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# Virtual Fitness: investigating team commitment and post-pandemic virtual workout perceptions

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ABSTRACT

The COVID-19 pandemic has disrupted the fitness landscape leading to phenomenal growth in virtual workouts. This study investigates factors influencing virtual workout team commitment and post-pandemic workout intentions. A conceptual framework is developed that is grounded in the social identity theory. Online data collection is employed to gather responses from 406 team virtual workout participants. Results reveal that virtual workout team participation positively influences team identification, satisfaction, and compliance with team norms. Additionally, virtual workout team identification, satisfaction, and compliance to team norms were found to be antecedents of commitment to the virtual workout team. Commitment to virtual workout teams is revealed to be positively associated with post-pandemic virtual team workout intention and post-pandemic traditional team workout intention. However, the relationship with post-pandemic traditional team workout intentions was found to be stronger. Valuable theoretical and practical insights emerge, providing a better understanding of virtual workout team commitment and how marketers and practitioners can ensure post-pandemic success by better understanding customer behaviour.

## 1. Introduction

The COVID-19 pandemic has had devastating death tools and profoundly impacted the day-to-day lives of individuals (Dong et al., 2020). As a result, strict restrictions on movements have been imposed by governments in the form of quarantine, travel bans, social distancing, and lockdowns (Nicole et al., 2020). Following the announcement by the World Health Organization declaring COVID-19 a global pandemic, there was more than a 300% increase in the purchase of home fitness products (Kim, 2022). Customers have converted their homes to personal gyms and workout places to maintain mental and physical health (Kim, 2022). The pandemic also led to a growth in the popularity of virtual workouts. Working out at home through virtual workouts provides customers convenience (Stragier et al., 2016). It offers a similar experience as traditional in-person workouts, as customers receive tips and guidance from a personal trainer while interacting and working alongside other individuals virtually (Sokolova and Perez, 2021). Through advancements in technology, the workout sessions have undergone major transformations (Huang et al., 2017).

Team commitment is essential for the success of the team. Prior studies have examined online team commitment (Huang et al., 2003). However, studies on virtual teams' have primarily focused on the business context (Liao et al., 2020). Virtual teams and telecommuting were examined by Workman et al. (2003) that found commitment in virtual teams was influenced by media and cognitive styles. Alshehri (2017) found that finance students' commitment to a blended mode course was affected by satisfaction. Additionally,

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the study by Alshehri (2017) found that commitment influenced students' behaviour towards the course. Alshehri (2017) study called for future investigations to be conducted with a larger sample size as its findings were based on a small sample of one hundred students. The recent study by Liao et al. (2020) examined team commitment in the context of online gaming and called for future studies to examine team commitment in diverse cultures and contexts, such as fitness. Additionally, with the outbreak of the unprecedented COVID-19 pandemic, individuals' perceptions and use of technology have been significantly altered, providing opportunities for research (Ball et al., 2021; Sharma et al., 2020b; Yuan et al., 2021). Based on the gaps in the literature highlighted above, together with the changes in behaviour and landscape because of the COVID-19 pandemic, this study aims to conduct one of the earliest examinations of individuals' team commitment in virtual workout sessions together with their post-pandemic behavioural intentions.

As such, the following research questions (**RQs**) are derived. **RQ1.** Does participation in virtual teams impact team identification, satisfaction, and compliance with virtual team norms? **RQ2.** What factors influence virtual workout team commitment? **RQ3.** What are customers' behavioural intentions relating to virtual workouts post-pandemic? To answer these questions. Data collection was conducted with 406 respondents in Fiji who were active participants in virtual workouts. This data was analyzed using Covariance-based structural equation modelling (CB-SEM).

This study results in the following contributions to the literature. First, the study contributes to the generalisation and extension of the social identity theory by applying it to the novel context of virtual workout sessions. Empirical results from this study add virtual workout satisfaction as another antecedent to team commitment which extends the study by Liao et al. (2020) and Sharma et al. (2021c). Second, this study answers the calls for future research by Liao et al. (2020) on online gaming to extend the team commitment model to the context of fitness. Additionally, examining the consequences of team commitment in terms of post-pandemic behaviour intentions. This contributes to the literature on understanding virtual team commitment and customer behaviour. Third, the context of this study offers unique insights from a small island developing country like Fiji. This allows for increased generalisability and new insights from distinct cultures and contexts. Fourth, this study contributes to the literature and understanding of post-pandemic customer behaviour, which has been called for by many researchers (Itani and Hollebeek, 2021; John and Thakur, 2021; Miao et al., 2021).

The paper follows the following structure. Section 2 outlines the literature review theory and underlying theory for this study. Section 3 outlines the hypotheses for this study. Section 4 details the methodology for this study. Section 5 presents the results. Section 6 discusses the findings and implications. Section 6 provides the conclusions and future research directions.

## 2. Literature review

### 2.1. Social identity theory

The social identity theory (SIT) states that a person's identity is linked to their group (Tajfel and Turner, 1986). The theory has been popularly used to examine online group behaviour in the context of online gaming (Sharma et al., 2021c), electronic project teams (Tansley et al., 2013), social media (Shih et al., 2017), microblogging (Jiang et al., 2016), virtual communities (Shih et al., 2017), addiction and health (Bathish et al., 2017). The in-groups derive social norms and guide desired and normative behaviour of individuals (Tajfel and Turner, 1986).

Recent applications of the SIT in studies are as follows. Sharma et al. (2021c) applied the SIT to examine online gamers gifting behaviour based on their commitment to the team. (Duman and Ozkara, 2021) conducted another study that applied the SIT to understanding online gaming addiction. Recently, the SIT was applied by Yoganathan et al. (2021) in investigating online social capital social media competence driven by online brand citizenship behaviour. Also, Savolainen et al. (2021) applied the SIT to investigate the gambling problems of youths due to social identity and group norms. The user retainment in online health communities was explored due to stigmatized and positive social identity to understand engagement in such communities using SIT (Feng et al., 2021). Latif et al. (2021) applied the SIT theory in exploring behavioural outcomes of negative gossiping and self-improvement driven by social identity and envy.

Despite the above applications of the SIT, it has not been applied in the context of virtual workouts. As such, this study applies the social identity theory to examine team commitment in virtual workout sessions and post-COVID workout intention. The application of this theory is appropriate due to the relationships and social interactions that develop between members of virtual workout teams (Sharma et al., 2021c). This study highlights that social identity is critical in influencing an individual's team commitment to virtual workout sessions. According to SIT, individuals' engagement in a particular group causes them to form social attachment towards the group, resulting in them accepting their belongingness (Liao et al., 2021; Tajfel and Turner, 1986). This emotion leads individuals to comply with the group's norms (Liao et al., 2020). As such, this study suggests the individuals talking in virtual workouts get emotionally attached to the virtual group, leading them to identify with the virtual group and comply with the group's norms. Therefore, this study adds group identification and group norm compliance as variables in the study's model. Group identification can be defined as individuals prioritizing the group's needs above their own and undertaking collective action. For example, virtual workout members that are part of a group would ensure that they carry out their tasks as part of the group and ensure that the objectives of the virtual workout group are met above their own goals. Compliance with virtual workout group norms is defined as individuals following the group's norms (rules that the group stipulates as unwanted/wanted behaviour). For example, if your virtual fitness group has a group not to consume carbs, you would comply with the group's norms.

*2.2. Conceptual framework and hypotheses*

Studies have shown that an individual's participation is linked to their social identification (Guo and Li, 2016). The SIT highlights that individuals identify with a positive image group (Tajfel and Turner, 1986). According to Teng and Chen (2014), activity frequency is synonymous with participation in a group setting. This participation enhances team members' understanding of members' skills and the team's norms (Teng and Chen, 2014), leading to cohesion (Yang et al., 2015). Increased cohesion increases team members' identification with the team and makes them feel a part of the team. Zhu and Stephens (2019) found that participation positively influenced group identification with online support groups. Additionally, the study by Zhou (2011) revealed similar results with users' participation in online communities. Pai and Tsai (2011) found that virtual community participation enhances community identification in the context of online shopping. Also, Liao et al. (2020) found that participation in team activities enhances team identification in online gaming. Based on the above studies, we expect that members of the virtual workout team that participants in team activities would have a higher degree of identification with the virtual team. Therefore, the following is hypothesized:

**H1**. *Virtual workout team participation is positively associated with virtual workout team identification.*

Extant literature has shown that customer interactions increase satisfaction (Kim and Choi, 2016; McColl-Kennedy et al., 2015). An increase in the quality of interaction between customers increases satisfaction (Choi and Kim, 2013). Dellande et al. (2004) found that customer participation in a team weight loss program enhanced their satisfaction. Grove and Fisk (1997) highlighted that the presence of "fellow customers" influences customers' quality perception and satisfaction. Indirect interaction of customers in the same environment or interpersonal encounters between customers enhances customer experience and leads to increased satisfaction (Martin and Pranter, 1989). Sacco and Ismail (2014) and Tomazelli et al. (2017) similarly found that customer communication and interaction increased satisfaction. Additionally, Huang and Hsu (2010) found that customer-to-customer interaction enhanced the satisfaction and experience of customers on cruise ships. Also, Wei et al. (2017) found that interaction between customers attending a conference improved satisfaction. A similar relationship was observed in a coffee shop (Kim and Lee, 2017). Online interaction between students in the online learning environment has been shown to increase students' satisfaction (Alqurashi, 2019). Based on the findings of the above studies, this study assumes that interaction between customers in virtual workout sessions would enhance their satisfaction. Therefore, it is hypothesized that:

**H2**. *Virtual workout team participation is positively associated with virtual workout satisfaction.*

Team members share objectives and goals (Richard and Lorsch, 1987). Studies have highlighted that norm formation and compliance results are driven by interaction with other group members (Bettenhausen and Murnighan, 1985; Opp, 2001). Based on how the individuals interpret the group task, either the individuals pull the other members towards their interpretation or refine their own interpretation to match the group and reach a consensus (Ivaturi and Chua, 2019). Additionally, leaders or senior members of the group can set norms that have to be complied with by other members (Taggar and Ellis, 2007). As such, individuals that participate in team activities have shared goals. Team members can help each other accomplish those goals (Liao et al., 2020). However, for teams to achieve these goals, all members must have shared effort (Richard and Lorsch, 1987). According to the principle of rationale, individuals only engage in actions that reduce their costs and increase their benefits (Hubbard and O'Brien, 2010). Given this principle, members would only be part of a group if it yields them benefit or reduces some cost. This advantage would motivate them to comply with team norms (Liao et al., 2020). Complying with the team's norms reduces the cost associated with non-conforming team behaviour, increases members' reputation within the team, and assists the group in accomplishing its goals (Philippe and Durand, 2011). Based on the above studies, we expect that individuals participating in virtual workout team activities would enhance individuals' compliance with the virtual team's norms. Therefore, it is hypothesized that:

**H3**. *Virtual workout team participation is positively associated with compliance with the virtual workout team norms.*

An individual's psychological attachment is referred to as commitment (Dick and Basu, 1994). Commitment is elicited when members of a community feel that continuing relationships have been established with other members of the community (Jang et al., 2008). In the context of virtual workout sessions, the commitment would refer to positive and strong feelings towards other members in the virtual workout session. Individuals that are like-minded share social identities and interests which translate to commitment towards the community (Bagozzi and Dholakia, 2006; Hsu et al., 2012). Prior studies have highlighted that improvements in team performance are attributed to team commitment (Haines, 2014). The social identity theory explains the creation of team commitment. According to the theory, team members are motivated to socially upload a distinctive and good image by their associated group (Tajfel and Turner, 1986). This is done to ensure that members aim to improve the group (Liao et al., 2020). In the context of a virtual workout team, members need to contribute to improving the virtual team through their contributions (Huang et al., 2003). Doing so would depict members' dedication to the virtual workout team. The relationship between customer-company identification and commitment has been found by Hur et al. (2018). Bergami and Bagozzi (2000) highlighted that consumer-brand identification influenced commitment toward the brand. Demiray and Burnaz (2019) found that Facebook brand community identification was positively liked to brand community commitment. Similarly, Zhou et al. (2012) revealed that community identification was positively linked to commitment. Liao et al. (2020) found a positive association between team identification and team commitment in online gaming. Based on the above discussion, it is expected that members that identify with the virtual workout team would be committed to the virtual workout team. Therefore, it is hypothesized that:

**H4**. *Virtual workout team identification is positively associated with commitment to the virtual workout team.*

Satisfaction is one of the most widely researched topics in marketing (Olever, 1997), with studies focusing primarily on its antecedents (Sharma et al., 2020a; Singh et al., 2021c; Slack et al., 2020). However, little attention has been given to satisfaction outcomes (Iglesias et al., 2019). The studies that have explored satisfaction have investigated behavioural outcomes of satisfaction such as loyalty (Brakus et al., 2009) and intention to purchase (Martenson, 2007). Also, prior studies have shown that commitment enhances satisfaction (Yang, 2010; Zhang et al., 2019; Zopiatis et al., 2014). However, the study explores the reverse relationship. Satisfaction and commitment have been investigated in the context of work satisfaction and organizational commitment. LaLopa (1997) showed that individuals with higher satisfaction with their work have a greater commitment to their organization. Similar results were found by Ruiz-Palomo et al. (2020) between worker satisfaction and organizational commitment. Donavan et al. (2004) found a similar relationship between job satisfaction and organizational commitment. Gani et al. (2022) revealed that organizational commitment positively influences community satisfaction. Additionally, marketing studies have shown that customer satisfaction is linked to affective commitment in restaurants (Lai, 2015), travel agencies (Richard and Zhang, 2012), banking industry (Iglesias et al., 2019). Bauer et al. (2002) found that customer satisfaction leads to increased relationship commitment by Generation Y with Facebook fan pages. Similarly, this relationship was confirmed in the context of e-commerce by Bauer et al. (2002). Xiang et al. (2018) also confirmed the satisfaction-commitment relationship with members of the online opinion platforms. Based on the above studies, we expect individuals satisfied with virtual workouts to have a higher commitment to the team. Therefore, it is hypothesized that:

**H5**.   *Virtual workout satisfaction is positively associated with commitment to the virtual workout team.*

Members committed to a team believe in putting in the effort to ensure its endurance (Morgan and Hunt, 1994). The social-technical theory suggests that shared norms communicated through information sharing create a more socially conducive environment. This results in individuals putting in more effort towards compliance, and increasing commitment (Wang et al., 2020). According to Teng and Chen (2014), an individual can derive social satisfaction by complying with team norms. Such compliance ensures that their behaviour is predictable and acceptable socially, which builds team trust and commitment (Liao et al., 2020). Additionally, such compliance to team norms is referred to as social capital. The desire to contribute to a group is influenced by increased social capital (Hau and Kang, 2016). As such, virtual workout team members complying with the norms of the virtual workout team would increase their commitment to the virtual team. The study by Canning et al. (2020) found that employees' compliance with the cultural norms impacts their commitment to the company. This relationship between compliance and commitment has been shown in the context of online gaming (Liao et al., 2020). Similarly, Sharma et al. (2021c) found that compliance with online gaming team norms is positively associated with commitment towards on the gaming team. Based on these findings, it is hypothesized that:

**H6**.   *Compliance with virtual workout team norms is positively associated with commitment to the virtual workout team.*

Prior studies have shown evidence of the positive association between commitment and behavioural outcomes such as the intention to engage in a specific action (Zhang et al., 2019). Employees committed to their organization would have a lower likelihood of turnover intention (Alamri and Al-Duhaim, 2017; Rawashdeh and Tamimi, 2019; Silva and Dias, 2016). This implies that committed employees are more likely to remain with the organization. In the context of employees, studies have also found that employee commitment reduces turnover intention (Erkmen and Hancer, 2015; Kim et al., 2019; Song et al., 2015). Employees committed to the organization are less likely to search for other job opportunities and leave their current work (Li et al., 2017; Wombacher and Felfe, 2017). Studies have revealed the relationship between customer commitment and loyalty to the business (Kalia et al., 2021; Nadeem et al., 2020; Rather and Hollebeek, 2019). Committed customers that develop lasting relations with businesses are more associated with the businesses' brand/offerings (Escalas and Bettman, 2003). The association between affective commitment and loyalty has been shown in hotels (Sui and Baloglu, 2003; Tanford, 2016). Additionally, Rather et al. (2019) found that affective commitment is associated with behavioural intention towards loyalty. This implies that individuals that develop a sense of belongingness and
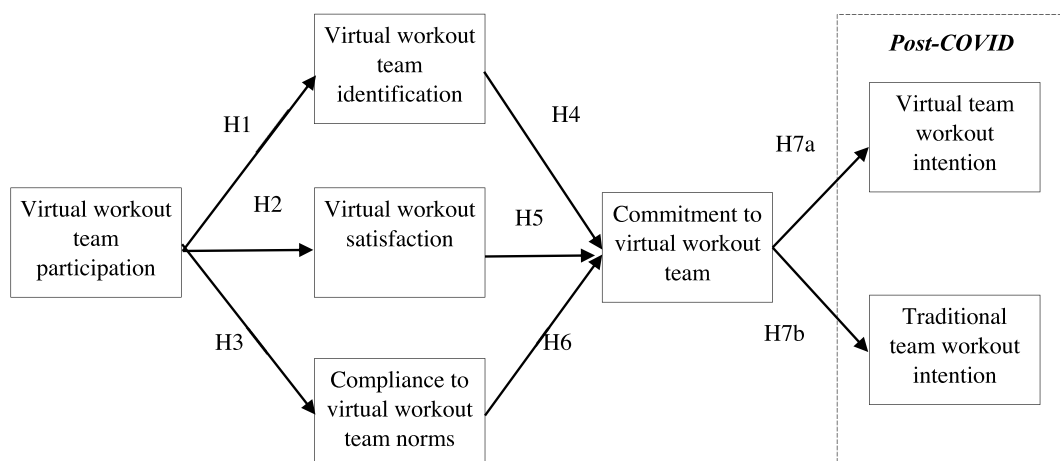


**Fig. 1.** Conceptual framework.

emotional bond are more likely to remain loyal (Li et al., 2021; Yao et al., 2019). Based on the above studies, it is expected that individuals with high commitment towards their workout team would intend to keep working out with the team post-pandemic. However, this study examines whether these individuals would prefer to continue working with the team virtually or switch to traditional workouts with the same team post-pandemic. Therefore, the following hypotheses are developed:

**H7a**.  *Commitment to virtual workout team norms is positively associated with post-pandemic team virtual workout intention.*

**H7b**.  *Commitment to virtual workout team norms is positively associated with post-pandemic team traditional workout intention.*

Fig. 1 illustrates the study's hypotheses that have been outlined above. It highlights eight hypotheses that will be evaluated subsequently.

## 3. Methodology

### 3.1. Survey instrument and data collection

A cross-sectional survey was used to collect that data for this study. Pre-validated scales from prior studies were adapted to measure the study variables. The virtual workout team participation construct consisted of 3-items that were adapted from Teng and Chen (2014). Virtual workout team identification consisted of 2-items that were adapted from Moon et al. (2013) and Liao et al. (2020). Compliance with virtual workout team norms consisted of 3-items that were adapted from Teng and Chen (2014). Virtual workout satisfaction consisted of 5-items that were adopted from Nikbin et al. (2012). Emotional solidarity consisted of 13-items that were adapted from Joo and Woosnam (2020). Commitment to virtual workout teams consisted of 2-items that were adapted from (Teng, 2018). A 7-point Likert scale was used due to the reliability in capturing responses (Chen et al., 2011).

Following the development of the survey instrument, steps were followed to make certain its face and content validity. First, the items were examined by four experts in information systems, management, marketing, and customer behaviour, and necessary changes were made to the items based on their suggestions. Second, five researchers with expertise in psychometric measurement were consulted, and revisions were made to the items based on their recommendations. Third, a pilot test was conducted with twenty-two participants that represented the study's population to ascertain the readability and understandability of the items. Based on the feedback that was received, the survey instrument was revised.

SurveyMonkey was used to create and administer the online questionnaire to the respondents. The study's population consisted of individuals taking part in virtual workout sessions. This study was conducted in Fiji. Fiji is appropriate for this study as many gyms and fitness centers are conducting virtual workout sessions. A screening question was included at the start of the survey to ensure that survey participants were participating in team virtual workout sessions.

### 3.2. Data analysis

Version 26 of SPSS and AMOS were used for data analysis. Covariance based-structural equation modelling (CB-SEM) was performed that involved assessing the measurement model by conducting the confirmatory factor analysis (CFA), after which the study's hypotheses were tested using CB-SEM. The use of CB-SEM is appropriate for the following reasons. First, it is a method that is commonly used in information systems and customer behaviour studies (Abubakar and Al-zyoud, 2021; Kim et al., 2020; Lee et al.,

**Table 1**
Respondent's demographic profile.

| Characteristics | N | % |
|---|---|---|
| **Gender** | | |
| Female | 236 | 58.13 |
| Male | 169 | 41.63 |
| Did not wish to answer | 1 | 0.25 |
| **Age** | | |
| 18–21 years | 167 | 41.13 |
| 22–31 years | 158 | 38.92 |
| 32–41 years | 46 | 11.33 |
| 42–51 years | 23 | 5.67 |
| 52–61 years | 7 | 1.72 |
| 62 years and above | 4 | 0.99 |
| Did not wish to answer | 1 | 0.25 |
| **Qualification** | | |
| Secondary School | 98 | 24.14 |
| Diploma/Certificate | 47 | 11.58 |
| Bachelors Education | 206 | 50.74 |
| Postgraduate education | 38 | 9.36 |
| Others | 17 | 4.19 |

*Note:* Aggregate percentages are slightly more or less than one hundred due to rounding off.

**Table 2**
Descriptive, reliability, and validity.

| | α | CR | AVE | MSV | MaxR(H) | RCD1 | FQT1 | SQT1 | PRC1 | OIF1 | OPS1 | OUF1 | OCN1 | OOT1 | EST1 | CRP1 | LYT1 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **RCD1** | 0.89 | 0.85 | 0.59 | 0.51 | 0.92 | **0.84** | | | | | | | | | | | |
| **FQT1** | 0.88 | 0.91 | 0.62 | 0.5 | 0.92 | 0.12 | **0.87** | | | | | | | | | | |
| **SQT1** | 0.85 | 0.93 | 0.70 | 0.47 | 0.87 | 0.31 | 0.14 | **0.83** | | | | | | | | | |
| **PRC1** | 0.86 | 0.90 | 0.64 | 0.48 | 0.86 | 0.08 | 0.27 | 0.24 | **0.75** | | | | | | | | |
| **OIF1** | 0.88 | 0.92 | 0.66 | 0.48 | 0.94 | 0.19 | 0.37 | 0.48 | 0.02 | **0.86** | | | | | | | |
| **OPS1** | 0.83 | 0.90 | 0.64 | 0.42 | 0.91 | 0.21 | 0.24 | 0.31 | 0.08 | 0.17 | **0.82** | | | | | | |
| **OUF1** | 0.85 | 0.95 | 0.64 | 0.44 | 0.92 | 0.16 | 0.25 | 0.07 | 0.31 | 0.3 | 0.37 | **0.85** | | | | | |
| **OCN1** | 0.82 | 0.90 | 0.69 | 0.52 | 0.85 | 0.02 | 0.19 | 0.25 | 0.18 | 0.09 | 0.16 | 0.09 | **0.79** | | | | |
| **OOT1** | 0.84 | 0.89 | 0.67 | 0.56 | 0.87 | 0.1 | 0.34 | 0.15 | 0.05 | 0.21 | 0.34 | 0.34 | 0.26 | **0.88** | | | |
| **EST1** | 0.9 | 0.92 | 0.70 | 0.46 | 0.92 | 0.22 | 0.22 | 0.48 | 0.43 | 0.14 | 0.42 | 0.44 | 0.42 | 0.36 | **0.83** | | |
| **CRP1** | 0.87 | 0.89 | 0.62 | 0.45 | 0.93 | 0.11 | 0.38 | 0.05 | 0.08 | 0.35 | 0.45 | 0.08 | 0.35 | 0.08 | 0.21 | **0.84** | |
| **LYT1** | 0.86 | 0.93 | 0.66 | 0.51 | 0.89 | 0.14 | 0.41 | 0.12 | 0.21 | 0.46 | 0.24 | 0.24 | 0.13 | 0.28 | 0.36 | 0.28 | **0.87** |

2021). Second, this study has been based on existing theoretical knowledge, making CB-SEM appropriate (Kumar et al., 2021). Third, this study's data met the requirements of CB-SEM in terms of size of the sample, multicollinearity, and outliers (Hair et al., 2017).

### 3.3. Demographic profile

Data collection was conducted between July and August 2021. The links to the online questionnaire were circulated using a sponsored advertisement on Facebook. This method is justified as prior studies had successfully used this to collect data particularity during the COVID19 crisis when physical movement was limited. Additionally, Facebook is the most popular social networking site in Fiji. A total of 417 responses were received. The demographic profile of the respondents is presented in Table 1. The average completion time of the questionnaire was 8 min and 13 s.

### 3.4. Data screening

Initially, the data were screened for outliers and normality. This revealed that based on the recommendations by Kline (2015), the kurtosis and skewness values were within the acceptable range, confirming normal distribution. Subsequently, the data were examined for missing values and outliners. This results in 11 items being deleted from the dataset. Additionally, as per O'brien (2007), the variance inflation factor (VIF) and tolerance value met the required cut-off value. The 406 remaining responses were sufficient based on the sample size requirements of CB-SEM as per Kline (2015) which suggested a minimum of 10 responses per item. The survey instrument consisted of twenty-eight items, giving an acceptable sample size of 280. A similar sample size estimation method was employed by Kumar et al. (2021).

## 4. Results

### 4.1. Common method bias

Using self-reported data in this study makes the study vulnerable to common method bias (CMB). As such, Podsakoff et al. (2003) suggested a priori and post hoc employed as a means of protection. The priori approach involved that the study's purpose was not revealed in the cover story and items were randomized during data collection. Respondents were assured about the anonymity of their responses, and questions to check the participants' attention were used. The post-hoc approach involved ascertaining the presence of CMB using Harman's test (Podsakoff et al., 2003), which revealed a variance of 29.61% that, was less than the 50% threshold (Singh et al., 2021b).

### 4.2. Measurement model

CFA was used to assess the study's measurement model. A good model fit was returned (CFI = 0.96, TLI = 0.96, RMSEA = 0.06, $\chi^2$/df = 1.87). Subsequently, the discriminant and convergent validity were examined. Convergent validity was confirmed using items factor loadings, average variance extracted (AVE), and Composite reliability (CR). The AVE values were above the minimum requirement of 0.50, while CR values were above 0.70 as recommended by (Hair, 2009). Table 3 presents these values. Additionally, the item's factor loadings were more than the 0.60 cut-off value (Bagozzi and Yi, 1988). Table 2 shows this result. Discriminant validity was confirmed as the AVE's square root for each variable was more than its respective correlational value (Fornell and Larcker, 1981). This result is presented in Table 4. As suggested by Henseler et al. (2015). Additional assurance for discriminant validity was ascertained by performing heterotrait-monotrait (HTMT) as per Henseler et al. (2015) suggestion. The values for HTMT were<0.85, which further confirmed discriminant validity. This result is shown in Table 3.

### 4.3. Structural model

Results from the analysis reveal that gender, age, education, and income did not reveal any confounding effect on the dependent variable. A good model fit was also derived for the structural model (CFI = 0.94, TLI = 0.93, RMSEA = 0.04, $\chi^2$/df = 1.89). The variance $R^2$ explained a variance of 54.8% for commitment to virtual workout team. The results for the hypotheses test were as follows. Virtual workout team participation was found to influence virtual workout team identification positively (**H1**: $\beta = 0.43, p < 0.01$),

**Table 3**
HTMT analysis.

|     | VTP | VTI | VTS | CTN | CVT | PWI | PSI |
|-----|-----|-----|-----|-----|-----|-----|-----|
| **VTP** |     |     |     |     |     |     |     |
| **VTI** | 0.25 |     |     |     |     |     |     |
| **VTS** | 0.06 | 0.42 |     |     |     |     |     |
| **CTN** | 0.37 | 0.61 | 0.38 |     |     |     |     |
| **CVT** | 0.36 | 0.69 | 0.31 | 0.71 |     |     |     |
| **PWI** | 0.19 | 0.01 | 0.58 | 0.41 | 0.24 |     |     |
| **PSI** | 0.04 | 0.09 | 0.08 | 0.13 | 0.18 | 0.07 |     |

**Table 4**
Confirmatory Factor Analysis Results for Refined Measurement Items.

| Factor and item description | SL | SMC |
|---|---|---|
| VTP1 | 0.78 | 0.61 |
| VTP2 | 0.83 | 0.69 |
| VTP3 | 0.77 | 0.59 |
| VTI1 | 0.82 | 0.67 |
| VTI2 | 0.91 | 0.73 |
| VTS1 | 0.82 | 0.67 |
| VTS2 | 0.73 | 0.53 |
| VTS3 | 0.84 | 0.71 |
| VTS4 | 0.78 | 0.61 |
| VTS5 | 0.82 | 0.67 |
| CTN1 | 0.85 | 0.72 |
| CTN2 | 0.78 | 0.61 |
| CTN3 | 0.73 | 0.53 |
| CVT1 | 0.84 | 0.69 |
| CVT2 | 0.82 | 0.67 |
| PWI1 | 0.75 | 0.56 |
| PWI2 | 0.82 | 0.67 |
| PWI3 | 0.87 | 0.77 |
| PSI1 | 0.75 | 0.56 |
| PSI2 | 0.85 | 0.72 |
| PSI3 | 0.78 | 0.61 |

virtual workout satisfaction (**H2**: $\beta = 0.56, p < 0.01$), and compliance with virtual workout team norms (H3: $\beta = 0.37, p < 0.01$). Virtual workout team identification (**H4**: $\beta = 0.41, p < 0.01$), virtual workout satisfaction (**H5**: $\beta = 0.52, p < 0.01$), and compliance to virtual workout team norms (**H6**: $\beta = 0.47, p < 0.01$) is positively associated with commitment to virtual workout team. All the direct hypothesized relationships were supported. Fig. 2 illustrates these results. Commitment to virtual workout teams is positively associated with post-COVID virtual workout intention (**H7a**: $\beta = 0.36, p < 0.01$) and traditional team workout intention (**H7b**: $\beta = 0.61, p < 0.01$).

## 5. Discussion

Results found that virtual workout team participation was positively associated with virtual workout team identification (**H1**). This result implies that individuals who virtually engage in team workout sessions are likely to identify and feel a part of the team. As team participation increases, members develop a greater understanding of other team members (Teng and Chen, 2014) while increasing their belongingness to the team (You and Robert, 2018). A similar result was found by Liao et al. (2020) with online gamers participating in team activities which showed an increase in their team identification.

The strongest association was found with virtual workout team participation being positively associated with virtual workout satisfaction (**H2**). This implies that engaging in team workout sessions virtually greatly enhances an individual's satisfaction with virtual workouts. This finding highlights the importance of engaging in team activities in virtual workout sessions. Marketing research
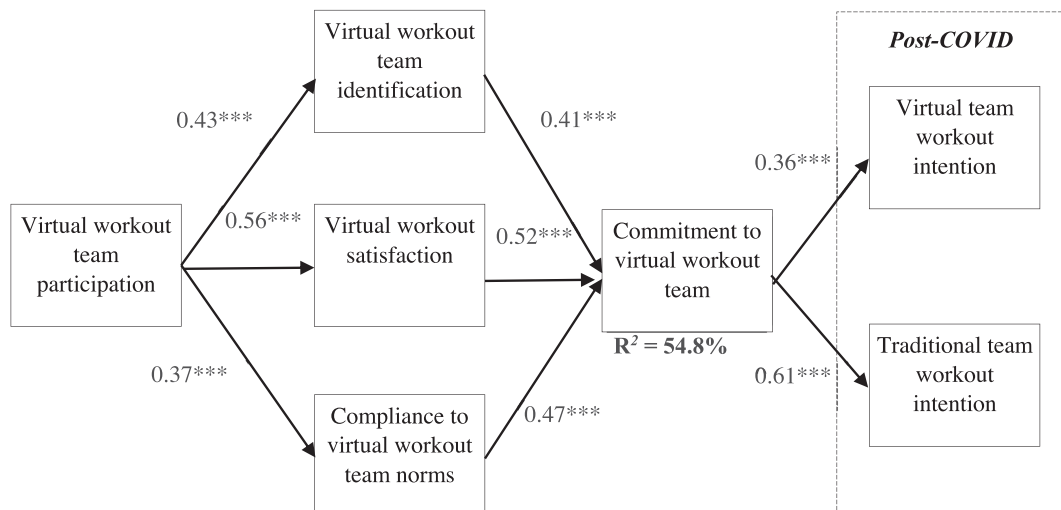


**Fig. 2.** Results of hypotheses testing.

has shown a similar association with customer interaction leading to increased satisfaction (Kim and Choi, 2016; McColl-Kennedy et al., 2015). Also, Wei et al. (2017) found that interactions between customers attending a conference enhanced their conference satisfaction.

Virtual workout team participation was also found to be positively associated with compliance with virtual workout team norms (**H3**). This result implies that individuals participating in team virtual workouts are likely to comply with the team's norms. Team members can assist each other to accomplish goals provided that there is shared effort by all members of the team (Richard and Lorsch, 1987). Liao et al. (2020) revealed similar results that teamwork reduces an individual's effort or increases benefits; it motivates individuals to comply with the team norms.

Results found that virtual workout team identification is positively associated with commitment to the team (**H4**). This finding implies that individuals that identify with the virtual workout team form commitment towards the virtual workout team. The social identity theory aligns with virtual teams, which outlines that team members are motivated to socially upload a distinctive and good image by their associated group (Tajfel and Turner, 1986). Similarly, other researchers have highlighted that members need to improve the virtual team through their contributions (Huang et al., 2003).

Virtual workout satisfaction is found to be positively associated with commitment to the virtual workout team (**H5**). This was revealed to be the strongest antecedent to virtual workout team commitment. The result implies that individuals that are satisfied with virtual workout teams would be committed to the team. Similarly, other studies have highlighted results consistently in other contexts. Ruiz-Palomo et al. (2020) found worker satisfaction to be positively associated with organizational commitment. Marketing research has shown that customer satisfaction is positively associated with affective commitment in restaurants (Lai, 2015), travel agencies (Richard and Zhang, 2012), banking industry (Iglesias et al., 2019).

This study revealed that compliance with virtual workout team norms is positively associated with commitment to virtual workout teams (**H6**). This result implies that complying with the norms of the virtual workout session leads to individuals being committed to the virtual workout team. Teng and Chen (2014) state that an individual can derive social satisfaction by complying with team norms. Contributing to a group is influenced by increased social capital (Hau and Kang, 2016). Similar results were found by Liao et al. (2020) found similar results with online gamers.

Results revealed that commitment to virtual workout team norms is positively associated with post-pandemic team virtual workout intention (**H7a**) and that commitment to virtual workout team norms is positively associated with post-pandemic team traditional workout intention (**H7b**). Similar results were shown by other studies in the context of employees (Li et al., 2017; Wombacher and Felfe, 2017) and customers (Escalas and Bettman, 2003). However, H7b revealed a stronger relationship than H7a. This implies that post-pandemic individuals would prefer to continue working with the virtual workout team but prefer to engage in traditional (in-person) workout sessions with the team over virtual sessions. The findings reveal that team virtual workout sessions are a temporary solution for many during the pandemic with the risks of COVID-19 and restrictions on movement.

## 5.1. Theoretical implications

This study's findings derive four important theoretical contributions. First, empirical findings from this study extend the social identity theory by showing that team identification and compliance with virtual workout teams are positively associated with team commitment. While prior studies have applied the social identity theory in different contexts (Kaur et al., 2020; Latif et al., 2021; Mudrick et al., 2016), this study makes a novel contribution by applying the theory in the context of virtual workout sessions. Additionally, the study adds to Liao et al. (2020) and Sharma et al. (2021c) by confirming virtual workout satisfaction as another antecedent to team commitment. This new source of commitment would further improve team commitment in a group setting and provide sound future research direction.

Second, this study extends the study conducted by Liao et al. (2020) by examining individuals' commitment to virtual workout sessions. The study by Liao et al. (2020) was conducted on team commitment in online games; it had called for future studies to examine team commitment in other contexts such as fitness. Therefore, this study addresses the call by exploring the role of virtual workout team identification, and compliance to virtual workout team norms as antecedents to virtual workout team commitment. Additionally, the study extends the work by Liao et al. (2020) by examining the consequences of virtual workout team commitment in post-pandemic behaviour (post-COVID virtual workout intention and post-COVID switching intention). By testing these two new relationships and factors in a distinct context, this study contributes to the literature and adds to the knowledge on team commitment.

Third, prior studies on team commitment have been undertaken in large and developed countries (Liao et al., 2020). Liao et al. (2020) highlighted that a limitation of the study was the homogeneity of the cultural setting and called for future studies to consider the effect of culture. Differences in legal, economic, infrastructure, technological, and cultural factors influence individuals' behaviour (Sharma et al., 2021a; Singh et al., 2021b). Testing theories, models, and relationships in different country settings generate more insights and increases the generalizability of findings (Sharma et al., 2021b; Singh et al., 2021a). Therefore, by conducting this study in Fiji, a Small Island Developing State, we can enhance the generalizability of the results and explore the impact of differences in country-specific factors such as political, legal, and economic factors and culture of team participation and commitment. Additionally, the unprecedented COVID-19 has significantly altered individuals' perceptions and behaviour towards technology (Ball et al., 2021; Sharma et al., 2020b; Yuan et al., 2021); therefore, examining commitment to virtual workout teams together with behavioural intentions post-pandemic makes a meaningful contribution to the literature.

Fourth, this study contributes to understanding individual behaviour post-COVID. Researchers and practitioners are concerned about understanding post-pandemic behaviour and have called for more studies on this topic (Itani and Hollebeek, 2021; John and Thakur, 2021; Miao et al., 2021). Therefore, this study contributes theoretically to the information systems and consumer behaviour

literature in this regard. Results from this study highlight that while individuals intend to engage in virtual workouts in the future, a stronger association was shown to switch to traditional workout sessions. As such, these findings contribute towards understanding the role of technology during the pandemic and post-pandemic customer behaviour.

### 5.2. Practical implications

The findings of this study offer the following practical implications for businesses. These suggestions will aid organizations in understanding how the changes arising because of the pandemic persist post-pandemic. First, results reveal that participating in team workout sessions could enhance compliance to virtual workout team norms, team identification, and the satisfaction derived from virtual workouts. This highlights that virtual workout sessions would benefit from team-based activities. Creating teams based on unique needs would increase individuals' identification, compliance, and overall satisfaction with the virtual workout session. For example, have a 'cut' group to reduce fat and increase muscle definition. 'Build' group for those that want to increase muscle strength and size, 'performance' group for those that want to increase stamina and athletic endurance, and 'beginner group' for those just starting the virtual workout sessions. The virtual workout programs can also gain by using technology to connect participants and facilitate teamwork. One such way is through the use of fitness applications. Such applications with features allowing for communication and partnering with others could benefit from collaboration and competition. Having encouragement and virtual support could increase fun and motivation for participants. Virtual workout sessions need to provide indicators for teamwork. For example, virtual workout partners make videos to display workout routines and the achievement of training goals. The virtual applications could also be designed to provide suggestions of various workout routines and activities that virtual workout partners or teams can perform.

The findings reveal that team identification is a key factor in team commitment. Because virtual workout session members are not acquainted with each other before forming teams, it is possible to overcome this challenge by using the ice breaker technique to build a sense of comfort and understanding between the virtual team members. For instance, virtual workout team members highlight their weaknesses and strengths in their team. This could be useful in building team identification (Liao et al., 2020). The result also highlighted that compliance with virtual workout team norms is key to building team commitment. These virtual workout norms are imposed in the form of etiquettes. Friendly behaviour should be encouraged in virtual workout sessions. Applications could be designed where participants at the end of the session can communicate encouraging comments such as "well done" and "good session.".

Finally, results have shown that individuals in virtual workout sessions have shown a stronger relationship towards switching to traditional workout sessions with the same team instead of continuing the sessions post-pandemic. This result highlights the importance of improving virtual workout programs to retain current customers. One way of doing this is by enhancing commitment through team identification, compliance with team norms, and virtual workout satisfaction. Virtual workout programs can employ a hybrid model combining both in-person and virtual sessions. Even if the pandemic dies down, businesses should benefit from customers' positive virtual workout sessions with which they would have gotten familiar and offered such sessions in the hybrid model or as substitutes.

### 5.3. Limitations and future research directions

Despite the study making valuable contributions, its limitations need to be highlighted as it provides directions for future research. First, methodologically, this study adopts a cross-sectional design and relies on self-reported data, making it vulnerable to self-response bias and common method bias. While precautions were taken, future studies can collect data in several waves to mitigate this issue. Additionally, as responses, experiences, evaluations, and perceptions vary with time, future studies can benefit from longitudinal data. Second, data collection for this study is conducted using Facebook. While this data collection method has been employed by prior studies and is practical due to the COVID-19 restrictions, not all individuals participating in virtual workouts would have a Facebook account. Therefore, future studies should consider other methods of data collection. Third, this study was conducted in Fiji. Culture has been found to influence individuals' behaviour. Therefore, future studies could explore the differences in behaviour and perceptions by employing Hofstede's dimensions of culture on team participation and commitment to gain further insights.

### Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

### Appendix

| Construct | Items |
|---|---|
| **Virtual workout team participation** | Overall, I frequently seek to join virtual workout teams. |
| | Overall, I frequently join virtual workout teams. |
| | Overall, I frequently form virtual workout teams with others. |

(*continued*)

| Construct | Items |
| --- | --- |
| **Virtual workout team identification** | I feel emotionally attached to the members of this workout team. |
| | Members of this workout team have a great deal of personal meaning for me. |
| **Compliance with virtual workout team norms** | I often change my behaviour to comply with the norms of this workout team. |
| | I have my behaviour consistent with the norms of this workout team. |
| | I would sacrifice some in-game benefits to comply with the norms of this workout team. |
| **Virtual workout satisfaction** | The virtual workouts exceeds my expectations. |
| | I am satisfied with the overall experience of virtual workouts. |
| | I am pleased with the overall experience of virtual workouts. |
| | I am content with the overall experience of virtual workouts. |
| | I am delighted with the overall experience of virtual workouts. |
| **Emotional solidarity** | |
| **Communality** | Feel affection towards other virtual workout team members. |
| | Feel close to other virtual workout team members. |
| | Have a lot in common with other virtual workout team members. |
| | I am proud to be welcomed as a virtual workout team member. |
| | I understand other virtual workout team members. |
| | I expect to make friends with other virtual workout team members. |
| | I identify with other virtual workout team members. |
| | I share similar views with other virtual workout team members. |
| | I feel the virtual workout team will benefit from having us (me and other virtual workout team members). |
| | I can trust other virtual workout team members. |
| **Fairness** | I will treat other virtual workout team members fairly. |
| | I plan to get along with other virtual workout team members. |
| | I have respect for other virtual workout team members. |
| **Commitment to virtual workout team** | I direct my efforts toward the success of this virtual workout team. |
| | I actively contribute to this virtual workout team. |
| **Post-COVID virtual team workout intention** | I would use virtual workouts with my team when the COVID-19 pandemic is over. |
| | I would recommend my team to use virtual workouts when the COVID-19 pandemic is over. |
| | I will likely use virtual workouts with my team when the COVID-19 pandemic is over. |
| **Post-COVID traditional team workout intention** | I would use traditional workouts with my team when the COVID-19 pandemic is over. |
| | I would recommend my team to use traditional workouts when the COVID-19 pandemic is over. |
| | I will likely use traditional workouts with my team when the COVID-19 pandemic is over. |

# References

Abubakar, A.M., Al-Zyoud, M.F., 2021. Problematic Internet usage and safety behavior: Does time autonomy matter? Telematics Inform. 56, 101501.

Alamri, M.S., Al-Duhaim, T.I., 2017. Employees perception of training and its relationship with organizational commitment among the employees working at Saudi industrial development fund. Int. J. Business Administ. 8 (2), 25–39.

Alqurashi, E., 2019. Predicting student satisfaction and perceived learning within online learning environments. Dist. Educat. 40 (1), 133–148.

Alshehri, A.F., 2017. Student satisfaction and commitment towards a blended learning finance course: A new evidence from using the investment model. Res. Int. Business Finan. 41, 423–433.

Bagozzi, R.P., Dholakia, U.M., 2006. Antecedents and purchase consequences of customer participation in small group brand communities. Int. J. Res. Mark. 23 (1), 45–61.

Bagozzi, R.P., Yi, Y., 1988. On the evaluation of structural equation models. J. Acad. Mark. Sci. 16 (1), 74–94.

Ball, C., Huang, K.T., Francis, J., 2021. Virtual Reality Adoption during the COVID-19 Pandemic: A Uses and Gratifications Perspective. Telematics Inform. 65, 101728.

Bathish, R., Best, D., Savic, M., Beckwith, M., Mackenzie, J., Lubman, D.I., 2017. "Is it me or should my friends take the credit?" The role of social networks and social identity in recovery from addiction. J. Appl. Soc. Psychol. 47 (1), 35–46.

Bauer, H.H., Grether, M., Leach, M., 2002. Building customer relations over the Internet. Ind. Mark. Manage. 31 (2), 155–163.

Bergami, M., Bagozzi, R.P., 2000. Self-categorization, affective commitment and group self-esteem as distinct aspects of social identity in the organization. Br. J. Soc. Psychol. 39 (4), 555–577.

Bettenhausen, K., Murnighan, J.K., 1985. The emergence of norms in competitive decision-making groups. Adm. Sci. Q. 30 (3), 350–372.

Brakus, J.J., Schmitt, B.H., Zarantonello, L., 2009. Brand experience: what is it? How is it measured? Does it affect loyalty? J. Market. 73 (3), 52–68.

Canning, E.A., Murphy, M.C., Emerson, K.T., Chatman, J.A., Dweck, C.S., Kray, L.J., 2020. Cultures of genius at work: Organizational mindsets predict cultural norms, trust, and commitment. Pers. Soc. Psychol. Bull. 46 (4), 626–642.

Chen, R., Wang, J., Herath, T., Rao, H.R., 2011. An investigation of email processing from a risky decision making perspective. Decis. Support Syst. 52 (1), 73–81.

Choi, B.J., Kim, H.S., 2013. The impact of outcome quality, interaction quality, and peer-to-peer quality on customer satisfaction with a hospital service. Manag. Serv. Qual. Int. J. 23 (3), 188–204.

Dellande, S., Gilly, M.C., Graham, J.L., 2004. Gaining compliance and losing weight: The role of the service provider in health care services. J. Market. 68 (3), 78–91.

Demiray, M., Burnaz, S., 2019. Exploring the impact of brand community identification on Facebook: Firm-directed and self-directed drivers. J. Business Res. 96, 115–124.

Dick, A.S., Basu, K., 1994. Customer loyalty: toward an integrated conceptual framework. J. Acad. Mark. Sci. 22 (2), 99–113.

Donovan, D.T., Brown, T.J., Mowen, J.C., 2004. Internal benefits of service-worker customer orientation: Job satisfaction, commitment, and organizational citizenship behaviors. J. Market. 68 (1), 128–146.

Dong, E., Du, H., Gardner, L., 2020. An interactive web-based dashboard to track COVID-19 in real time. Lancet. Infect. Dis 20 (5), 533–534.

Duman, H., Ozkara, B.Y., 2021. The impact of social identity on online game addiction: the mediating role of the fear of missing out (FoMO) and the moderating role of the need to belong. Curr. Psychol. 40 (9), 4571–4580.

Erkmen, E., Hancer, M., 2015. Linking brand commitment and brand citizenship behaviors of airline employees:"The role of trust". J. Air Transp. Manage. 42, 47–54.

Escalas, J.E., Bettman, J.R., 2003. You are what they eat: The influence of reference groups on consumers' connections to brands. J. Consumer Psychol. 13 (3), 339–348.

Feng, B., Li, X., Lin, L., 2021. Valenced social identities and the digital divide in online health communities. Comput. Hum. Behav. 122, 106812.

Fornell, C., Larcker, D.F., 1981. Evaluating structural equation models with unobservable variables and measurement error. J. Mark. Res. 18 (1), 39–50.

Gani, A.J.A., Saleh, C., Amin, F., 2022. Organizational Commitment and Expertise in Determining Community Satisfaction Through Good Governance, Quality of Community Services, and Community Empowerment. J. Knowledge Economy 1–16.

Grove, S.J., Fisk, R.P., 1997. The impact of other customers on service experiences: a critical incident examination of "getting along". J. Retail. 73 (1), 63-85.

Guo, T.C., Li, X., 2016. Positive relationship between individuality and social identity in virtual communities: Self-categorization and social identification as distinct forms of social identity. Cyberpsychol., Behav. Soc. Network. 19 (11), 680–685.

Haines, R., 2014. Group development in virtual teams: An experimental re-examination. Comput. Hum. Behav. 39, 213–222.

Hair, J.F., 2009. Multivariate data analysis: A Global Perspective, seventh ed. Prentice Hall, Prentice Hall, Upper Saddle River.

Hair Jr, J.F., Matthews, L.M., Matthews, R.L., Sarstedt, M., 2017. PLS-SEM or CB-SEM: updated guidelines on which method to use. Int. J. Multivariate Data Anal. 1 (2), 107–123.

Hau, Y.S., Kang, M., 2016. Extending lead user theory to users' innovation-related knowledge sharing in the online user community: The mediating roles of social capital and perceived behavioral control. Int. J. Inf. Manage. 36 (4), 520–530.

Henseler, J., Ringle, C.M., Sarstedt, M., 2015. A new criterion for assessing discriminant validity in variance-based structural equation modeling. J. Acad. Mark. Sci. 43 (1), 115–135.

Hsu, C.P., Chiang, Y.F., Huang, H.C., 2012. How experience-driven community identification generates trust and engagement. Online Informat. Rev. 36 (1), 72–88.

Huang, H.C., Wong, M.K., Lu, J., Huang, W.F., Teng, C.I., 2017. Can using exergames improve physical fitness? A 12-week randomized controlled trial. Comput. Hum. Behav. 70, 310–316.

Huang, J., Hsu, C.H., 2010. The impact of customer-to-customer interaction on cruise experience and vacation satisfaction. J. Travel Res. 49 (1), 79–92.

Huang, W.W., Wei, K.-K., Watson, R.T., Tan, B.C., 2003. Supporting virtual team-building with a GSS: An empirical investigation. Decis. Support Syst. 34 (4), 359–367.

Hubbard, R.G., O'Brien, A., 2010. Introdução à economia. Bookman.

Hur, W.M., Kim, H., Kim, H.K., 2018. Does customer engagement in corporate social responsibility initiatives lead to customer citizenship behaviour? The mediating roles of customer-company identification and affective commitment. Corp. Soc. Responsib. Environ. Manag. 25 (6), 1258–1269.

Iglesias, O., Markovic, S., Rialp, J., 2019. How does sensory brand experience influence brand equity? Considering the roles of customer satisfaction, customer affective commitment, and employee empathy. J. Business Res. 96, 343–354.

Itani, O.S., Hollebeek, L.D., 2021. Light at the end of the tunnel: Visitors' virtual reality (versus in-person) attraction site tour-related behavioral intentions during and post-COVID-19. Tour. Manage. 84, 104290.

Ivaturi, K., Chua, C., 2019. Framing norms in online communities. Informat. Manage. 56 (1), 15–27.

Jang, H., Olfman, L., Ko, I., Koh, J., Kim, K., 2008. The influence of on-line brand community characteristics on community commitment and brand loyalty. Int. J. Electron. Comm. 12 (3), 57–80.

Jiang, C., Zhao, W., Sun, X., Zhang, K., Zheng, R., Qu, W., 2016. The effects of the self and social identity on the intention to microblog: An extension of the theory of planned behavior. Comput. Hum. Behav. 64, 754–759.

John, J., Thakur, R., 2021. Long term effects of service adaptations made under pandemic conditions: the new "post COVID-19" normal. Eur. J. Mark. 55 (6), 1679–1700.

Joo, D., Woosnam, K.M., 2020. Measuring tourists' emotional solidarity with one another—A modification of the emotional solidarity scale. J. Travel Res. 59 (7), 1186–1203.

Kalia, P., Kaushal, R., Singla, M., Parkash, J., 2021. Determining the role of service quality, trust and commitment to customer loyalty for telecom service users: a PLS-SEM approach. TQM J. 33 (7), 377–396.

Kaur, H., Paruthi, M., Islam, J., Hollebeek, L.D., 2020. The role of brand community identification and reward on consumer brand engagement and brand loyalty in virtual brand communities. Telematics Inform. 46, 101321.

Kim, H.S., Choi, B., 2016. The effects of three customer-to-customer interaction quality types on customer experience quality and citizenship behavior in mass service settings. J. Serv. Mark. 30 (4), 384–397.

Kim, M., 2022. How can I Be as attractive as a Fitness YouTuber in the era of COVID-19? The impact of digital attributes on flow experience, satisfaction, and behavioral intention. J. Retail. Consum. Serv. 64, 102778.

Kim, M.J., Bonn, M., Lee, C.K., Kim, J.S., 2019. Effects of employees' personality and attachment on job flow experience relevant to organizational commitment and consumer-oriented behavior. J. Hospital. Tour. Manage. 41, 156–170.

Kim, M.J., Lee, C.K., Preis, M.W., 2020. The impact of innovation and gratification on authentic experience, subjective well-being, and behavioral intention in tourism virtual reality: The moderating role of technology readiness. Telematics Inform. 49, 101349.

Kim, S.H., Lee, S.A., 2017. Promoting customers' involvement with service brands: evidence from coffee shop customers. J. Serv. Mark. 31 (7), 733–744.

Kline, R.B., 2015. Principles and Practice of Structural Equation Modeling, fouth ed. Guilford Publications.

Kumar, S., Talwar, S., Krishnan, S., Kaur, P., Dhir, A., 2021. Purchasing natural personal care products in the era of fake news? The moderation effect of brand trust. J. Retail. Consum. Serv. 63, 102668.

Lai, I.K., 2015. The roles of value, satisfaction, and commitment in the effect of service quality on customer loyalty in Hong Kong–style tea restaurants. Cornell Hospit. Quart. 56 (1), 118–138.

LaLopa, J.M., 1997. Commitment and turnover in resort jobs. J. Hospital. Tour. Res. 21 (2), 11–26.

Latif, K., Weng, Q., Pitafi, A.H., Ali, A., Siddiqui, A.W., Malik, M.Y., Latif, Z., 2021. Social comparison as a double-edged sword on social media: The role of envy type and online social identity. Telematics Inform. 56, 101470.

Lee, J., Kim, K., Park, G., Cha, N., 2021. The role of online news and social media in preventive action in times of infodemic from a social capital perspective: the case of the COVID-19 pandemic in South Korea. Telematics Inform. 64, 101691.

Li, J.J., Kim, W.G., Zhao, X.R., 2017. Multilevel model of management support and casino employee turnover intention. Tour. Manage. 59, 193–204.

Li, Y., Liu, Z., Qin, K., Cui, J., Zeng, X., Ji, M., Lan, J., You, X., Li, Y., 2021. Organizational trust and safety operation behavior in airline pilots: The mediating effects of organizational identification and organizational commitment. J. Air Transp. Manage. 92, 102018.

Liao, G.-Y., Cheng, T., Shiau, W.-L., Teng, C.-I., 2021. Impact of online gamers' conscientiousness on team function engagement and loyalty. Decis. Support Syst. 142, 113468.

Liao, G.Y., Pham, T.T.L., Cheng, T., Teng, C.-I., 2020. How online gamers' participation fosters their team commitment: Perspective of social identity theory. Int. J. Inf. Manage. 52, 102095.

Martenson, R., 2007. Corporate brand image, satisfaction and store loyalty: A study of the store as a brand, store brands and manufacturer brands. Int. J. Retail Distribut. Manage. 35 (7), 544–555.

Martin, C.L., Pranter, C.A., 1989. Compatibility management: customer-to-customer relationships in service environments. J. Serv. Mark. 3 (3), 5–15.

McColl-Kennedy, J.R., Cheung, L., Ferrier, E., 2015. Co-creating service experience practices. J. Serv. Manage. 26 (2), 249–275.

Miao, L., Im, J., Fu, X., Kim, H., Zhang, Y.E., 2021. Proximal and distal post-COVID travel behavior. Ann. Tour. Res. 88, 103159.

Moon, J., Hossain, M.D., Sanders, G.L., Garrity, E.J., Jo, S., 2013. Player commitment to massively multiplayer online role-playing games (MMORPGs): An integrated model. Int. J. Electron. Comm. 17 (4), 7–38.

Morgan, R.M., Hunt, S.D., 1994. The commitment-trust theory of relationship marketing. J. Market. 58 (3), 20–38.

Mudrick, M., Miller, M., Atkin, D., 2016. The influence of social media on fan reactionary behaviors. Telematics Inform. 33 (4), 896–903.

Nadeem, W., Khani, A.H., Schultz, C.D., Adam, N.A., Attar, R.W., Hajli, N., 2020. How social presence drives commitment and loyalty with online brand communities? the role of social commerce trust. J. Retail. Consum. Serv. 55, 102136.

Nicole, M., Alsafi, Z., Sohrabi, C., Kerwan, A., Al-Jabir, A., Losifidis, C., Agha, M., Agha, R., 2020. The socio-economic implications of the coronavirus and covid-19 pandemic: A review. Int. J. Surgery 78, 185–193.

Nikbin, D., Ismail, I., Marimuthu, M., 2012. The impact of causal attributions on customer satisfaction and switching intention: Empirical evidence from the airline industry. J. Air Transport Manage. 25, 37–39.

O'brien, R.M., 2007. A caution regarding rules of thumb for variance inflation factors. Qual. Quant. 41 (5), 673–690.

Olever, R., 1997. Satisfaction: A Behavioral Perspective on the Customer. Irwin McGraw Hill, New York.

Opp, K.D., 2001. How do norms emerge? An outline of a theory. Mind Soc. 2 (1), 101–128.

Pai, P.Y., Tsai, H.T., 2011. How virtual community participation influences consumer loyalty intentions in online shopping contexts: An investigation of mediating factors. Behav. Informat. Technol. 30 (5), 603–615.

Philippe, D., Durand, R., 2011. The impact of norm-conforming behaviors on firm reputation. Strateg. Manag. J. 32 (9), 969–993.

Podsakoff, P.M., MacKenzie, S.B., Lee, J.-Y., Podsakoff, N.P., 2003. Common method biases in behavioral research: a critical review of the literature and recommended remedies. J. Appl. Psychol. 88 (5), 879.

Rather, R.A., Hollebeek, L.D., 2019. Exploring and validating social identification and social exchange-based drivers of hospitality customer loyalty. Int. J. Contemp. Hospit. Manage. 31 (3), 1432–1451.

Rather, R.A., Tehseen, S., Itoo, M.H., Parrey, S.H., 2019. Customer brand identification, affective commitment, customer satisfaction, and brand trust as antecedents of customer behavioral intention of loyalty: An empirical study in the hospitality sector. J. Global Schol. Market. Sci. 29 (2), 196–217.

Rawashdeh, A.M., Tamimi, S.A., 2019. The impact of employee perceptions of training on organizational commitment and turnover intention: An empirical study of nurses in Jordanian hospitals. Europ. J. Train. Dev. 44 (2/3), 191–207.

Richard, H.J., Lorsch, J.W., 1987. The Design of Work Teams. Prentice-Hall Englewood Cliffs, New Jersey.

Richard, J.E., Zhang, A., 2012. Corporate image, loyalty, and commitment in the consumer travel industry. J. Market. Manage. 28 (5–6), 568–593.

Ruiz-Palomo, D., León-Gómez, A., García-Lopera, F., 2020. Disentangling organizational commitment in hospitality industry: The roles of empowerment, enrichment, satisfaction and gender. Int. J. Hospit. Manage. 90, 102637.

Sacco, D.F., Ismail, M.M., 2014. Social belongingness satisfaction as a function of interaction medium: Face-to-face interactions facilitate greater social belonging and interaction enjoyment compared to instant messaging. Comput. Hum. Behav. 36, 359–364.

Savolainen, I., Oksanen, A., Kaakinen, M., Sirola, A., Zych, I., Paek, H.-J., 2021. The role of online group norms and social identity in youth problem gambling. Comput. Hum. Behav. 122, 106828.

Sharma, R., Singh, G., Sharma, S., 2020a. Modelling internet banking adoption in Fiji: A developing country perspective. Int. J. Inf. Manage. 53, 102116.

Sharma, R., Singh, G., Sharma, S., 2021a. Competitors' envy, gamers' pride: An exploration of gamers' divergent behavior. Psychol. Market. 38 (6), 965–980.

Sharma, S., Singh, G., Pratt, S., 2021b. Modeling the multi-dimensional facets of perceived risk in purchasing travel online: a generational analysis. J. Qual. Assur. Hospit. Tourism 1–29.

Sharma, S., Singh, G., Sharma, R., 2021c. For it is in giving that we receive: investigating gamers' gifting behaviour in online games. Int. J. Inf. Manage. 60, 102363.

Sharma, S., Singh, G., Sharma, R., Jones, P., Kraus, S., Dwivedi, Y.K., 2020b. Digital health innovation: exploring adoption of COVID-19 digital contact tracing apps. IEEE Trans. Eng. Manage. 1–17.

Shih, H.P., Lai, K.H., Cheng, T., 2017. Constraint-based and dedication-based mechanisms for encouraging online self-disclosure: Is personalization the only thing that matters? Eur. J. Informat. Syst. 26 (4), 432–450.

Silva, R.E., Dias, A.L., 2016. The role of organizational training on organizational commitment. The case of private security employees working remotely. Europ. J. Business Soc. Sci. 5 (8), 14–30.

Singh, G., Aiyub, A.S., Greig, T., Naidu, S., Sewak, A., Sharma, S., 2021a. Exploring panic buying behavior during the COVID-19 pandemic: a developing country perspective. Int. J. Emerg. Markets. https://doi.org/10.1108/IJOEM-03-2021-0308.

Singh, G., Sharma, S., Sharma, R., Dwivedi, Y.K., 2021b. Investigating environmental sustainability in small family-owned businesses: Integration of religiosity, ethical judgment, and theory of planned behavior. Technol. Forecast. Soc. Chang. 173, 121094.

Singh, G., Slack, N., Sharma, S., Mudaliar, K., Narayan, S., Kaur, R., Sharma, K.U., 2021c. Antecedents involved in developing fast-food restaurant customer loyalty. The TQM Journal. https://doi.org/10.1108/TQM-07-2020-0163.

Slack, N., Singh, G., Sharma, S., 2020. Impact of perceived value on the satisfaction of supermarket customers: developing country perspective. Int. J. Retail Distribut. Manage. 48 (11), 1235–1254.

Sokolova, K., Perez, C., 2021. You follow fitness influencers on YouTube. But do you actually exercise? How parasocial relationships, and watching fitness influencers, relate to intentions to exercise. J. Retail. Consum. Serv. 58, 102276.

Song, H.J., Lee, H.M., Lee, C.K., Song, S.J., 2015. The role of CSR and responsible gambling in casino employees' organizational commitment, job satisfaction, and customer orientation. Asia Pacific J. Tour. Res. 20 (4), 455–471.

Stragier, J., Abeele, M.V., Mechant, P., De Marez, L., 2016. Understanding persistence in the use of online fitness communities: comparing novice and experienced users. Comput. Hum. Behav. 64, 34–42.

Sui, J.J., Baloglu, S., 2003. The role of emotional commitment in relationship marketing: An empirical investigation of a loyalty model for casinos. J. Hospit. Tour. Res. 27 (4), 470–489.

Taggar, S., Ellis, R., 2007. The role of leaders in shaping formal team norms. Leadersh. Quart. 18 (2), 105–120.

Tajfel, H., Turner, J., 1986. The social identity theory of intergroup behavior. In S. Worchel and WG Austing (Eds.). Psychology of intergroup relations.

Tanford, S., 2016. Antecedents and outcomes of hospitality loyalty: A meta-analysis. Corn. Hospit. Quart. 57 (2), 122–137.

Tansley, C., Huang, J., Foster, C., 2013. Identity ambiguity and the promises and practices of hybrid e-HRM project teams. J. Strateg. Inf. Syst. 22 (3), 208–224.

Teng, C.I., 2018. Look to the future: enhancing online gamer loyalty from the perspective of the theory of consumption values. Decis. Support Syst. 114, 49–60.

Teng, C.I., Chen, W.W., 2014. Team participation and online gamer loyalty. Electron. Commer. Res. Appl. 13 (1), 24–31.

Tomazelli, J., Broilo, P.L., Espartel, L.B., Basso, K., 2017. The effects of store environment elements on customer-to-customer interactions involving older shoppers. J. Serv. Mark. 31 (4/5), 339–350.

Xiang, L., Zheng, X., Zhang, K.Z., Lee, M.K., 2018. Understanding consumers' continuance intention to contribute online reviews. Indust. Manage. Data Syst. 118 (1), 22–40.

Wang, X., Tajvidi, M., Lin, X., Hajli, N., 2020. Towards an ethical and trustworthy social commerce community for brand value co-creation: A trust-commitment perspective. J. Bus. Ethics 167 (1), 137–152.

Wei, W., Lu, Y.T., Miao, L., Cai, L.A., Wang, C.Y., 2017. Customer-customer interactions (CCIs) at conferences: An identity approach. Tourism Manage. 59, 154–170.

Wombacher, J.C., Felfe, J., 2017. Dual commitment in the organization: Effects of the interplay of team and organizational commitment on employee citizenship behavior, efficacy beliefs, and turnover intentions. J. Vocat. Behav. 102, 1–14.

Workman, M., Kahnweiler, W., Bommer, W., 2003. The effects of cognitive style and media richness on commitment to telework and virtual teams. J. Vocat. Behav. 63 (2), 199–219.

Yang, J.T., 2010. Antecedents and consequences of job satisfaction in the hotel industry. Int. J. Hospit. Manage. 29 (4), 609–619.

Yang, X., Tong, Y., Teo, H.H., 2015. Fostering fast-response spontaneous virtual team: Effects of member skill awareness and shared governance on team cohesion and outcomes. J. Associat. Informat. Syst. 16 (11), 1–28.

Yao, T., Qiu, Q., Wei, Y., 2019. Retaining hotel employees as internal customers: Effect of organizational commitment on attitudinal and behavioral loyalty of employees. Int. J. Hospit. Manage. 76, 1–8.

Yoganathan, V., Osburg, V.S., Bartikowski, B., 2021. Building better employer brands through employee social media competence and online social capital. Psychol. Market. 38 (3), 524–536.

You, S., Robert, L.P., 2018. Emotional Attachment, Performance, and Viability in Teams Collaborating with Embodied Physical Action (EPA) Robots. J. Associat. Informat. Syst. 19 (5), 377–407.

Yuan, Y.P., Tan, G.W.H., Ooi, K.B., Lim, W.L., 2021. Can COVID-19 Pandemic Influence Experience Response in Mobile Learning? Telematics Inform. 101676.

Zhang, X., Ma, L., Xu, B., Xu, F., 2019. How social media usage affects employees' job satisfaction and turnover intention: An empirical study in China. Informat. Manage. 56 (6), 103136.

Zhou, T., 2011. Understanding online community user participation: a social influence perspective. Intern. Res. 21 (1), 67–81.

Zhou, Z., Zhang, Q., Su, C., Zhou, N., 2012. How do brand communities generate brand relationships? Intermediate mechanisms. J. Busin. Res. 65 (7), 890–895.

Zhu, Y., Stephens, K.K., 2019. Online support group participation and social support: Incorporating identification and interpersonal bonds. Small Group Res. 50 (5), 593–622.

Zopiatis, A., Constanti, P., Theocharous, A.L., 2014. Job involvement, commitment, satisfaction and turnover: Evidence from hotel employees in Cyprus. Tour. Manage. 41, 129–140.