

Perceived contributory leisure in the context of hobby beekeeping: A multi-country comparison

Abstract

This comparative study investigates the motivation and perceived contributions underpinning hobby beekeepers, as well as how they perceive appreciation and/or awareness of their contribution among the broader society. An online questionnaire gathered data from 800 hobby beekeepers in Australia, New Zealand, and the United Kingdom. Beekeeping is predominantly practiced as a hobby (62.3%), which is distantly followed by helping to protect the environment and an interest in beekeeping in terms of motivations for participation. In addition, pollination, supporting the food chain, and preserving nature were revealed as key contributions of hobby beekeeping. Over half of participants perceived limited concern, awareness, and appreciation among external stakeholders (e.g., the public, society). Various intergroup differences concerning the main dimensions explored were confirmed. The overall findings allowed the development of a model which highlights the significance of ‘perceived contributory leisure’, whereby participants’ leisure activities can have wider societal implications.

Keywords: Hobby beekeepers, motivations, contributions, cross-country study

Introduction

The importance of bees in pollinating crops has been acknowledged in contemporary research (e.g., Hung et al., 2018). Beekeeping plays a positive role, for instance, in producing pollinators (Kohsaka, Park, & Uchiyama, 2017), as a source of food, income, as well as contributing to healthy ecosystems (Chanthayod, Zhang, & Chen, 2017; Maderson & Wynne-Jones, 2016). Hobby beekeeping can result in numerous positive impacts, from harvesting fresh honey to bringing together individuals with similar interests, including those keeping bees as part of their interests in urban agriculture (Moore & Kosut, 2013).

Various authors point at the great losses and global decline in bees, from Theisen-Jones and Bienefeld’s (2016) discussion concerning this issue among particular species, to Gratzer et al.’s (2019) research indicating the loss of ecosystems in Indonesia and the local fear of living near hives. Indeed, Atkins and Atkins (2017), suggest that the decline in bees has been a longstanding concern internationally that needs to be addressed. Also concerning is the contaminating effect that pesticides utilised in agricultural practices can have on bees (Bargańska, Ślebioda, & Namieśnik, 2014), and associated productivity (Sanchez-Bayo & Goka, 2016).

In addition, there has been a growing focus on beekeeping, not only as a hobby, but also as an approach to educating populations on the value of conservation (Gratzer et al., 2019). This phenomenon reflects trends in South Korea and Japan, where hobby and urban beekeeping is linked to environmental education and regional identity in honey collection (Kohsaka et al., 2017). Media attention has also added to the growing interest of new hobbyists, whose focus is upon the welfare of bees, and marks a change from honey extraction driven ideals historically (Maderson & Wynne-Jones, 2016).

Within apiculture, hobby beekeeping is associated with the ‘utilitarian’ aspect of leisure and mirrors similar happiness, wellbeing and joy gained from activities such as carpentry, gardening, collecting (Barrett, 1989a), or walking and cycling (Fuller & Pabayo, 2014). While these activities are different from beekeeping and have diverse outputs, similar intrinsic pleasure or joy is derived from undertaking or participating in this hobby.

Despite the importance of hobby beekeepers in a variety of ways, this utilitarian form of leisure continues to be under researched. Indeed, earlier research (Cramp, 2008) recognises

that while the scope of hobby beekeeping is large, relatively little is known about it. Not only are bees highly complex insects but the process of beekeeping requires extensive consideration of different variables, with rewards gained in honey production, sales and more importantly the joy received in the leisure activity (Cramp, 2008). The study would provide further insights into this perspective, in this case, providing an international perspective with the participation of hobby beekeepers from three different nations.

In addition, studies focusing on hobby beekeeping from different regions or nations remain limited. Comparative research exploring beekeepers engaged in their activity in different geographic environments could produce outcomes with practical value, as recreational and leisure beekeeping continues to rise, especially in urban areas (Lorenz & Stark, 2015). One illustration is the theoretical advancement of understanding motivations across geographic boundaries, or the extent to which their activity contributes towards society. Along these lines, the present study proposes various overarching research themes and directions, including:

Hobby beekeepers' motivations to become engaged in beekeeping,
Their perceived contributions, that is, ways in which they perceive their activity produces wider benefits, for instance, for the environment in supporting pollinating and food production,
The awareness and/or appreciation of the role beekeepers play concerning their involvement in environmentally sound practices as perceived by other members of society.

Learning about these dimensions could be useful to individual hobby and commercial beekeepers, or to beekeeping clubs, associations or groups. Research on the advantages of human-companion animal interaction suggests physiological benefits and improvements in overall wellbeing and health (e.g., Barker et al., 2008). In the domain of insects, Lemelin (2013) recognises a historical pursuit of collecting specimens as part of leisure and recreation, while at the same time there has been growing acceptance and fascination as part of the enjoyment and respect for nature. Importantly, Lemelin (2013) also suggests, "leisure provides crucial opportunities to educate and engage all sectors of society regarding the importance of insects" (p. 164).

Similarly, there is a lack of theoretical underpinnings to help stimulate reflection, to explain, or to enhance the understanding of the prior mentioned themes, including those associated with the study's research questions. By choosing a general inductive approach (Thomas, 2006), the study contributes to improving the understanding of a framework based upon the study's findings concerning the above themes is developed. Overall, this understanding could have implications for leisure, for instance, in harnessing interest among existing and would-be hobby beekeepers of what are the key motivations, or potential contributions arising from their practices.

One additional objective of the study is to provide insights across different geographies. Thus, the study focuses on three different nations: the United Kingdom (UK), New Zealand and Australia. While in these nations numbers of hobby beekeepers vary greatly, as a leisure pursuit, beekeeping has and continues to draw thousands of enthusiasts. The British Beekeepers Association (BBKA, 2020) estimates some 25,000 hobby beekeepers in the UK. In New Zealand, beekeepers included in the 'hobby' category are those who own up to 50 hives (Lloyd et al, 2017; Ministry of Primary Industries, 2019). Figures from 2018 (Ministry of Primary Industries, 2019) indicate that New Zealand has 8,552 beekeeping enterprises; of these, 7,279 (85.1%) have up to 50 hives each. In Australia, there are 24,495 beekeepers, and at least 16,597 of these own less than 50 hives (Australian Honey Bee Industry, AHBIC,

2018). Earlier analysis presented by Gibbs and Muirhead (1998) indicates that commercial beekeepers in Australia are those who own 200 or more beehives. Accordingly, at least 67.8% are hobby beekeepers.

Literature Review

Key themes arising from the present study, including motivations for involvement in hobby beekeeping, its perceived contributions, and appreciation/awareness by others, lend themselves to the consideration of various theoretical foundations. For instance, an extensive body of literature has explored drivers and motives around leisure. Indeed, leisure motivation is conceptualised “as the psychological and social reasons to engage in leisure” (Ragheb & Tate, 1993, p. 62). Within the leisure studies field, the dimension of serious leisure is strongly associated with hobby pursuits such as hobby beekeeping. Stebbins (1992) referred to serious leisure as the systematic quest of a hobbyist, volunteer, or amateur activity that is interesting and substantial for participants “to find a career there in the acquisition and expression of its special skills and knowledge” (p. 3). Earlier, Stebbins (1982) posited that by exploring the world of leisure, individuals could “identify themselves as unique human beings” (p. 257), as well as articulate their abilities, and realise their potential. Thus, serious leisure provides a vehicle for individuals who have such goals (Stebbins, 1982).

Seminal work of self-efficacy theory (Bandura & Adams, 1977) provides a conceptual entry point for understanding leisure activity uptake, and with it, for an appreciation of serious leisure, through which many individuals express themselves (Stebbins, 1992). Self-efficacy is essentially one’s belief in his/her ability to perform “successfully a certain course of behavior” (Busch, 1995, p. 147). Moreover, perceived self-efficacy affects individuals’ choice of behavioural settings and activities, alongside the level of effort they commit and their persistence in light of aversive experiences and obstacles (Bandura & Adams, 1977).

Expectancy-value theory provides a parallel argument, and can further enable an analysis and understanding of the motivations shaping leisure activity participation and engagement. Reflecting on earlier contributions (e.g., Atkinson, 1957; Wigfield, 1994), Wigfield and Eccles (2000) assert that individuals’ performance, persistence or choice “can be explained by their beliefs about how well they will do on the activity and the extent to which they value the activity” (p. 68). Associated with the previous framework, expectancy theory (Vroom, 1964) is concerned with the significance of motivation, namely, “from the perspective of why people choose a particular action or behavior” (McMenemy & Lee, 2007, p. 789). As with self-efficacy theory, the notions of expectancy-value theory, which emphasises performance and perceived value of undertaking an activity and expectancy theory, regarding the relevance of motivation for a course of action or behaviour are strongly related to serious leisure.

These theoretical underpinnings have linkages with hobby beekeeping, and suggest an alignment that could be useful to understand the rationale, as well as drivers stimulating their chosen leisure pursuit. Fundamentally, a certain level of effort, time and notable financial investments in purchasing bees and beehives is required. Further, the material, and arguably emotional investment, effort, and engagement illustrates persistence and belief in achieving these goals. At the same time, the intrinsic motivation for beekeepers to engage at such high levels warrants further investigation. Against this background, the following proposition will be examined:

Proposition 1: Participants’ motivation for engaging in hobby beekeeping is strongly linked to how their chosen leisure activity can achieve various intrinsic ends, including personal fulfilment in undertaking the hobby activity.

Further complementing this proposition, Paterson (2006) examines the typical motivations driving hobby beekeepers, including an interest in nature, as a hobby, garden pollination, honey harvesting for family and friends, as well as hive product development (e.g., beeswax, mead). Given the evidence supporting beekeeping-derived benefits, including in helping pollinate crops (e.g., Hung et al., 2018; Lorenz, 2016), it is plausible to assert that hobby beekeepers could equally play a positive and supportive role in pollinating and in other environmentally sound activities. Arguably, such role is being played despite critical mass challenges that hobby beekeepers face (e.g., limited number of hives). Bees play a valuable as pollinators in agricultural production, where they have significant influence on the quality, biodiversity and yields across the world (Atkins & Atkins, 2017). Highlighted is also the substantial economic impact and detriment should there be a loss of pollination through bees, and the inherent impossibility for current agriculture activities to make up this shortfall (Atkins & Atkins, 2017).

Knowledge arising through contemporary leisure research further underscores the importance and influence of perceived value and contribution dimensions. Interviewing community members involved in allotment gardening, Jensen and Sørensen (2020) drew attention to the importance participants felt in relation to duty and stewardship. Moreover, participants perceived how their recreational involvement was strongly aligned with their own ecological values as well as with environmental concerns, including considering sustainability and biodiversity when developing their plots (Jensen & Sørensen, 2020). In addition, Moore and Kosut (2013) discussed the value of ‘stewardship’ where there exists an ethical need, protectionist focus and a symbiotic relationship between beekeepers and their bees.

Against this theoretical and practice backdrop, the following proposition is considered:

Proposition 2: Participants’ motivation for engaging in hobby beekeeping is strongly linked to the perceived external value that their leisure activity creates, including its wider contributions to the environment and the surrounding community.

The study also investigates hobby beekeepers’ perceptions of how their leisure activity and its contributions are considered externally, notably, through societal awareness and appreciation. Social exchange theory (e.g., Cook et al., 2013) provides a useful framework to explore the relationship between beekeepers and society. Blau (1964, p. 91) refers to social exchange as the voluntary actions of some motivated by expected returns to be brought by others. Thus, these actions represent interactions between individuals, which are based upon non-material and material goods exchanges (Homans, 1958). The theory provides a useful lens to examine beekeeping in the context of leisure studies and delves into the social exchanges that are eminent in hobby beekeeping. According to Emerson (1976), the scope of social exchange theory is underpinned by a fundamental assumption: “a resource will continue to flow only if there is a valued return contingent upon it” (p. 359).

However, while social exchanges can result in high-quality relationships (Cropanzano & Mitchell, 2005), their overall outcomes may not always represent equal benefits for both parties. Indeed, a variety of relationships underpin social exchange processes, whereby some individuals give more than what they take, while others take more than what they give (Rook, 1987), thus, acting as ‘free riders’. This imbalance highlights the existence of opposing- even contradictory- views and perceptions concerning reciprocal societal relations. In this context, another theoretical underpinning, civil leisure, presents a useful lens through which to

understand these relationships. Civil leisure is leisure that “attempts to generate open and public discussion about issues that are important to society” (Mair, 2002, p. 215). Furthermore, civil leisure can help make sense of societal behaviour, including societal conflict (Dunlap, Harmon, & Camp, 2019). One aspect of conflict pertains to the contrasting views between consumers, food producers, and production methods, particularly regarding sustainable food production practices. An investigation of conventional and ecological farmers (Schoon & Te Groenhuis, 2000) illustrates a perceived detachment between the first group and society, with farmers citing lack of societal appreciation for their practices, some of which are increasingly rejected, especially with the advent of ecological agriculture. More recently, in the field of animal farming, Boogaard et al. (2011) discuss the conflicting relationship between society and farmers, with mounting societal criticism of modern animal farming practices while at the same time demanding low food prices and increased food safety.

The above theoretical dimensions provide useful insights to explore the study’s third research aim, which is to explore the extent to which hobby beekeepers find external appreciation and awareness towards their leisure activity (e.g., helping pollinate fields/orchards). This third aim is reflected in the following proposition:

Proposition 3: Hobby beekeepers’ perceptions concerning society’s awareness or appreciation of the contributions resulting from their leisure activity are conflicting, therefore affecting their motivation to engage in such undertaking.

Methodology

The main purpose of this research is to examine the various motivations and contributions made by hobby beekeepers in three different countries. Furthermore, the study investigates the perceived drivers of their activities and the subsequent outputs gained through their actions.

The study utilises an inductive research paradigm. Thomas (2006) indicates that the inductive ideology enables deeper understanding of content and the rich nuanced information that is inherent in the data. Thomas (2006) further suggests that through an inductive approach the development of “a framework of the underlying structure of experiences or processes that are evident in the raw data” (p. 237) can be facilitated.

In line with Patton (2015), a purposive sampling methodology was applied in this study, drawing data from information rich respondents and ensuring individuals with extensive knowledge of the issues being examined were surveyed. Purposive sampling is often aligned with qualitative research and allows the selection of respondents whose knowledge and experiences facilitates understanding of the study’s focus (Teddlie and Yu, 2007). Based upon the central themes of the study, the participation of information rich cases illustrated through hobby beekeepers currently involved in this activity was sought. Given that one of the foci of the study was to make comparisons as well as identify commonalities across geographic boundaries, hobbyist beekeepers from Australia, New Zealand and the United Kingdom were selected for this research. A common feature across these three nations is that they all actively cultivate strong hobby beekeeping activities (AHBIC, 2018; BBKA, 2020; Lloyd et al, 2017; Ministry of Primary Industries, 2019).

Thus, the selection of these three countries provides a wider insight into hobby beekeeping; their comparison further allows a more holistic understanding between northern and southern hemisphere activities, including their motivations for hobby beekeeping and the potential contributions to society.

When eliciting the participation of hobby beekeepers, the following criteria were applied:

- Be hobby beekeepers only,
- Be based in either Australia, New Zealand or the United Kingdom.
- Owned their own beehives.

A qualitative online questionnaire was utilised to collect data from the selected countries. The questionnaire included a number of closed-ended demographic questions on the age of respondents, the size of their beekeeping activities, and the length of time that they had been hobbyists. This section was followed by open-ended questions covering the following areas:

Why did you take up hobby beekeeping? What were the fundamental reasons?
To what extent does your beekeeping activity contribute to its surrounding community?
Based on your experience/knowledge, to what extent do other stakeholders (e.g., consumer groups, government, or society) understand/appreciate the impact of your beekeeping activities?

In developing the above questions, several studies discussing hobby beekeepers, motivations for engaging in leisure pursuits, perceived value of a leisure activity, and civil leisure were considered (e.g., Cramp, 2008; Lorenz & Stark, 2015; Mair, 2002; Moore & Kosut, 2013; Paterson, 2006).

An initial search on beekeeping associations and forums provided access to hobbyist beekeepers, who were then contacted between July and September of 2017. Potential respondents were sent an electronic message detailing the purpose of the study and the envisioned benefits to be gained from its outputs. Included in this email was a formal invitation to the questionnaire and an informed consent form to be completed before respondents could commence the survey.

Initially, 806 responses were received. On subsequent examination, six questionnaires were either incomplete or did not fulfil the purposive sampling criteria. Data cleansing was undertaken on Microsoft Excel with any missing variables or inaccuracies in the data reviewed. Thus, 800 useable questionnaires were returned, 567 from the UK, 155 from Australia and 78 from New Zealand. While the number of responses and resulting volume of raw data provided numerous insightful comments and allowed for comparisons across geographic contexts, given their lack of overall representativeness, for instance, in the respective nations or on a global scale, the results must be treated cautiously concerning broad generalisations.

The dataset was then imported into the Statistical Package for the Social Sciences (SPSS) version 23 where Pearson's Chi Square tests were undertaken. In agreement with Hsieh and Shannon (2005), qualitative content analysis was utilised to analyse open-ended responses. The approach allows for the identification of emergent and recurrent issues within the data, coding these into 'themes' (Hsieh & Shannon, 2005). Computer Assisted Qualitative Data Analysis Software (CAQDAS) NVivo version 12 was utilised in the coding of qualitative data, enabling the identification of recurrent themes and the visualisation of commonalities. Selected comments will be labelled using country abbreviations and numbers (e.g., UK1, AU1, NZ1).

Demographic characteristics

As indicated (Table 1), the large majority (85%) of participants own less than 10 beehives, and over half (53.6%) have taken up hobby beekeeping in the last five years. Differences

between the three nations are pronounced. For instance, 67.9 percent of New Zealand and 73.2 percent of Australian participants have been hobby beekeepers for five years or less, compared with 48.9 percent of UK participants. Nearly two-thirds (65.3%) of all hobby beekeepers in this study are over 55 years old and males (67.1%). A clear difference was noticed regarding the age groups; for instance, 69.1 and 61.3 percent of UK and Australian participants belong to the 55-year old and above group against only 44.8% of New Zealand hobby beekeepers.

Table 1 Here

Results and Discussion

This research achieved various purposes of a general inductive approach (Thomas, 2006). First, raw textual data from hundreds of participants' comments were condensed, and clear links between research objectives and findings were established. Second, based upon processes and experiences that became evident in the data (Thomas, 2006), a framework is developed (Figure 1). As shown, several links between various theoretical underpinnings and concepts highlighting civil and ethical principles were identified in the findings. The framework illustrates part of the findings (Tables 2, 3), where an overlap between participants' motivations and contributions emerged. Overall, this overlap points at a clear and strong desire to make positive environmental impacts through hobby beekeeping, and as a result benefit society as a whole. In contrast, the dotted line linking hobby beekeeping and perceptions of societal appreciation and awareness of their environmental efforts illustrates ambiguity and lack of agreement in participants' responses. These perceptions also suggest a rather contradictory relationship between beekeepers' perceived beneficial actions, and society; hence, the strength of social exchange theory is not fully manifested in this research dimension.

Figure 1 Here

Main motivations for becoming hobby beekeepers (internal/intrinsic value)

When asked about their main motivations for involvement in beekeeping, unsurprisingly 62.3 percent associated their activity with the word 'hobby.' Responses indicated that becoming hobby beekeepers manifested itself in a variety of ways. The influence of other family members, the opportunity to join a significant other, curiosity and interest, of an activity for idle times, at times with an obvious intention to make a positive contribution to the environment, were prevalent initial ways in which hobby beekeeping had been initiated:

AU3: *Curiosity got me started. Enjoyment of beekeeping has kept me going.*

NZA: *Hobby for retirement.*

NZ37: *Hobby, so that I can have an endless supply of honey.*

UK18: *A hobby- picked up from my brother. Also had the time to spend nurturing bees.*

UK22: *Hobby I can do with my husband, contributing to biodiversity.*

These and numerous other comments illustrate that the hobby and leisure dimensions appear to be interpreted similarly among participants. Indeed, among a myriad of definitions, leisure has been conceptualised as “either a piece of spare time between serious and important or necessary pursuits, or the kind of activities engaged in during this period” (Barrett, 1989b, p. 1).

Differences were noticed, in particular, between New Zealand (52.6%) and their UK and Australian counterparts (64.2% and 60%, respectively), though these were not statistically significant. In turn, statistically significant differences were revealed in three separate instances (Table 2). Indeed, a clearly higher percentage of UK participants indicated ‘interest in beekeeping’ much more strongly than that the other two groups did. In contrast, New Zealand hobby beekeepers seemed to agree more with their activity being associated with lifestyle, and considered their hobby as a means to attain financial gains (Table 2).

Table 2 Here

Analysis of open-ended responses illustrate the variety of motives underpinning involvement in hobby beekeeping. The findings also revealed the importance of personal fulfilment in a variety of ways. As the following comments highlight, intrinsic rewards ranged from purely undertaking a recreational pursuit to a strong sense of making a substantial contribution to their community and society:

UK6: I get a lot of social contact via my hobby, usually with younger people, which at age 78 I enjoy very much. In addition, I write notes for our local newsletter to help new beekeepers...

AU29: It has been my life-long wish to keep bees, and I now do it. It is for the pleasure of observing them and for the possible reward of honey.

NZ49: Wanting to help re-invigorate beekeeping in New Zealand. Wanting to promote beekeeping amongst women, especially younger women.

These and dozens of other comments are in line with motivational drivers and social exchange theory as discussed previously. For example, while in her senior years, the motivations of UK6 illustrate the determination for contributing, not only environmentally, but also in sharing her leisure activity with other, younger enthusiasts, as well as her knowledge. Similarly, the perceptions of AU29 and NZ49 demonstrate their commitment to engage in challenging endeavours, notably, helping address the apparent decline of bee colonies, or even serve as an inspiration for younger women (NZ49). Together, the comments demonstrate strong links with self-efficacy theory (Bandura and Adams, 1977). The usefulness of expectancy theory (Wigfield & Eccles, 2000; Vroom, 1964) to reflect upon and understand motivational aspects among respondents was also revealed. Indeed, participants’ motivations and beliefs emerge through their perceptions of their hobby and parallel activities (e.g., educating, inspiring others) as platforms for the broader social good. Overall, the analysis of this section supports Proposition 1, which demonstrates the intrinsic rewards gained through hobby beekeeping.

Hobby beekeepers’ perceived contributions (external/extrinsic value)

When participants were asked to reflect on their perceived contributions through their hobby activity, the significance of pollination, beekeeping as a food source, and overall preserving nature emerged. The UK group clearly perceived the contributions of their activity much more strongly than their Australian and New Zealand counterparts, whose perceptions instead were modest. Over half of the UK participants agreed that their activity led to increased pollination of orchards and fields, while the percentages among Australia and New Zealand participants was negligible. Unsurprisingly, a statistically significant difference emerged (Table 3).

Table 3 Here

The above findings accord with earlier research discussing the beneficial contributions of hobby beekeepers (e.g., Paterson, 2006), and of beekeeping in general (Hung et al., 2018; Lorenz, 2016). At the same time, the findings are in agreement with the duty and stewardship contributions revealed among allotment gardeners (Jensen & Sørensen, 2020), whereby participants possess strong values, which reverberates in their commitment to make their mark towards environmental and societal principles. Indeed, numerous poignant comments, including the following, again highlighted the various useful and beneficial ways in which hobby beekeepers considered their activity to make a positive impact on the environment and broadly on society:

UK27: *I have bees in people's gardens for pollination and on my allotment for the same. I have also done migratory beekeeping for forage fields. Improving food production, from the point that a lot of honey sold in shops is not entirely 'natural' having been pasteurised... I am helping support nature in terms of flowering plants...*

AU26: *...higher feeling of community, as I sell the honey to locals so I get to meet them and chat with them when otherwise we would all be anonymous to each other.*

NZ22: *...helps to pollinate fruit trees in surrounding suburb, supports pollination of native plant species. I advise, educate, and make schoolchildren interested [in beekeeping] through visits. I help farmers understand better tree selection for shelterbelts, thereby providing food for bees in their areas...*

The perceived value participants place on their hobby activity is again associated with the ideas underpinning expectancy-value theory (Wigfield & Eccles, 2000; Vroom, 1964). Indeed, helping improve environmental processes, as well as broader societal education/information underscores participants' perceived value of their chosen hobby, as well as a belief and confidence in their capability to contribute through their hobby. These perceived impacts also suggest links with the principles of duty and stewardship (Jensen & Sørensen, 2020). The evidence presented through the above findings also supports the validity of Proposition 2, which emphasises the significance of hobby beekeeping in the context of extrinsic rewards, notably, its perceived contribution to environment and community.

Perceived extent of awareness and appreciation

Participants' thoughts and perceptions concerning the third dimension revealed disagreement and conjecture concerning others' awareness, knowledge, or appreciation for impacts generated through their beekeeping activities (Table 4). First, over half of the participants (57.3%) perceived no awareness, appreciation, or knowledge, as well as limited concern of beekeeping's contribution. Second, only 19.6 percent considered sufficient appreciation, awareness, or knowledge, while over one-fourth (26.9%) considered an increasing awareness among others. UK participants felt more strongly regarding the lack of and/or limited awareness, appreciation, and knowledge within the wider society (Table 4). In turn, a higher percentage of New Zealand participants felt that among others awareness and appreciation predominantly exists at a governmental agency level. The visibly contrasting views shared by respondents are demonstrated through various comments. UK25, for instance, acknowledged: *"the public has a very basic knowledge that bees are important for the environment and that they are threatened, but they do not want them in their back yard or anywhere near it."*

Similarly, AU147 perceived poor understanding within the public, with the aggravating factor that the “*state government is continuing the policy of banning beekeeping in state and national parks in 2025...*” Further, AU167 was doubtful regarding society’s understanding or appreciation, and sought to demonstrate this perception, deploring that “*one neighbour hates the bees and threatens legal action to make us move them [beehives]*”

Thus, the findings identify a marked divide and apparent lack of reciprocation between the value hobby beekeepers place on their contribution, and how arising from their experiences and perceptions their community and broader society value this contribution. Moreover, that over a third of participants chose beekeeping as a hobby to enhance the environment and to pollinate (Table 2), and almost 80 percent referred to these and other positive outcomes (Table 3) illustrates an intention to contribute and ‘give’ to the community and society. More importantly, these motivations and perceived contributions are the result of personal investments (time, money, effort) by hobby beekeepers, with little to no significant financial or other returns. Further, existing altruistic reasons for engaging in hobby beekeeping not only drive by a sense of purpose to help bees and the environment, but also to develop greater awareness of its value. Thus, many participants’ sense of frustration and disappointment are not surprising, but instead a reaction to the perception that those efforts and lengths they go to in undertaking and continuing their hobby activity go rather unnoticed or undervalued. Figure 1 also illustrates the apparent contradictory relationship between participants’ perceived contributions and how they view the response and awareness of broader society. Based upon this finding, in this case the significance of social capital theory is found to be limited.

Overall, the findings demonstrate the usefulness of considering expectancy-value and self-efficacy theory, as well as the underpinnings of sense of duty and stewardship to understand motivations for taking up hobby beekeeping, and for utilising this hobby to make positive impacts on the environment and therefore society. In contrast, reciprocation, a salient element in social exchange theory did not emerge strongly. In fact, the findings suggest an imbalance, similarly to the one discussed by Rook (1987), where reciprocation is exemplified by how hobby beekeepers perceive the awareness and/or appreciation of the wider community and society towards beekeeping.

Moreover, the findings (Table 4) and associated comments relate more to arguments revealed in research discussing existing ambiguities between traditional farming practices and consumers’ perceptions (e.g., Boogaard et al., 2011; Schoon & Te Groenhuis, 2000). This research underscores the conflict between society’s demands regarding expectations and desires for steady high quality production, and at the opposite end scathing criticism and opposition against those farming practices.

The encompassing scale that bees have globally on environmental biodiversity and their influence on quality and yield of crops suggests that stronger focus should be placed on their welfare and in the awareness of this ‘serious leisure’ activity. As suggested in the above comments, to some extent this conflictive relationship is also present in the context of hobby beekeeping. Thus, the significance and value of Proposition 3 were substantiated.

In addition, the value of motivations for and derived contributions from hobby beekeeping highlight the significance of ‘perceived contributory leisure’ (Figure 1), whereby the hobby element is complemented by other, intrinsic forms of viewing or interpreting the world, beyond the mere act of engaging in leisure per se. This worldview, supported by extrinsic manifestations through tangible actions, has been partly addressed in leisure research. For instance, Torkildsen (2005) explains that while for some, leisure is a hedonistic pursuit for pleasure and relaxation outcomes, others seek to maximise their leisure time in personal development, study, hard training, or in dedicated service pursuits.

Thus, perceived contributory leisure in the context of hobby beekeeping is an assemblage of personal investments, contributions, and effects through wider benefits. Moreover, associated with Torkildsen's (2005) discussion, perceived contributory leisure extends from simply leisure into perceived duty, ethic, and wholesome experiences, in this case, influencing social good. In the end, adhering to these principles by undertaking a serious leisure related activity cannot only lead to intrinsic rewards, but also to the further pursue of hobby beekeeping regardless of the level of perceived societal awareness and understanding. Finally, Figure 1 illustrates that both motivations and contributions from hobby beekeeping can result in building a culture around utilitarian leisure activities, with positive impacts on communities or society.

Conclusion

Despite the significant numbers and activities of recreational/hobby beekeepers their experiences, motivations and practices remain under researched. The pivotal role bees play in food production and the environment, together with how beekeeping contributes to a sense of community underpins why a deeper understanding of 'serious leisure' requires further analysis and understanding. The present study has considered various theoretical underpinnings and utilised data gathered from 800 hobby beekeepers residing in three nations. Relationships between findings and theoretical underpinnings, as well as relationships within the findings led to developing a theoretical framework associated with of this leisure activity.

The significance of perceived contributory leisure was evident from how hobby beekeepers interpreted their chosen activity beyond being a mere hobby. Instead, there was active consideration of the environmental value and observable impacts that hobby beekeeping had for their community and society. This finding further reflects the historic affinity that humans have had with bees and their symbiotic importance in our future (Kosut and Moore, 2014). Moreover, perceived contributory leisure emerged through duty and stewardship (Jensen & Sørensen, 2020), illustrated by participants' perceived direct contributions towards the environment. In contrast, differing views emerged with regard to how participants perceived others' awareness and appreciation for their leisure activities (Table 4), thus, suggesting a disconnect between hobby beekeepers and what they considered to be symbolic reciprocating responses. In line with Vaismoradi et al. (2016), through a qualitative content analysis approach, the subtle nuances and complexities within the dataset have been considered through unifying themes within the developed framework.

Implications

Through the study's findings, several implications emerged. From a theoretical angle, the proposed model (Figure 1) provides a roadmap illustrating hobby beekeepers' perceived contributory leisure activities through their motivations and contributions, and a reflection of their associations with various theoretical underpinnings. First, the findings highlight the significance of two dimensions (motivations and contributions) that help identify both leisure (e.g., hobby) and key perceived contributions participants made. Second, and within the model, the validity of self-efficacy, expectancy-value theory, as well as civic leisure, stewardship and duty provide useful ways to identify linkages between these underpinnings and notions and the study's findings. Indeed, there is clear momentum in undertaking beekeeping as a 'civic leisure' activity, resisting the tendencies of commodification and consumerisation (Mair, 2002), while instead focusing on its other valuable contributions.

The model also suggests the weak links or existing ambiguity between hobby beekeeping and perceived appreciation and awareness by others. In doing so, the model invites reflection

and consideration of the apparent existing vacuum between those engaged in the utilitarian leisure activity, their perceived contributions, and the community/society. This observation signposts future avenues for regulation and diversification of opportunities (Lorenz and Stark, 2015). Amidst the decline in bees (Atkins & Atkins, 2017), it must not be forgotten that there remains competition for resources between wild bees and those that are kept by beekeepers (Hudewenz & Klein, 2013).

From a practitioner viewpoint, the strong environmental motivations and philosophies expressed by hobbyist beekeepers and the allied lack of awareness and appreciation perceived among others identifies practical implications. Moreover, there still remains limited understanding on the value of bees and insects, fuelling the general lack of knowledge of beekeeping activities (Martins et al., 2016), with more recent initiatives seeking to educate the general public on the existing important symbiotic relationship (Phillips, 2020).

Fundamentally, apart from contributions to the wider society, this group of environmentally motivated/minded people can also support governmental and industry sustainability/environment agendas, and assist with information dissemination relevant to the importance of bees, including as an important insect pollinator of a number of flowering crops. In line with Lemelin (2013), the study further sheds light on the value that leisure beekeeping has in human-animal interactions, and how deeper insights into insects and, in this case beekeeping, has fostered better understanding of the natural world. As with urban gardening allotments, and in light of reduced access to public lands to source nectar- and pollen-producing flora, hobbyist beekeepers can by virtue of their practices and motivations assist with this end. Moreover, through their hobby, and aligning with an understanding of motivations, this group of individuals could make further contributions to the environment and wider ecosystem.

Limitations and Future Research

While the study provides insights from hobby beekeepers undertaking their utilitarian leisure activity in three different nations, it is not free of limitations. For example, given budget, time, and language barriers, other valuable geographic environments where this activity is also practiced to a high degree were not examined. Future research could therefore consider major producers of honey that, as in the cases of China, Turkey, Argentina, or the United States, might be home to thousands of hobby beekeepers. This line of research could equally provide rich data that would allow for insightful comparisons and reflections, especially given these nations' cultural differences. In this context, the proposed model (Figure 1) could also be replicated in these or other geographic or cultural environments, which would help confirm/disconfirm its applicability, as well as identify or consider other dimensions to further the knowledge of hobby beekeeping. For instance, research could explore facilitators (Raymore, 2002) of hobby beekeeping participation alongside motivation, thus, providing insight into the traits, social networks and drivers of beekeeping, delving deeper into the psyche of hobbyists.

In addition, while the study elicited 800 responses through an online questionnaire, in order to generate a more nuanced understanding of the identified motivations, perceptions and practices of hobby beekeepers, future research could consider a qualitative approach. Moreover, in-depth interviews and/or focus groups would garner deeper insights and would be guided by the present study's identified themes and findings.

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