics	5%
	Perceptions	Assess tourists' perceptions of heritage experiences	5%
	Intention to revisit	Measure tourists' intention to revisit	5%
	Attitudes	Assess tourists' attitudes towards heritage destinations	4%
	Behavioural change	Persuasive communication and information to change tourist behaviour	4%
	Consumption behaviour	Measure factors affecting consumer decisions	3%
	Well-being	Measure the effect of visit in tourists' psychological wellbeing	2%
Business (n = 9)	Business intentions	Factors affecting entrepreneurial behaviour	5%
	Behavioural change	Increase pro-environmental behaviours	2%
	Perceptions	Measure perceptions of investors	1%
Decision-Makers	Decision-making behaviour	Factors affecting decision-making behaviour	2%
Others			3%

3.2.2. Actors and Type of Heritage

Considering the actors targeted in the studies, four main groups emerge: (1) tourists and visitors; (2) residents and local communities; (3) business owners, tourist operators, and staff; (4) decision-makers, public authorities, and government.

The majority (56%) of the publications focus on tourist perspectives, as presented in Table 2. In this group, one-third of the results are related to natural heritage, reflecting the predominance of studies in the field of pro-environmental behaviours, measuring, for instance, tourists' perspectives on environment and their perceived responsibility (e.g., [103–105]). Additionally, in the scope of natural heritage, several studies analyse the effects of visitation in mental and physical well-being (e.g., [87,106,107]). A significant number of publications (15%) refer to heritage as a destination. In these cases, research is mostly related to factors affecting travel behaviours and intention to revisit, such as authenticity (e.g., [108,109]), visiting experience and satisfaction (e.g., [110,111]), or place attachment (e.g., [76]). For instance, Ramkinsson [112] analysed how perceived authenticity—a place's cultural and natural characteristics that are interpreted as genuine—affects tourists' intentions to consume cultural attractions. The author also relates the concepts of place attachment (emotional bonds emerging from

interactions between people and settings of a place) and satisfaction (judgement of the perceived quality of a setting considering physical characteristics and settings) with tourists' intentions towards heritage destinations.

Table 2. Literature referring to tourists and visitors.

Author, Year	Ref.	Country	Heritage	Actors	Theoretical Framework
Bae, Jung, Moorhouse, Suh, and Kwon, 2020	[113]	South Korea	(destinations)	visitors	brand equity theory
Cappa, Rosso, and Capaldo, 2020	[114]	Italy	(museums)	visitors	visitor-sensing; spatial analysis
Piramanayagam et al., 2020	[79]	India	archaeological (WHS)	visitors	behavioural intention
Menor-Campos et al., 2020	[101]	Spain	urban (WHS)	tourists	behaviour segmentation
Chow, Ma, Wong, Lam, and Cheung, 2019	[115]	China	natural	tourists	behavioural intention
(Cong et al., 2019)	[92]	China	natural	tourists	WTP; choice experiment method
Curnock et al., 2019	[116]	Australia	natural (WHS)	tourists	theory of emotions
Jin et al., 2019	[95]	South Korea	sites (WHS)	tourists	contingent valuation method; stakeholder theory; WTP
Jurado-Rivas and Sánchez-Rivero, 2019	[96]	Spain	urban (WHS)	tourists	WTP; behaviour segmentation
Huang et al., 2019	[107]	China	intangible; natural	tourists	PERMA model
Kunasegaran et al., 2019	[110]	Malaysia	intangible	tourists	Urry's tourist gaze theory
Khairi, Ismail, and Syed Jaafar, 2019	[117]	Malaysia	urban (WHS)	tourists	theory of tourism consumption
Medina-Viruel, López-Guzmán, Gálvez, and Jara-Alba, 2019	[118]	Spain	urban (WHS)	tourists	Crompton's motivational theory
Nian et al., 2019	[74]	China	natural (WHS)	tourists	value–belief–norm; TPB
Weber, Groulx, Lemieux, Scott, and Dawson, 2019	[119]	Canada	natural (WHS)	tourists	(unclear)
Woyo and Woyo, 2019	[120]	Namibia	(destination)	tourists	(unclear)
Wu, Shen, Wang, Hou, and Yang, 2019	[121]	China	(museum)	tourists	subjective well-being
Zhang and Wang, 2019	[80]	China	urban (WHS)	tourists	planning behaviour theory/TPB
Scuttari, Orsi, and Bassani, 2019	[122]	Italy	natural (WHS)	visitors	(unclear)
Alazaizeh, Jamaliah, Mgonja, and Ababneh, 2019	[123]	Jordan	archaeological (WHS)	visitors	attribution theory
Bergel and Brock, 2019	[77]	Germany	natural (WHS)	visitors	customer engagement; TPB
Song and Kim, 2019	[124]	South Korea	built (WHS)	visitors	value–attitude–behaviour hierarchy
Adie et al., 2018	[102]	United Kingdom	built (WHS)	tourists	Branding; behaviour segmentation
Borges, Vieira, and Gomes, 2018	[125]	Portugal	urban (WHS)	tourists	(unclear)
Cheng, Wang, Cao, Zhang, and Bai, 2018	[126]	China	sites	tourists	service quality
Gao et al., 2018	[103]	China	natural (WHS)	tourists	generational cohort theory
Kim et al., 2018	[78]	USA	natural (WHS)	tourists	behavioural intention
Lee and Phau, 2018	[88]	Australia	urban	tourists	cognitive appraisal theory
Mehmood, Liang, and Gu, 2018	[127]	China	natural (WHS)	tourists	word-of-mouth; behavioral intention
Prayag, Suntikul, and Agyeiwaah, 2018	[128]	China	intangible	tourists	cognitive-affective-behaviour system
Kastenholz et al., 2018	[100]	Portugal	(destination)	visitors	behavior segmentation
Lin and Liu, 2018	[108]	China	(destination)	visitors	existential authenticity
Martinez-Garcia, Raya-Vilchez, and Galí, 2018	[129]	Spain	(destination)	visitors	attraction theory
Weaver et al., 2018	[130]	China	(museum)	visitors	Social representations theory
Muñoz-Fernández et al., 2018	[91]	Spain	urban (WHS)	tourists	(unclear)
Wang, Yang, Han, and Shi, 2017	[131]	China	natural (WHS)	tourists	(unclear)
Gálvez et al., 2017	[99]	Spain	intangible	tourists	behaviour segmentation
Gao et al., 2017	[104]	China	natural (WHS)	tourists	Norm-activation theory
Su, Hsu, and Swanson, 2017	[132]	China	natural (WHS)	tourists	(unclear)
Soliman and Abou-Shouk, 2017	[133]	Egypt	built, natural	tourists	theory of reasoned action
Trivedi, 2017	[134]	Thailand	(destinations)	tourists	(unclear)
Buonincontri, Marasco, and Ramkissoon, 2017	[135]	Italy	sites	visitors	theory of reasoned action
Brida, Dalle Nogare, and Scuderi, 2016	[136]	Italy	(museums)	Tourists	rational addiction theory
Farr et al., 2016	[94]	Australia	natural (WHS)	tourists	WTP; equity theory
Getzner, Färber, and Yamu, 2016	[137]	Austria	natural	tourists	Economic valuation method
Lee, Phau, Hughes, Li, and Quintal, 2016	[138]	Australia	urban	tourists	consumer-based theory of authenticity
Martin et al., 2016	[89]	Spain	urban (WHS)	tourists	Visitor experienced quality
Brida, Meleddu, et al., 2016	[97]	Italy	(museums)	visitors	behaviour segmentation

Table 2. *Cont.*

Author, Year	Ref.	Country	Heritage	Actors	Theoretical Framework
Sabou, Nistoreanu, and Maiorescu, 2016	[139]	Romania	urban	Tourists	Spatial analysis
Khairi and Ismail, 2015	[140]	Malaysia	urban (WHS)	tourists	Spatial analysis
Mustafa, 2015	[141]	Jordan	archaeological	tourists	socialization theory; behavioural intentions
Ramkissoon, 2015	[76]	Australia	(destination)	tourists	attitude-behavior framework; behavioral intention
Huang, Weiler, and Assaker, 2015	[142]	Australia	urban	tourists	consumer satisfaction theory; TPB
Toha & Ismail, 2015	[143]	Malaysia	urban (WHS)	tourists	Tourist tracking; spatial analysis
Di Pietro et al., 2015	[98]	Italy	urban	visitors	behaviour segmentation
Salvatierra and Walters, 2015	[84]	Australia	natural	visitors	behavioural change
Wolf et al., 2015	[105]	Australia	natural	visitors	Outcomes-Focused Management
Rani et al., 2014	[109]	Malaysia	(destination)	tourists	Behavioral intention
Romão et al., 2014	[111]	Netherlands	natural (WHS)	tourists	behaviour segmentation
Ballantyne, Hughes, Ding, and Liu, 2014	[144]	Australia	built	visitors	(unclear)
Jones and Yamamoto, 2014	[145]	Japan	natural (WHS)	visitors	WTP
King and Halpenny, 2014	[146]	Australia	(brand)	visitors	Branding theory
Bernadó, Bigorra, Pérez, Russo, and Clave, 2013	[147]	Spain	urban (WHS)	tourists	Spatial analysis
Li, Sia, and Zhu, 2013	[148]	China	(destination)	tourists	Social exchange theory
Wallace, 2013	[149]	United Kingdom	archaeological (WHS)	visitors	Spatial analysis
Ramkissoon, Smith, and Weiler, 2013	[150]	Australia	natural	visitors	Behavioural intentions
Boukas, 2012	[151]	Cyprus	archaeological	visitors	importance–satisfaction analysis
Ramkissoon and Uysal, 2011	[75]	Mauritius	sites	tourists	Behavioral intentions; TPB
Yang, Hens, De Wulf, and Ou, 2011	[152]	China	natural (WHS)	tourists	(unclear)
Boley, Nickerson, and Bosak, 2011	[153]	USA	(destination)	visitors	(unclear)
Ramkissoon and Uysal, 2010	[112]	Mauritius	sites	tourists	Behavioural intentions
McNamara and Prideaux, 2010	[154]	Australia	natural (WHS)	visitors	(unclear)
Weiler and Ham, 2010	[155]	Australia	sites	visitors	(unclear)
Barton et al., 2009	[106]	United Kingdom	natural	visitors	Rosenberg self-esteem scale
McKercher et al., 2008	[156]	China	natural	visitors	Neutralization theory
Cooper, 2000	[157]	Australia	natural (WHS)	visitors	(unclear)
Fellenius, Williams, and Hood, 1999	[158]	Canada	(destination)	tourists	behavior segmentation
Suryawardani, Wiranatha, and Petr, 2016	[159]	Indonesia	(destination)	tourists	Expectancy theory
Hidalgo-Fernández, Hernández-Rojas, Jimber del Río, and Casas-Rosal, 2019	[160]	Spain	archaeological (WHS)	tourists	American customer satisfaction index

Literature focused on residents' behaviours, shown in Table 3, correspondents to almost one third (27%) of the analysed publications. It often refers to urban heritage, for instance, measuring factors affecting residents' support for sustainable heritage tourism development (e.g., [81,161–163]). Centred on built heritage, Cai and Lu [164] determined aspects affecting residents' social integration in historic blocks, while Judson et al. [165] analyse how residents balance energy needs and heritage significance in renovation processes. A significant number of publications about residents (13%) target intangible cultural heritage (ICH), such as the research of Su, Li, Wu and Yao [166] which develops a scale to measure inheritors' perception of ICH value, or the research of Yuan, Lun, He et al. [167] which explores community perspectives on traditional ecological knowledge.

Table 3. Literature referring to residents and local communities.

Author, Year	Ref.	Country	Heritage	Actors	Theoretical Framework
Chong, 2020	[161]	Malaysia	(resources)	community	(unclear)
Su et al., 2020	[166]	China	intangible	inheritors	value cognition
Gannon et al., 2020	[162]	Malaysia	urban	residents	social exchange theory; theory of substantive and formal rationality
Megeirhi et al., 2020	[81]	South Africa	urban (WHS)	residents	value–belief–norm
Qiu, Zheng, Xiang, and Zhang, 2020	[168]	China	intangible	residents	value–attitude–behaviour hierarchy
Zheng et al., 2020	[163]	China	urban (WHS)	residents	social dilemma theory
Olya, Shahmirzdi, and Alipour, 2019	[169]	Turkey	natural (WHS)	community	social exchange theory; complexity theory
Prados-Peña, Gutiérrez-Carrillo, and Barrio-García, 2019	[170]	Spain	built	community	branding
Davoodi and Dağlı, 2019	[171]	Turkey	urban	residents	(unclear)
Gursoy, Zhang, and Chi, 2019	[172]	China	urban (WHS)	residents	value orientation; identity theory
Jin et al., 2019	[95]	China	natural (WHS)	residents	WTP; contingent valuation method
Yuan et al., 2019	[82]	China	urban	residents	social exchange theory; TPB
Zhang, Lee, and Xiong, 2019	[173]	China	built	residents	TPB
Zhang et al., 2019	[174]	China	natural	residents	social exchange theory; TPB
Dragouni and Fouseki, 2018	[93]	United Kingdom	(destinations)	community	WTP
Cai and Lu, 2018	[164]	China	built	residents	(unclear)
Chen and Yang, 2018	[175]	China	urban	residents	Bourne's relocation decision model
López, Virto, Manzano, and Miranda, 2018	[176]	Spain	urban	residents	triple bottom line
Yasin, Abdullah, Ibrahim, Khalid, and Wahab, 2018	[177]	Malaysia	urban (WHS)	residents	(unclear)
Goldberg et al., 2018	[178]	Australia	natural (WHS)	residents, tourists	TPB
Domic and Boukas, 2017	[179]	Cyprus	intangible	communities	critical ethnography; behaviour segmentation
Wang, Zhang, Han, and Liang, 2017	[180]	China	Built, natural (WHS)	community	ground theory; role theory
Esariti, Yuliastuti, and Ratih, 2017	[181]	Indonesia	urban	residents	theory of Rappoport
Weiler et al., 2017	[87]	Australia	natural	residents	persuasive communication theory; behavioural change
Rodzi, Zaki, and Subli, 2016	[182]	Malaysia	Intangible (WHS)	community	(unclear)
Basarić, Vujičić, Simić, Bogdanović, and Saulić, 2016	[183]	Serbia	urban	residents	(unclear)
Goldberg et al., 2016	[73]	Australia	Natural (WHS)	residents	(unclear)
Lwoga, 2016	[184]	Tanzania	built	residents	TPB
May-Chiun and Songanc, 2014	[185]	Malaysia	(destination)	communities	(unclear)
Bosman and Whitfield, 2014	[186]	South Africa	built	community	vernacular theory; theory of ecological perception
Judson et al., 2014	[165]	United Kingdom	built	homeowners	Social practice theory
Yuan et al., 2014	[167]	China	intangible	residents	(unclear)
Omar, Muhibudin, Yussof, Sukiman, and Mohamed, 2013	[187]	Malaysia	Urban (WHS)	community	Stakeholders theory
Yunus, Karim, and Samadi, 2013	[188]	Malaysia	natural	community	(unclear)
Ma, Zhao, and Gong, 2013	[189]	China	natural	residents	(unclear)
Ryan, Chaozhi, and Zeng, 2011	[190]	China	Built (WHS)	residents	(unclear)
Nicholas, Thapa, and Ko, 2009	[191]	USA	Natural (WHS)	residents	Stakeholders theory
Senaratne, Abeygunawardena, and Jayatilake, 2003	[192]	Sri Lanka	Natural (WHS)	residents	Household production theory

The publications referring to other stakeholders (from business owners to decision-makers) are presented in Table 4. Only 2% of the studies approach behaviour in the perspective of the decision-makers. No studies were found about practitioners and designers involved in the conservation of built heritage. In this group, natural heritage is the most frequent type. For example, the research of Chi, Zhang and Liu [193] analysed managers of tourism companies in a natural heritage site, to study their corporate social responsibility behaviours (the integration of environmental and social concerns in business operations), while Esparon, Gyuris and Stoeckl [194] analysed the impact of eco-certification on consumers' choice of tourism operators. Several studies use students as the research population. While in some cases this choice reflects a convenience sampling, aimed at representing other actors, like potential visitors or the general community (e.g., [195]), in other cases this designation reflects the actual population, such as in the case of Rose, Rose and Merchant [196], that analyses the effect of

heritage brands in students intentions to apply to a university, or the research of Forleo, Romagnoli and Palmieri [197] that recognises in students the potential to shape a system of values and beliefs for the future of sustainable development.

Table 4. Literature referring to other stakeholders.

Author, Year	Ref.	Country	Heritage	Actors	Theoretical Framework
Ferretti and Grosso, 2019	[198]	Italy	built; urban	decision-makers	Multi-attribute Value Theory
Wang et al., 2019	[83]	China	(tourism)	enterprises	Behavioural intentions; motivation theory of self-determination
Chi et al., 2019	[193]	China	natural (WHS)	managers	Stakeholder theory; agency theory
Forleo et al., 2019	[197]	Italy	natural	students	WTP; TPB; behavior segmentation
Mustafa, 2019	[199]	Jordan	archaeological	tour guides	norm activation theory; TPB
Zhang and Zhang, 2018	[200]	Japan	(destinations)	enterprises	network centrality; stakeholder theory
Väisänen and Törn-Laapio, 2018	[201]	Sweden	(resources)	entrepreneurs	(unclear)
Choi et al., 2018	[195]	South Korea	natural	students	random utility maximization theory
Gregory-Smith, Wells, Manika, and McElroy, 2017	[86]	United Kingdom	(destination)	employees	Social marketing; realist evaluation; behavioural change
McCamley and Gilmore, 2017	[202]	United Kingdom	(destination)	enterprises	supply chain theory
Rose et al., 2017	[196]	USA	(brand)	students	Behavioral intentions
Abdulla, Abdelmonem, and Selim, 2017	[203]	United Kingdom	urban	users	hierarchy of walking needs
Gribaudo, Iacono, and Levis, 2017	[204]	Italy	urban	users	internet of things; spatial analysis
Valentina et al., 2015	[90]	Romania	(resources)	consumers	(unclear)
Miralles i Garcia, 2015	[205]	Spain	natural	decision-makers	(unclear)
Wells et al., 2015	[85]	United Kingdom	(organization)	employees	Behavioural change; social marketing intervention
Çetinkaya and Zafer, 2015	[206]	Turkey	archaeological	Tour guides	(unclear)
Esparon et al., 2014	[194]	Australia	Natural (WHS)	consumers	importance-performance analysis
Gheorghe, Nistoreanu, and Filip, 2013	[207]	Romania	intangible	consumers	Direct market research
Hall, 2013	[208]	New Zealand	intangible	foragers	(unclear)
Santos, Mendes, Rodrigues, and Freire, 2012	[209]	Portugal	natural	geocachers	Spatial analysis
Wiedmann, Hennigs, Schmidt, and Wuestefeld, 2011	[210]	Germany	(brand)	consumers	Branding theory
Thomas, Miller, Thomas, Tunstall, and Siggins, 2007	[211]	United Kingdom	(tourism)	enterprises	Phenomenological methodology

3.2.3. Theoretical Frameworks and Research Methods

Regarding the methodology, three types of information emerged: theoretical frameworks, data collection instruments, and data processing techniques. However, not always publications include a clear methodological framework, with the three types of information, with the theoretical framework missing in around 20% of the publications.

The diagram in Figure 2 presents the distribution of techniques according to the identified goals. Interviews are currently used in qualitative studies, aimed at eliciting respondents' values and attitudes (e.g., [165,180,188,201]). Visitor sensing or tracking is the predominant technique in studies about spatial behaviour, focused on understanding crowd movements in museums or urban spaces (e.g., [114,139,140,147,149]). Experimental interventions are a common method when addressing behavioural change (e.g., [84,85,87]), but were also found in the context of willingness-to-pay studies [137] and business intentions [212]. The most common method for data collection in the survey, allowing to cover most of the identified aims, was a quantitative approach. The results are then commonly analysed with factor analysis (CFA/EFA), to reduce the number of variables to a few constructs, followed by structural equation modelling (SEM), to establish relationships between latent constructs, according to a pre-established hypothesis (e.g., [78,79,81,109,112,123,162,170]).

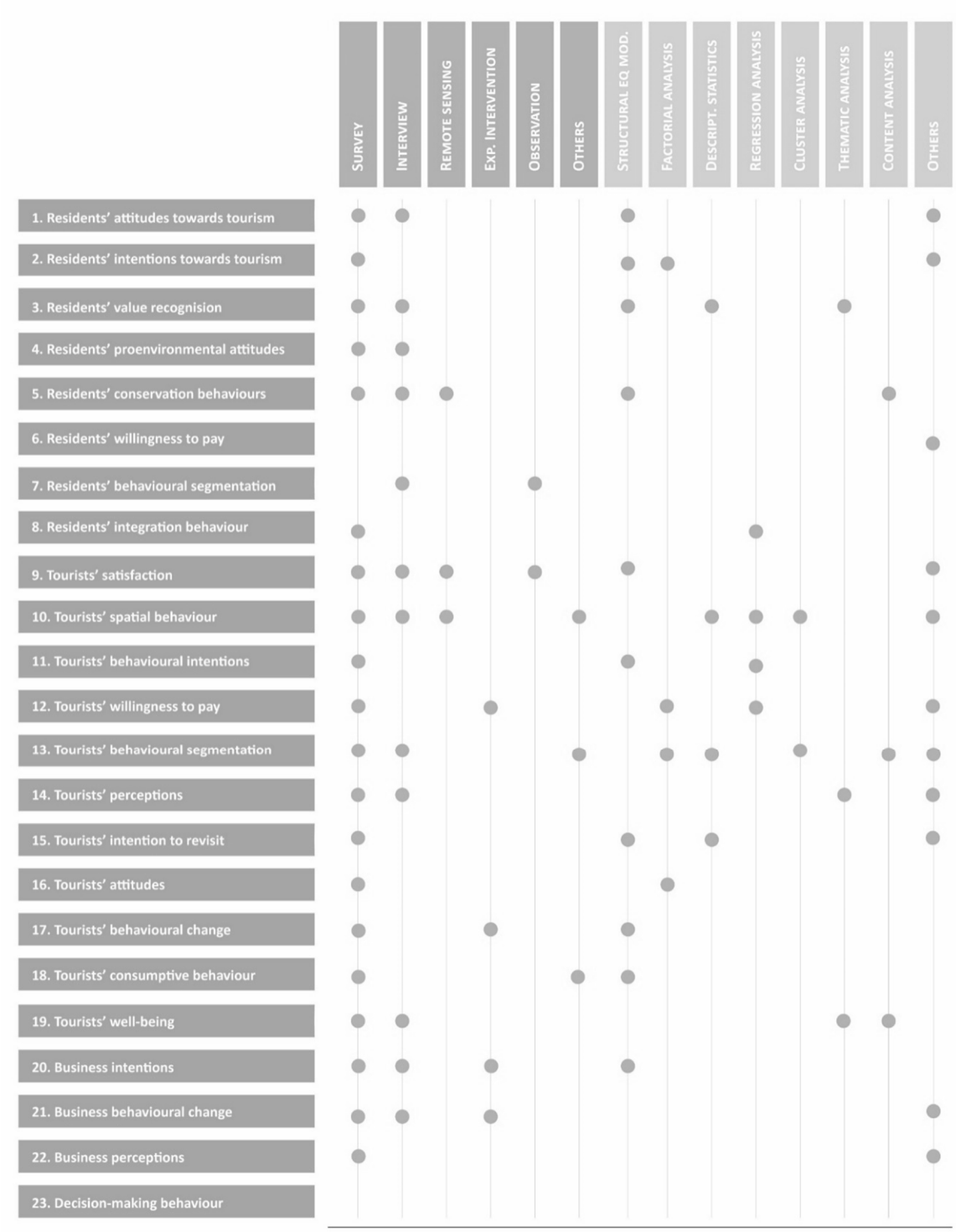

Figure 2. Distribution of data collection and data analysis techniques according to research aims.

The analysis allows for identifying a great diversity of theoretical approaches. Despite that, three trends emerge that confirm the identified aims: (1) theory of planned behaviour and theory of reasoned action, aimed at measuring intentions and predict behaviours; (2) behavioural segmentation theory, used in studies aiming at clustering individuals according to behavioural profiles; (3) willingness to pay, aiming at measure customer priorities and value judgements towards a given service or product. Together, these theoretical frameworks represent a quarter of the analysed publications. Even if only 11% of the analysed publications refer directly

to Ajzen's theories of behavior [74,75,77,80,82,133,135,142,173,174,178,184,197,199], another 8% of the publications directly target behavioural intentions within a similar conceptual framework [76,78,79,83,109,112,115,127,141,150,196]. Together with the studies on behavioural change [84–87], and targeting decision-makers with a clear methodology [198], these records are further analysed in the next section.

3.3. Behavioral Intentions and Behavioural Change for Sustainable Heritage

To answer the research question, the next section presents an in-depth analysis of the publications based on the TRA and on the TPB, those focused on practitioners and decision-makers' behaviour, and the publications that present the results of interventions designed for behavioural change. Considering the overlapping between the three topics, a total of 30 publications were analysed. Most of the literature found (68%) was published after 2017, and no results were found before 2010. Most of the results are from China and Australia, and together they represent half of the publications in the field (47%). The summary of the findings is presented in Table 5.

Table 5. Summary of main goals and methodologies found in the literature.

Author, Year	Ref.	Country	Heritage	Constructs	Method	Population
Piramanayagam et al., 2020	[79]	India	archaeological	destination image; visitor experience; intention to revisit	Questionnaire; CFA; SEM	384 tourists
Yuan et al., 2019	[82]	China	urban	involvement, perceived impacts, place attachment, intention to support tourism	Questionnaire; SEM	336 residents
Wang et al., 2019	[83]	China	(tourism)	lifestyle-oriented motivation, corporate social responsibility, operational intention	Questionnaire; SEM	154 guesthouse owners
Nian et al., 2019	[74]	China	natural	perception of OUV, service quality, place attachment, conservation intention	Questionnaire; SEM	563 tourists
Zhang et al., 2019	[173]	China	built	attitudes, subjective norms, perceived control, self-regulation, social capital, intention and behaviour towards conflict	Interview; questionnaire; SEM	250 residents
Zhang and Wang, 2019	[80]	China	urban	attitudes, motivation, space emotion, subjective norms, perceived control, travel intention	Questionnaire; SEM	650 tourists
Bergel and Brock, 2019	[77]	Germany	natural	affective attitude, influence behaviour, destination loyalty intention, perception of entrance fees	Questionnaire; SEM	802 visitors
Mustafa, 2019	[199]	Jordan	archaeological	value orientation, social norms, commitment to conservation	Questionnaire; SEM	96 tour guides
Zhang et al., 2019	[174]	China	natural	livelihood strategies, perception of changes, pro-environmental behaviours	Interviews: questionnaire; multiple regression	314 residents
Ferretti and Grosso, 2019	[198]	Italy	built	power–interest matrix; preferences; values; trade-offs	Stakeholders analysis	Decision-makers
Forleo et al., 2019	[197]	Italy	natural	use and non-use values; willingness-to-pay; pro-environmental behaviours	Questionnaire; hierarchical cluster analysis	542 students
Chow et al., 2019	[115]	China	natural	place attachment; satisfaction; pro-environmental intentions	Questionnaire; regression	402 tourists
Mehmood et al., 2018	[127]	China	natural	word-of-mouth; user generated content; heritage image; attitudes; travel intention	Questionnaire; SEM	280 tourists
Goldberg et al., 2018	[178]	Australia	natural	attitudes; perceived barriers; pro-environmental behaviours	Questionnaire; Variance inflation factors	3181 residents; 2621 tourists
Kim et al., 2018	[78]	USA	natural	perceived sustainability, pro-environmental behaviour; revisit intention; word-of-mouth	Questionnaire; CFA; SEM	300 tourists

Table 5. *Cont.*

Author, Year	Ref.	Country	Heritage	Constructs	Method	Population
Soliman and Abou-Shouk, 2017	[133]	Egypt	sites	attitudes, motivation, cultural/heritage dimension, subjective norms, travel intention, behaviour	Questionnaire; SEM	200 tourists
Rose et al., 2017	[196]	USA	(brand)	attitudes, present-time orientation, perceived linkage past–present, intention to consume	Questionnaire; multiple regression	90–240 students
Buonincontri et al., 2017	[135]	Italy	sites	tourism experience, place attachment, pro-environmental behaviour	Development of a questionnaire	visitors
Weiler et al., 2017	[87]	Australia	natural	perceived benefits, credibility, mental imagery	pre-/post-experimental design; questionnaire; *t*-test	1053 residents
Gregory-Smith et al., 2017	[86]	United Kingdom	(tourism)	realist evaluation: context, mechanism, outcome	Interviews; intervention; focus group	57 employees
Lwoga, 2016	[184]	Tanzania	built	attitudes, subjective norm, perceived control, conservation intention, tourism employment status	Questionnaire; SEM	208 households
Huang et al., 2015	[142]	Australia	sites	elaboration, relevancy, empathy, attitude, satisfaction, behavioural loyalty, WOM intention	Questionnaire; SEM	282 tourists
Salvatierra and Walters, 2015	[84]	Australia	natural	past experience, knowledge, image perception, travel intention	pre-/post-experimental design; questionnaire; ANOVA	168 potential visitors
Wells et al., 2015	[85]	United Kingdom	(tourism)	potential to change pro-environmental behaviour; personal responsibility; information adequacy; satisfaction; self-efficacy; motivation	Interviews; pre-/post-experimental design; questionnaire; linear regression; ANOVA	96–237 employees
Ramkissoon, 2015	[76]	Australia	(destination)	perceived authenticity; place attachment; place satisfaction; cultural intentions	Theoretical model	tourists
Mustafa, 2015	[141]	Jordan	archaeological	value orientation; awareness of consequences; ascription of responsibility; pro-heritage intentions	Questionnaire; *t*-test	271 tourists
Rani et al., 2014	[109]	Malaysia	(destination)	perceived authenticity; satisfaction; revisit intention	Questionnaire; CFA; SEM	255 tourists
Ramkissoon et al., 2013	[150]	Australia	natural	place attachment; place satisfaction; pro-environmental intentions	Questionnaire; EFA; multiple regression	452 tourists
Ramkissoon and Uysal, 2011	[75]	Mauritius	sites	perceived authenticity, motivation, information search behaviour, destination imagery, cultural intention	Questionnaire; SEM; multiple regression	600 tourists
Ramkissoon and Uysal, 2010	[112]	Mauritius	sites	authenticity; cultural intention	Questionnaire; CFA; SEM	600 tourists

3.3.1. Sustainable Heritage Conservation

Sustainability is the journal with more publications on the topic (19%), followed by the J. Travel Res. (14%). Despite mostly being published under the topic of "social sciences" (57%), the majority of studies were published in journals of the tourism and hospitality field (62%), confirming the predominance of studies focusing on tourist behaviour and in the notion of heritage as a destination. In more than half of the publications (65%), the term "sustainability" is used in the context of sustainable tourism development and heritage destinations [74,77,80,83,133,135,173,174,199].

Sustainable heritage is not a clear concept, and, even if often mentioned, is rarely defined. Despite that, two main approaches emerge in the literature: one targeting environmental protection, and another one more focused on the social dimension, targeting community participation. Lwoga [184] and Yuan et al. [82] state that the engagement of local communities is essential to achieve a sustainable heritage management. While Lwoga [184] studies residents' intention to conserve built heritage, Yuan et al. [82] focus on residents' intentions to support tourist development. Additionally,

Zhang et al. [173] contribute to improve inclusive decision practices, by analysing residents' behaviours towards conflict resolution.

The environmental dimension of sustainability is addressed in 40% of the publications (e.g., [74,77,84,85,133]). Chow et al. [115] analyse tourists' environmentally responsible behaviours in the context of natural heritage, aiming at contributing to reduce tourism negative environmental impacts. Moreover, Forleo et al. [197] and Goldberg et al. [178] focus on the protection of areas with environmental value and on their long-term preservation for future generations. The research of Buonicontri et al. [135] develops a scale to measure factors affecting the sustainable behaviour of heritage visitors, developing a set of indicators to assess pro-heritage behaviours (limiting visits to heritage sites, donations and willingness to pay for preservation, engaging in voluntary work, etc.) Additionally, the study of Wang et al. [83] considers environmental and heritage protection as two essential vectors of corporative socially responsible practices, in the context of sustainable tourism.

In both approaches to sustainability (social and environmental), the analysed literature focused on anthropogenic pressure, touristic pressure, and on the overexploitation of resources. Nian et al. [74] and Kim et al. refer to the need to avoid the overexploitation of tourism facilities and the uncontrolled touristic capacity, in order to protect the ecological environment from intensive land use and deterioration of biodiversity. For Zhang and Wang [80], sustainable tourism must avoid the negative impacts of mass tourism, while maximizing tourism's benefits, by creating employment and increasing income of local communities. Furthermore, Buonicontri et al. [135] refer to sustainable tourism as a balance operation, between visitation, authenticity, and conservation.

3.3.2. Built Heritage

More than one third (38%) of the publications analysed refer to natural heritage, and 15% refer to heritage sites—including, but not specifying, museums, monuments, archaeological, historical, and natural sites. Only in 15% of the cases, studies focus on built heritage.

In the context of built heritage, some authors, i.e., Lwoga [184] and Zhang et al. [173], use the TPB to analyse the residents' behavioural intentions in heritage buildings. Lwoga [183] elicits the tourism employment status as a moderator of conservation intentions, by imposing more perceived social pressure over respondents. It shows that raising awareness for heritage conservation has the potential to elevate positive attitudes and, at the same time, trigger social pressure to conserve, acting on two socio-psychological factors affecting residents' engagement. Zhang et al. [173] identified common themes of conflict for residents, related to the protection of the traditional building (comfort and quality of life, allocation of maintenance duties, or protection regulations, for instance) and the sharing of tourism benefits (profit distribution or property rights, etc.) Like the study of Lwoga [184], it shows that favourable attitudes are the most important variable to determine residents' intention to engage in conflict resolution within cultural heritage management.

3.3.3. Decision-Makers

The analysed studies focusing on tourists' behaviour represent 60% of the sample, followed by residents' behaviour (22%). No studies were found analysing the behaviours of practitioners involved in heritage conservation processes. Only the study of Ferretti and Grosso [198] targets directly the behaviour of decision-makers in the conservation of built heritage. It uses a stakeholder analysis methodology to develop a tool for decision-making that considers the weight of each stakeholder, developing a power–interest matrix and eliciting values and possible trade-offs. This research is not focused on analysing behavioural intentions or the dissonance between intentions and implementation and does not use the theoretical framework under analysis in the present research.

3.3.4. Research Methods

On average, the studies have a sample of 584 respondents, which allows for statistically significant analysis using structural equation modelling, with a recommended minimum of 200

respondents [82,112]. The studies of Wang et al. [83] and Mustafa [199], however, use the structural equation modelling despite not meeting this criterion, considering the provided samples as representative of the studied population. Multiple regression [75,150,174,196], *t*-tests [87,141], and one-way variance analysis—ANOVA [84,85] are also used to establish relations between the questionnaire variables and to confirm the hypothesis.

All the questionnaires use Likert scales to assess the level of agreement/disagreement of respondents with given statements. Some studies include a preparatory step with interviews [85,86,173,174] or preliminary surveys [75,196] to elicit modal accessible beliefs (conscious beliefs common to the majority of the population). All the studies that target behavioural change suggest two-step methodologies, with pre-/post-experimental design, surveying or interviewing the population before and after applying the intervention [84–87].

3.3.5. Psychological Constructs

The most common aim in the literature is to elicit other constructs that affect respondents' intentions and behaviours, from perceptions to motivations. Intention is the most common psychological construct included in the analysis. This construct targets mainly 3 groups of behaviours: (1) pro-environmental or environmentally responsible behaviours (e.g., [78,85,115,135,178,197]); (2) pro-heritage or heritage protection behaviours (e.g., [74,141,184,199]); (3) travel behaviours, including loyalty and intention to revisit (e.g., [77,79,127,133,142]). The third group, on travel behaviours, represents around 50% of the analysed publications.

On average, each questionnaire relates four psychological constructs. Respondents' perceptions are a recurrent factor, approached in 36% of the studies, in the context of perceived authenticity and outstanding value of heritage [74,75,133], perceived tourism impacts, and perceived benefits of visitation [82,87], for instance. Motivations (the reasons that pull people to perform certain behaviours, such as lifestyle, economic, social integration, etc. [75,80,83,133]), satisfaction (e.g.: [76,109,115,142,150]), and place attachment (e.g., [74,76,82,115,135] are also common constructs in the literature.

3.3.6. Interventions for Behavioural Change

The study conducted by Salvatierra and Walters [84] designed an intervention to assess the impact of media on travellers' image perception and intentions about a destination. Results show that the public is increasingly aware of environmental sustainability practices, and of those that can affect image perception and intention to visit. This study also outlines previous knowledge and educational background of moderators of this relationship. Furthermore, Weiler et al. [87] used a pre-post experimental design methodology to analyse the effect of communication interventions to shift public perceptions. The results show an increased perception of the benefits of natural parks after exposed to persuasive communication in the short-term. The research of Wells et al. [85] applies a pre-/post-experimental intervention to measure changes in the perceived satisfaction of employees when introduced to a "sustainability toolkit" that allows them to determine their sustainability plan and priorities. The findings support that being exposed to information provided knowledge to employees and increased their awareness on environmental issues. The proxy measure of actual behaviour showed a reduction in energy consumption during the period of the intervention. The evaluation of the experiment [86] elaborates that realistic interventions are partial and context-tailored but confirms that educational mechanisms may tackle knowledge and belief gaps. It states, however, that the effects of social interventions tend to decline as time passes, and suggests monitoring, empowerment, and support as tools to guarantee long-lasting effects.

3.3.7. Practical Implications

At a theoretical level, the analysed publications contribute to establishing internal attitudes and motivations as a key factor for sustainable conservation behaviours [80,82,83,133,173]. Despite not focusing on instigating practitioners' behavioural intentions and behavioural change for the sustainable

conservation of the built heritage, the publications analysed provided several theoretical managerial contributions to the heritage field.

The research of Bergel and Brock [77] concluded that engagement contributes to more positive attitudes for tourists, and that the willingness to pay for more sustainable services is affected by affective components, resulting from feelings and emotional ties to destinations. Furthermore, Zhang and Wang [80] point out the emotional connection with the destination as one of the main factors determining tourists' intentions to revisit. Both studies suggest that marketing strategies need to build affective connections to engage visitors and attract customers.

Place attachment, i.e., the affective relationships between individuals and specific places, also plays a role in residents' intentions and behaviours. Yuan et al. [82] demonstrate that both cognitive and affective attitudes are determinant for residents' support of tourism development. This proves the need for authorities "to enhance the relationship between residents and the city" [82], supporting the sense of identity through long-term continuity of residents, and respecting communities' emotional bonds with tangible and intangible attributes.

The research of Goldberg et al. [178] shows that the sense of identity is also important for increasing the perceived individual responsibility, affecting the decision to take actions to protect the environment. As such, facilitating people's connections to nature may have practical implications on conservation outcomes. The research of Nian et al. [74] found a positive intention to protect heritage when visitors recognise and emotionally connect to the attributes identified as outstanding universal value (OUV) in the World Heritage Site (WHS) listing, evidencing the need for participatory processes that recognise community values in the WHS evaluations. Ramkissoon and Uysal [75] proved that authenticity may have different meanings and connotations according to site and experience and that it mediates tourists' choices.

Several authors point out the benefits of behavioural approaches to increase cooperation between stakeholders and to inform policies and strategies for sustainability [80,135,184]. According to Forleo et al. [197], the contribution of these approaches to identify the most valuable attributes for communities, can support managers to find synergies and reduce trade-offs. Furthermore, Zhang et al. [173] point out that knowledge of the particular behaviours associated with different groups of stakeholders contributes to better understand their roles in decision-making processes. This knowledge is fundamental to assist managers to plan more effectively for the maximization of the conservation response [112,178], since understanding the audience ensures that the information is conveyed and meets the desired goals [178].

The literature also suggests the meaningful role of education, and the potential of persuasive communication to raise levels of knowledge and awareness, inspiring positive attitudes and behavioural change [84–87,184,197]. The research of Gregory-Smith et al. [86] shows that educational mechanisms can tackle knowledge and belief gaps in organizational environments. Likewise, Forleo et al. [197] suggest that education can be determinant to increase awareness, attitudes, and preservation behaviours in natural areas. In the context of archaeological heritage, Mustafa [141] recommends education, and in particular behavioural education, to enhance responsible behaviours. Further, Lwoga [184] suggests that communicating conservation benefits and empowering communities with knowledge and skills, has the potential to elevate positive attitudes and thus increase conservation behaviours.

4. Discussion

The literature review corroborates claims for the existence of a performance gap between planning and implementation [177,205,213]. According to Shi et al. [213], because a building is a complex system, it is not possible to ensure performance in every aspect exactly as intended at the design stage. At the territorial planning level, Miralles i Garcia [205] points out profitability and land policies as some of the factors in the failure of the implementation of any plan. Further, other studies [214–216] have pointed out different challenges in built heritage conservation, such as insufficient knowledge and skills, that are consistent with low perceived behavioural control. The awareness of this gap between

intended and actual performance contributed, in the building and construction field, to the continuous development of modelling and simulation techniques to improve the accuracy of predictions. In this context, the concept of behaviour is used to focus on one particular actor: the building. In almost one-third of the results, behaviour is used as a synonym of performance and used to refer to buildings' structural characteristics or hygrothermal and thermal performance. Despite the variety of stakeholders involved in the complex processes of building conservation, no significant number of studies were found analysing their behaviours leading to the implementation (or not) of planned intentions. Occupants' behaviour is an exception in the building and construction sector and it is often referred to by its impact on the energy performance of buildings [217–222]. However, the literature review points occupant behaviour as a factor—one of several things that influence the results, but not as the core of the detailed analysis.

It is in the tourism and hospitality field that most results relating socio-psychological constructs of behaviour and heritage sustainability can be found, predominantly in the perspective of residents and tourists. While no studies were found concerning practitioners and designers engaged in conservation processes, the research with residents and tourists evidences the potential of behavioural sciences to contribute to a better understanding of factors affecting intentions towards heritage conservation. In 1974, Ajzen theorised that knowledge about attitudes improves the prediction of behaviours, but intervening factors may attenuate this relation [25]. This is confirmed by the studies analysed in the literature review that evidence attitudes as a fundamental factor in the formation of intention [80,82,83,133,173], but also the role of norms and perceived control in this relation [184,199]. Most of the analysed publications aim at identifying and assessing factors affecting behaviours, such as place attachment, authenticity, perceptions, or motivations. The behaviours analysed are related to destination choice but also with pro-environmental and pro-heritage behaviours. The affective components of attitude—resulting from feelings and emotions, as opposed to cognitive attitudes based on knowledge and information—seem to play an important role in behaviours related to heritage conservation [76,77,80,112,178].

No studies were found addressing the cognitive dissonance between intentions and behaviours. This may explain the small percentage of studies using the TRA and the TPB as theoretical frameworks, the most common frameworks to tackle this issue in other fields [24,25,27,30]. In common with the previously identified literature addressing the inconsistency between intention and behaviour (Section 1.1), the publications presenting interventions for behavioural change used two-wave methodologies, with pre-/post-experimental designs. This approach allows for accurate measurement of two phenomena: inconsistency of intentions and behaviours [33,222]; and rate of implementation after the intervention [39,84,85,87]. While Sheeran and Webb [27] recommend implementation intentions as one of the main tools to increase intention realization, no studies were found in the heritage field about this topic. On the other hand, the role of training and education is found repeatedly in the literature on the heritage field: Gregory-Smith et al. [86] suggest that educational mechanisms may tackle knowledge and belief gaps; Weiler et al. [87] demonstrate that being exposed to information, through persuasive communication, increases the perception of the benefits of natural parks; Salvatierra and Walters [84] found knowledge and educational background as moderators of intention and image perception; Lwoga [184] suggests that empowering residents with knowledge about conservation benefits may increase positive attitudes and social pressure. This knowledge is essential for planners and decision-makers to find effective managerial solutions for sustainable conservation.

Future Research

In this review, evidence suggests the need for a new approach in the study of practitioners' behaviours towards a sustainable conservation of the built heritage. Sustainable heritage is a multidimensional and subjective concept that varies across contexts. However, by looking at it from a behavioural perspective, it is evident that it has been approached more often in the scope of

residents' and tourists' environmental behaviours. A gap was found in the study of the interrelation between intention and behaviour of practitioners involved in conservation processes.

From the results of this review, a future line of research has been developed, proposing to identify which psychological constructs (attitude, norm, perception of control) is more determinant to convert designers' intentions into actual conservation practices. By understanding these factors, it should be possible to shed light on the reasons why sustainable conservation approaches are not more widely implemented in built heritage.

Drawing from Ajzen's TPB [22,23], this approach has the goal of going beyond good intentions and proposes a behavioural intervention to tackle the issues found and contribute for the implementation of sustainable conservation behaviours. The diagram in Figure 3 shows the sequential steps of the purposed pre-/post-experimental methodology [26]: (1) identification of modal accessible beliefs; (2) measure of the existing intention–behaviour inconsistency; (3) design of the intervention according to the most influent psychological constructs; (4) measurement of the intention–behaviour inconsistency after the intervention.

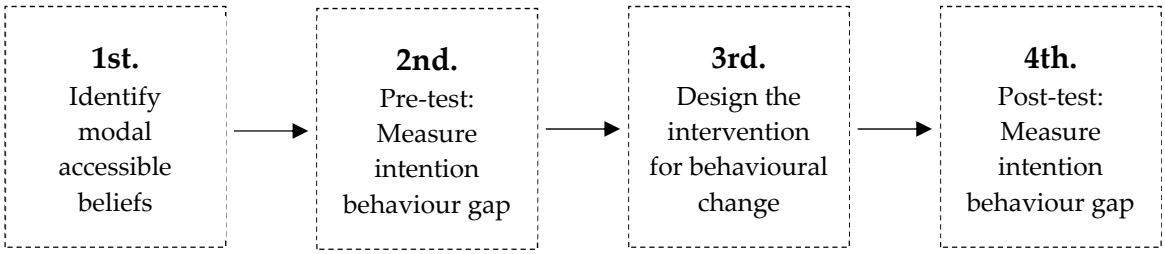

Figure 3. Methodological steps to test an intervention to reduce the intention–behaviour gap.

The contribution of such an approach is to facilitate the identification of factors affecting the implementation of good practices for sustainable conservation, so that future research on policies and design tools can be directed towards the fundamental cognitions that hinder implementation. Decision-making includes conscious and unconscious processes. The effective change towards a more sustainable conservation of the built heritage depends on the unveiling of the underlying psychological processes.

One of the limitations of this research is that only one bibliographic database was used, which may have suppressed some relevant results. Further research can expand this study with other bibliographical search engines.

5. Conclusions

The literature review proved that a behavioural perspective on sustainable heritage is a very recent topic, even if the theoretical framework has been applied in other fields for decades. The results show that, in the construction sector, behaviour is mostly understood as performance, focusing on the building itself; occupants' behaviour is mentioned as a factor that affects performance, but no significant studies were found about a deeper analysis of the socio-psychological factors affecting occupant behaviour in heritage buildings. This socio-psychological perspective has been mostly introduced in the heritage field by the domain of tourism and hospitality management.

The main goal of this research was to understand the contributions of the TPB to increase the implementation of good practices on sustainable conservation. No studies were found using the TPB or the TRA in the scope of practitioners' behavioural change in the built heritage field. The existing literature does not allow to identify the main factors undermining the implementation of sustainable conservation practices in the built heritage. However, the research addressing other stakeholders involved in heritage management processes—such as tourists and residents—proves the potential of the theoretical framework for a better understanding of behaviours of the different stakeholders and to find managerial solutions for sustainable transitions This literature review demonstrates the novelty of

utilizing behavioral approaches in sustainable heritage conservation. Furthermore, this review also allows for a clearer understanding of the more common trends adopted by pioneering researchers in the field, encouraging its development. Using the TPB as a theoretical framework to analyse practitioners' intentions and behaviours is a unique and innovative line of research that may clarify the reasons of the lack of implementation of sustainable practices and open the path for effective behavioural change.

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