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桌遊作為嚴肅遊戲的媒介對助人意向的影響

The Board Game as a Medium to Initiate a Serious Game Will Be Effective for Prosocial Intentions

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Abstract

Serious games are designed for purposes beyond pure entertainment, increasingly applied to a broad spectrum of fields in recent years. Notably, much of the research has focused on the effectiveness of serious games in for-profit organizations to engage stakeholders for specific purposes; however, the effects of serious games in the nonprofit sector to engage supporters for prosocial purposes is understudied. Besides, only some studies have empirically tested the effects of serious games on prosocial behavior and attitude changes. Nevertheless, the results were inconsistent, and the knowledge of the underlying mechanism is scant. The present study aimed to understand serious games' effects on low-cost and high-cost prosocial intentions toward people with disabilities and the psychological process that mediates their relationship. Findings from a one-factor (serious board game vs. online text-reading) between-subjects experiment among 101 undergraduate participants revealed that game players expressed significantly greater low-cost prosocial intentions than text readers, and the effect was partially mediated by empathy. On the contrary, serious games had no effect on and even decreased high-cost prosocial intentions since the perceived costs of helping are relatively high, which directed people's concern for others in need toward self-focused concern.

Keywords: *serious games, empathy, prosocial intentions, cost of helping, reinforcement*

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Chapter 1: Introduction

1.1 Background and Motivation

The success of games and gamified features applied in the field of education, government, healthcare, and business have gained recognition over time (Hamari et al., 2014; Krath et al., 2021; Sussi, 2007). Notably, in the for-profit sector, corporations attract and engage customers, talent, and employees more enjoyably and interactively through games for business and organizational growth (Allal-Chérif & Bidan, 2017; Corti, 2006; Donovan &Lead, 2012; Larson, 2020; Susi, 2007; Uskov & Sekar, 2014). For instance, McDonald's converted the till training for staff into a game, generating an impact of GBP 23.7 million in the UK alone (Kineo, 2014). Likewise, for nonprofit organizations (NPOs), it is also crucial to attract and activate stakeholders, including but not limited to the general public, donors, and volunteers (Balser & McClusky, 2005; Kearns, 1996) to succeed in their mission-related impact (Liket et al., 2014). Therefore, in the present research, we aim to discuss whether using games as the media will also be effective for NPOs, distinct from for-profit organizations, to engage current and potential supporters for their prosocial causes and investigate the underlying mechanism to help achieve the desired outcomes.

1.2 Research Problem

In recent years, the term "*Serious Games*," designed with attentive educational purposes beyond pure entertainment (Abt, 1970; Azadegan et al., 2012), has become increasingly prevalent in the literature. Games-based environments provide people with the opportunity to observe, experience, and experiment in a safe and simulated world that resembles real-life settings (Corti, 2006; Sussi, 2007), which facilitates learning and generates knowledge acquisition, cognitive, affective, motivational, and behavioral outcomes (Boyle et al., 2016;

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Connolly et al., 2012). A handful of studies have reported on how firms like IBM, Siemens, and L'Oréal harness the power of serious games to engage customers and achieve human resources management purposes (Allal-Chérif & Bidan, 2017; Corti, 2006; Donovan & Lead, 2012; Uskov & Sekar, 2014).

Nevertheless, literature regarding serious games applied in the nonprofit sector for social change is scarce. Although some studies have empirically tested the impact of serious games on prosocial behavior and attitude changes toward disadvantaged groups such as homeless people, refugees, and the poor, the results were inconsistent and needed to be further explored (Lavender, 2008; Nieh & Wu, 2018; Peng, 2010; Roussos & Dovidio, 2016). Based on Batson's (1983) findings pointed out that when helping was costly, which hindered the altruistic motivation evoked by empathic feelings. Accordingly, this study assumes that the level of perceived costs to helping situations may influence the effectiveness of serious games, thus providing a more in-depth investigation into low-cost and high-cost prosocial intentions, respectively.

Additionally, there is scant knowledge of the psychological process of such prosocial results. Drawing on the literature of serious games for prosocial purposes, they mainly measured empathy as the outcome to explain the effectiveness of the game intervention in promoting prosocial behavior and attitudes (Ferreira et al., 2021; Nieh & Wu, 2018; Sterkenburg & Vacaru, 2018). Few empirical evidence, like Peng's (2010) study, has tested the effect of role-taking, one of the antecedents of empathy (Batson, 2007), as the mediator of serious games on the willingness to help. These studies provide clues that empathy may be the underlying mechanism for fostering prosocial intentions in the game context; however,

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there is still a lack of empirical evidence to directly examine empathy as the mediator to mediate the relationship between serious games and prosocial intentions effectively.

1.3 Research Objectives

In sum, this research aims to examine the applicability of serious games in the nonprofit sectors for achieving prosocial purposes and the psychological process for the proposed effects. We thus conduct an experiment through collaboration with Syin-Lu Social Welfare Foundation (https://www.syinlu.org.tw/english/about_us/920), a local NPO in Taiwan that acts on the welfare of mentally or intellectually disabled people, to examine the effectiveness of a serious board game *The Journey* (https://syinlu.org.tw/english/participate/board_game) on low-cost and high-cost prosocial intentions toward people with disabilities. Moreover, rather than focusing on empathy as the goal of serious games for prosocial purposes as in the past literature (Ferreira et al., 2021; Nieh & Wu, 2018; Sterkenburg & Vacaru, 2018), this research helps to explain how empathy elicited in the games as the method to mediate the effect of serious games on prosocial intentions.

1.4 Structure of The Research

In the following chapter, we review related literature from which we derive our research questions and elaborate on the hypotheses in Chapter 3. Chapter 4 discusses details regarding the experimental design and analysis results. Finally, we provide the conclusion, theoretical and practical contributions, limitations, and future directions in Chapter 5.

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Chapter 2: Literature Review

2.1 Design of Serious Game

In the past decades, there has been an upsurge of interest in how games and gamified features are applied to serious issues beyond pure entertainment (Boyle et al., 2015; Connolly et al., 2012; Hamari et al., 2014; Sussi, 2007). Based on Clark Abt's (1970, p.9) definition, he first coined the term *Serious Game* in his book as "games have an explicit and carefully thought-out educational purpose and are not intended to be played primarily for amusement." Therefore, serious games are "serious" because they involve pedagogy that educates and instructs, empowering players to acquire knowledge and develop various skills (Sussi et al., 2007; Zyda, 2005). Moreover, serious games leverage the power of the game's simulated environment, which allows people to learn and experience situations that are impossible in real-life settings due to costs, safety, time, and logistics (Corti, 2006).

The medium of a serious game could be a card game, a board game, a computer game, or even an outdoor game (Abt, 1970). However, developing digital serious games can be costly (Whitton, 2012) for NPOs who are often with limited resources (Malatesta & Smith, 2014) and also beyond their IT capacity, mainly when it involves high-tech knowledge and skills (Hackler & Saxton, 2007). Moreover, digital serious games can be test-executed with the help of a physical prototype (Poplin, 2012). That is, the board game design can help test serious games' usability before NPOs allocate considerable resources to digital format. Consequently, we focus on board games because of their cost-effectiveness and testability. In the present study, we use *The Journey*, an original board game invented by the Syin-Lu Social Welfare Foundation in Taiwan in 2020, to examine the effectiveness of serious games on prosocial intentions toward people with disabilities.

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2.2 Adoption of Serious Game

In recent years, the term "serious game" has entered the mainstream (Boyle et al., 2015; Guillén-Nieto & Aleson-Carbonell, 2012), which can be applied to a broad spectrum of application areas (Susi, 2007) and the corporate sector is no exception, including companies in the Fortune 500 (Corti, 2006; Donovan & Lead, 2012; Susi, 2007; Uskov & Sekar, 2014). In for-profit organizations, companies design serious games for their employees and customers to achieve human resources management and marketing purposes, respectively (Allal-Chérif & Bidan, 2017; Corti, 2006; Donovan & Lead, 2012; Susi, 2007; Uskov & Sekar, 2014). For the employees, serious games are used for recruitment and training. For example, L'Oréal launched the serious game *Reveal* in 2010, targeting to attract young talents from all academic backgrounds who best suit the occupations within the company (L'Oréal, 2010). The game enables players to role-play as a member of L'Oréal, who needs to take up the challenge of achieving 50% of the company's sales in emerging markets and practice skills in various scenarios that simulated the real business world (Allal-Chérif & Bidan, 2017). In 2011, more than 70,000 players played the serious game *Reveal*, resulting in 185 hires and the brand of L'Oréal has made an impression on the Y generation (Allal-Chérif & Bidan, 2017).

Besides recruitment, serious games are most commonly applied to the training efforts of companies (Donovan & Lead, 2012; Larson, 2020; Susi, 2007), helping employees develop skills like decision-making, problem-solving, planning, and leadership (Corti, 2006; Grund & Meier, 2016; Guillén-Nieto & Aleson-Carbonell, 2012; Uskov & Sekar, 2014). For example, the *Deloitte Business Simulation* game was designed for corporate responsibility and sustainability training. While playing the game, employees experience a realistic

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company model and encounter various scenarios they might face in the future (Donovan & Lead, 2012; Riedel et al., 2014). During the play, players confront the consequences of their decisions just as in the real world, which helps them to develop decision-making and management skills (Donovan & Lead, 2012). The hands-on experiential learning from the games helps employees increase their skills and acquire the necessary knowledge for their work (Donovan & Lead, 2012; Grund & Meier, 2016). Especially in the financial service sector, serious games are famous for explaining complex financial concepts and compliance training (Donovan & Lead, 2012). For example, the European Central Bank created the serious game *€conomia* to teach employees how monetary policy works (Donovan & Lead, 2012). Similarly, BNP Paribas launched the serious game *Starbank* in 2009, designed to assist recruits in learning about banking activities and the company's core values, businesses, and management systems (BNP Paribas, 2009).

In addition to human resources management, serious games are also being used for marketing purposes, targeting corporate's current and potential customers, raising brand awareness and promoting products (Allal-Chérif & Bidan, 2017; Corti, 2006; Donovan & Lead, 2012; Ratan & Ritterfeld, 2009; Uskov & Sekar, 2014). For instance, IBM's *INNOV8: CityOne* is an urban planning serious game used to explain business process management to college students and business leaders on applying technological advances and understanding complex system dynamics for better decision-making (IBM, 2010). Players managed to solve a series of missions that include the energy, water, banking, and retail industries in a virtual world by leveraging IBM's technology and software solutions (Allal-Chérif & Bidan, 2017; IBM, 2010). From a B2B marketing perspective, by launching the *INNOV8* series, IBM tapped directly into the school setting, where the company's image has strengthened among

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future leaders and potential customers. More than 1,000 universities worldwide used the games (IBM, 2010). Additionally, the existing customers from top management across the globe working with IBM were engaged in the games, making the company's products and services more compelling to clients (Donovan & Lead, 2012; IBM, 2010; Riedel et al., 2014). Likewise, Siemens launched *Plantville* in 2011; an online serious game engaged not only with employees for training and recruitment purposes but also open to the public for showcasing its product and service (Donovan & Lead, 2012; Siemens, 2011). The simulation in the game provides players with the opportunity to experience being a plant manager and learn to improve the operation of their plants in the aspect of higher productivity, efficiency, and sustainability by learning and using solutions and industrial and infrastructure products from Siemens (Donovan & Lead, 2012; Kim et al., 2018; Siemens, 2011).

2.3 Serious Game and Learning

The term serious game has been used interchangeably with games-based learning in the past literature over the decades (Boyle et al., 2016; Connolly et al., 2012; Cortis, 2006). The main objective of games-based learning and serious games are learning and behavior change (Connally et al., 2012). A handful of empirical studies have revealed that games can effectively achieve knowledge and skill acquisition, affective, motivational, and behavioral outcomes (Boyle et al., 2016; Connolly et al., 2012). The effectiveness of serious games within corporates stems from some advantages of games to achieve the abovementioned outcomes. First, the games-based learning environments foster positive affect and engagement by elevating participants' enjoyment, interest, and concentration, which support learning behavior and outcomes (Hamari et al., 2016; Sabourin & Lester, 2014). In particular, the positive affective states aroused in the learning process aid participants in overcoming

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negative experiences such as boredom and frustration, leading to increased motivation and effort to learn (Meyer & Turner, 2006; Sabourin & Lester, 2014). Secondly, in the professional training and educational context, experiential learning in serious games (Grund & Meier, 2016; Mayo, 2007) allows players to learn from actively engaging in the games (Garris et al., 2002), where recreating a simulated environment, a simulated system or a role-play scenario that is beneficial for players to observe, experience and experiment without taking risks (Corti, 2006). During the play, players take action while navigating different game scenarios and learn how their decisions and behavior impact real-life situations (Corti, 2006; Donovan & Lead, 2012; Mayo, 2007). This hands-on learning experience helps to develop knowledge and skills through practice and immediate feedback (Donovan & Lead, 2012). Furthermore, in some cases like IBM's *INNOV8: CityOne* and Siemen's *Plantville* serious games, even transforming the learning effects into motivating customers to use their products and services (Donovan & Lead, 2012; Riedel et al., 2014).

2.4 The Different Learning Objectives Between For-Profit Organizations and NPOs

Serious games can be a practical approach for for-profit organizations to achieve desired outcomes among their stakeholders, including employees and customers (Allal-Chérif & Bidan, 2017; Donovan & Lead, 2012; Uskov & Sekar, 2014). A good gamified learning design aligns the learning objectives with learners' intrinsic motivation (Zainuddin et al., 2020), and companies' serious game content is often intrinsically relevant to the players (Corti, 2006); they regard it as relevant to help strengthen their competencies to solve self-oriented problems or needs. Most of the time, players play a role as themselves that resembles their current vocation or future career aspirations. Through repeated practice and trials and

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errors in the games (Corti, 2006; Susi, 2007), players actively learn in a simulated environment resembling real-life situations, thus achieving the objectives of acquiring knowledge and developing skills that they need (Corti, 2006; Donovan & Lead, 2012).

In contrast, organizations in the nonprofit sector play a critical role in helping people (Lipsky & Smith, 1990) who are often other-oriented and have less direct relevance to their supporters and the general public. One of the main goals of NPOs is to motivate their stakeholders to understand other people's problems or needs, leading to prosocial behavior, which is the intention to help or benefit others (Eisenberg & Mussen, 1989; Gentile et al., 2009; Penner et al., 2005). Hence, it is obvious to identify that there are different learning objectives between for-profit organizations and NPOs in an attempt to engage their stakeholders through serious games: self-oriented vs. other-oriented. In addition, gamified learning can be ineffective without triggering intrinsic motivation (Zainuddin et al., 2020); therefore, whether NPOs can intrinsically motivate their stakeholders to be aligned with the other-oriented learning objective to help other people through serious games and what is the underlying mechanism, are both yet to be explored. We thus propose two main research questions: (a) Will the adoption of serious games be effective for NPOs to promote prosocial intentions among stakeholders? (b) What will be the underlying mechanism to help achieve the proposed effect?

2.5 The Potential of the Game Environment

Past literature generally defined prosocial behavior as actions intended to help or benefit others (Eisenberg & Mussen, 1989; Penner et al., 2005; Gentile et al., 2009). Empirical studies have proven that video games can induce prosocial behavior with prosocial content

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(Gentile et al., 2009; Greitemeyer & Osswald, 2010). These studies have demonstrated the potential of games to help players learn prosocial behavior by reinforcing such behavior in the game, for instance, by requiring helping people to succeed in the game, resulting in the increase of prosocial behavior of an individual after the play. Additionally, in the educational context, the experience of hands-on activities increases learners' interest and motivation (Bergin, 1999; Holstermann et al., 2010; Middleton, 1995) through a more stimulating and realistic experience of the content (Franklin & Peat, 2005; Nott & Wellington, 1996). Playing games is considered one of the hands-on activities (Zahorik, 1996), and especially serious games facilitate hands-on experiential learning in an interactive and fun environment, where players learn by doing and experience the consequences of their decisions as they would encounter in the real world (Corti, 2006; Donovan & Lead, 2012).

In addition to the learning effects, games are well-suited environments for fostering empathy since they allow players to inhabit roles different from their own in an immersive way (Belman & Flanagan, 2010; Boltz et al., 2015). Through such role-taking, players take another person's perspectives and thus feel a sense of similarity and empathy toward an individual or groups with whom they may not be familiar in daily life (Belman & Flanagan, 2010; Boltz et al., 2015). In particular, empathy, which involves an intrinsic motivation to reduce others' distress (Watt, 2005), has been identified as positively correlated with prosocial behavior in the past literature (Batson et al., 1991a; Batson et al., 1981; Eisenberg & Miller, 1987; Hoffman, 1978). Based on the previous discussion, the present study argues that the game-mediated environment provides affordance for reinforcement, hands-on experience, and role-taking, which more easily motivates people to learn to understand others'

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problems or needs than the traditional text-reading approach without providing the abovementioned characteristics.

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Chapter 3: Hypotheses

This research focuses on whether adopting serious games will be effective for NPOs to promote prosocial causes among their stakeholders. Three key research constructs were identified: serious games, empathy, and prosocial behavior, which interact with one another, thus providing the theoretical rationale for our hypotheses.

3.1 Empathy and Prosocial Behavior

Empathy consists of cognitive and affective (emotional) processes (Davis, 1980; Davis, 1983; Decety & Jackson, 2004; Lawrence et al., 2004). On the one hand, cognitive empathy refers to the intellectual process that involves the ability to interpret and understand another person's thoughts and feelings (Davis, 1980; Davis, 1983a). On the other hand, affective empathy is a feeling of sympathy, compassion, tenderness, and warmth toward others (Batson, 1987a) and the ability to share others' emotions vicariously (Decety & Jackson, 2004). These processes may interact (Feshbach, 1975) and work together to motivate helping (Coke et al., 1978). Past research has shown that empathy is positively related to prosocial behavior (Batson et al., 1991a; Batson et al., 1981; Eisenberg & Miller, 1987; Hoffman, 1978). In particular, Batson and his associates (1991c, 1981, 1987b, 1991b) have put forward the empathy-altruism hypothesis, which claims that empathy (the other-oriented feeling for a person in need), which has been used interchangeably with empathic concern (Batson, 2007; Batson et al., 1981), can evoke prosocial motivation directed toward the ultimate goal of increasing the other's welfare. Based on this hypothesis, which specifies three key antecedents of empathy (Batson, 2007, 1987b, 1991b): (a) perceiving the other in need, (b) taking the perspective of another person (e.g., imaging how the other person feels, reacts and being affected in a given situation), and (c) valuing the other's welfare (e.g., perceiving

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other's welfare as part of our value structure) which elicit empathy felt for a person in need and in turn, produce the motivation to help. When people feel more empathy for the person in need, they are more motivated to relieve that person's need (Batson, 2011; Coke et al., 1978). Additionally, empathy induced for a member of a stigmatized group can be generalized to the group as a whole, for instance, the attitude improvement toward people with AIDS, the homeless, people with physical disabilities, and racial and ethnic minorities (Batson et al., 1997; Clore & Jeffrey, 1972; Finlay & Stephan, 2000). These positive attitude changes can further be translated into actual action to help the group (Batson et al., 2002).

3.2 Serious Game and Prosocial Behavior

As shown in past literature, empathy is an essential factor producing prosocial behavior; therefore, this research assumed that when empathy is elicited in a serious game, which in turn, may promote prosocial behavior among players. Notably, this study uses a serious board game likely to evoke empathy by letting players encounter game characters with disabilities in need under different scenarios and experience how to help them while playing the helper role. Nevertheless, given the circumstances that prosocial behavior often entails a cost to the self (Twenge et al., 2007), and the costs can include monetary and time efforts (Liu & Aaker, 2008), emotional investment (Padilla-Walker & Fraser, 2014), and the physical energy expended in bystander intervention in emergencies (Fischer et al., 2011). Although the empathy-altruism relation has been proven in a handful of studies, there is an upper limit on this relation when the cost of helping is made relatively high (Batson, 1983). According to Batson (1983), there are two distinct emotional responses when seeing a person in need. One is personal distress, which is self-oriented with egoist motivation to reduce one's own distress; the other is empathy, an other-oriented response with altruistic motivation to

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reduce another person's distress. Particularly in the costly helping situation, even people with a predominance of empathy are directed away from concern for the other person in need and toward self-concern, resulting in an egoist pattern of helping (Batson, 1983). That is, people help only under conditions that are difficult to escape and tend not to help when there is an easy-escape condition. Furthermore, when the helping is costly, empathy induction can possibly trigger a backfire effect that decreases rather than promotes prosocial behavior (Graziano, 2007). In other words, the high cost of helping may make people feel self-centered and have negative feelings about the perceived burden of prosocial acts placed on them (Graziano, 2007). These studies provided clues that people consider the cost of helping other people.

From our point of view, in general, when serious games can induce empathy, which may lead to altruistic motivation to help and positively predict prosocial outcomes in situations where the perceived costs of helping may be low. As a result, people are more likely to increase prosocial intentions through serious games. On the contrary, when the cost of helping is made relatively high, which often involves a contribution of time or money to the individual (Gneezy et al., 2012), the emotional response may shift from an other-oriented feeling to a self-oriented feeling of personal distress, directing people's attention toward themselves. Therefore, given the costly helping situation, the serious games will not affect or even decrease people's prosocial intentions. Consequently, this research hypothesizes that:

Hypothesis 1(a): Serious board games as a promotion media will increase prosocial intentions when helping is not costly.

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Hypothesis 1(b): Serious board games as a promotion media will have no effect on or decrease prosocial intentions when helping is costly.

3.3 The Mediating Role of Empathy

Some studies discussed the effectiveness of serious games on prosocial behavior and attitude changes, but the results are inconsistent, and the knowledge is scant on the underlying mechanism (Lavender, 2008; Nieh & Wu, 2018; Peng, 2010; Roussos & Dovidio, 2016). Peng's (2010) empirical studies have claimed that role-taking, which has a strong correlation with empathy, was proven valid in examining the effect of serious games on willingness to help. However, his study did not directly measure empathy, and there were inconsistent findings of role-taking as the mediator of the relationship between serious games and the willingness to help, suggesting that the underlying mechanism needs further exploration. Although role-taking is generally referred to as a cognitive process (Davis, 1996b), in which individuals take another person's perspective, imagine how the other person thinks and feels, or pretend they were in the other's situation how would they feel (Davis et al., 1996a). During the active role-taking process, while exposing to a target in need, people's affective states are also changed by eliciting feelings of compassion and sympathy for the target (Batson et al., 1989; Davis et al., 1996a; Davis, 1983b), that is the emotional empathy — other-focused feelings evoked by seeing a person in need or distress, resulting in altruistic motivation for helping the others (Batson, 1987a). Besides, Coke et al. (1978) have specified that perspective-taking affects helping only through its effect of increasing empathic emotion, thus enhancing the motivation to help. However, the psychological process, which is directly about the empathy elicited by games, has been rarely discussed in the literature regarding

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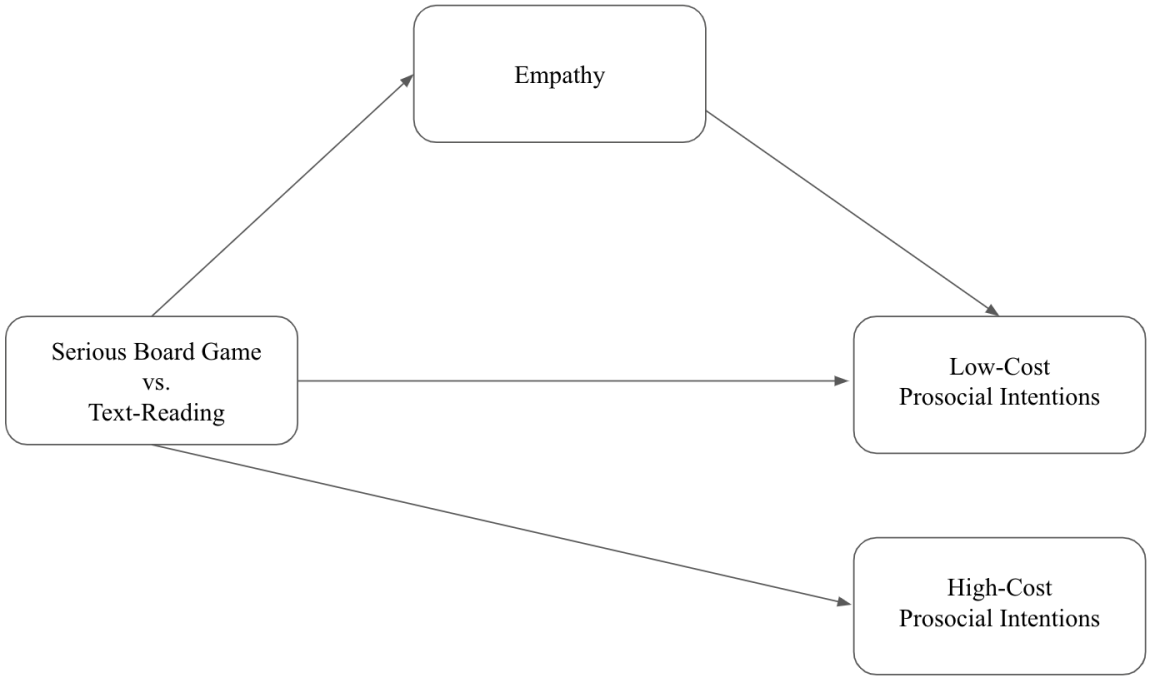
serious games for prosocial purposes. As suggested in the previous studies, we infer that the existence of empathy, encompassing both cognitive and affective processes (Davis, 1980; Davis, 1983a; Decety & Jackson, 2004), will mediate the relationship between serious games and low-cost prosocial intentions.

Hypothesis 2: Empathy mediates the effect of the serious board game on prosocial intentions when helping is not costly.

Figure 3.1 ***Predicted Research Model***



Note. Low-cost prosocial intentions represent "prosocial intentions when helping is not costly."
High-cost prosocial intentions represent "prosocial intentions when helping is costly."

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Chapter 4: Empirical Study

In order to gain insight into whether a serious game will be effective in affecting people's prosocial intentions and the role of empathy may play during the process. We used a board game as the medium, which engaged subjects in learning and experience helping people with disabilities as the experimental group, compared to the traditional text-reading control group.

4.1 Participants

One hundred and one undergraduate students (25 male, 76 female) from universities in Taiwan participated in the study (116 in total were recruited; 15 participants failed to turn in valid questionnaires with complete data). Fifty-four participants (10 male) of the experimental group were recruited from the collaboration with Syin-Lu Social Welfare Foundation, and forty-seven participants (15 male) were in the control group. The age of participants ranged from eighteen to twenty-five years old.

4.2 Board Game *The Journey*

This study used an existing board game, *The Journey*, and a created online text-reading material. The game was invented and launched in October 2020 by an NPO in Taiwan, Syin-Lu Social Welfare Foundation, which aims to transfer the barriers deployed in the game to similar situations encountered in the real world by people with disabilities. Five to six people form a group to play the board game, and each player randomly selects a character card representing a role so-called "elf" with one specific disability, including visual impairment, hearing impairment, moving function limitation, mental disorder, intellectual and developmental disability, and autism that players need to help with throughout the game. During the play, the game provides a storyline that six elves want to go out to attend the

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International Day of Persons with Disabilities and simulates the barriers that people with disabilities will encounter when they go outside, such as potholes, noises, difficulties in reading traffic lights and road signs, getting lost, and so forth. Since the end goal of the game is to help all the elves arrive at the destination successfully, players not only need to rescue their elves once they encounter troubles on the road but also help other players' elves. A one-point gift card is given immediately to a player who rescues his/her own elf, whereas players are rewarded with a two-point gift card when they save other players' elves stuck on the road. The rescue cards are designed with different approaches to solving specific roadblocks; for instance, the presence of a kind-hearted passerby can assist the elf with autism who gets lost on the road. In the end, the player who collects the most points will be the final winner of the game under the circumstances that every elf arrives at the destination. The online text-reading material was developed as a story containing information comparable to the content provided in the board game. The online text-reading material is in Appendix 1.

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Figure 4.1 ***The Board Game The Journey Presentation***

Figure 4.2 ***An Actual Playing Session of The Board Game***

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4.3 Procedure

One-factor (board game vs. online text-reading) between-subjects experiment was conducted to test the hypotheses. Sixty-one participants played the board game *The Journey* as an in-class activity organized by joint efforts from professors and the NPO staff. The experiment began with a brief instruction of around 10 minutes of game rules by a facilitator from the NPO. In the classroom, participants were randomly divided into subgroups of five to six people. The play duration was around 10 to 15 minutes, depending on the speed of each group achieving to help all the elves arrive at the destination. After the play, there was a 10 minutes debriefing session followed up, in which players shared their playing experiences, and the facilitator directed the players to understand the characteristics of each disability of the game characters and also to reflect on what they can do to become a helper while seeing people with disabilities in need in real-life situations. Lastly, participants filled out a post-questionnaire measuring their empathy toward the elves in the board game, enjoyment of the play, prosocial intentions toward people with disabilities, and basic demographic information. Moreover, we offered an incentive as a lucky draw of twenty Starbucks gift cards worth 150 NT dollars each card for participants who handed in the valid questionnaire the chance to win. A total of 61 questionnaires were sent out, 54 were effectively received with an effective recovery of 88.52%, and 7 participants failed to turn in a valid questionnaire with complete data. The post-questionnaire of the experimental group is in Appendix 2.

In the text-reading condition, 55 participants received an online package of text-reading material and a post-questionnaire. Once the participants received the package, they needed

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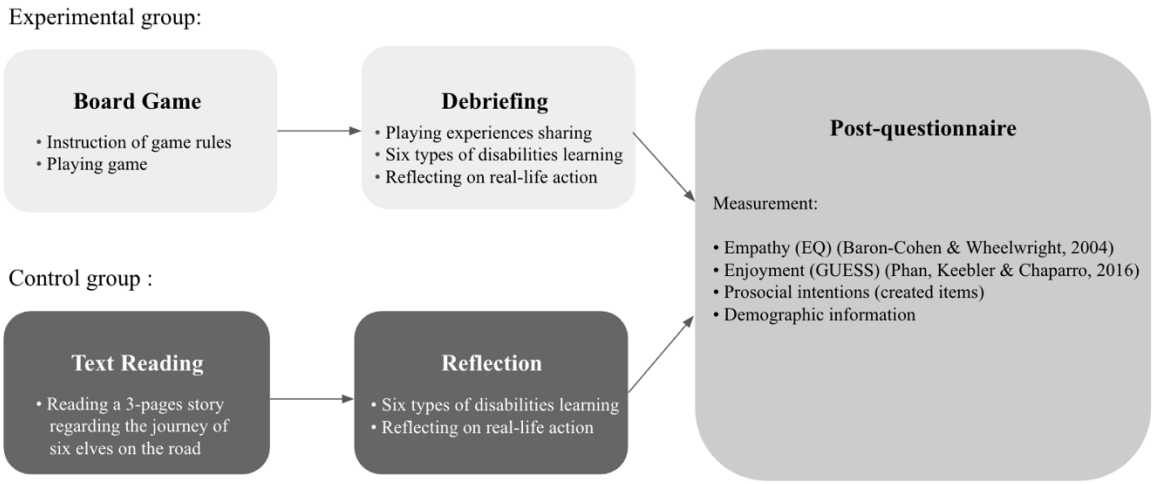
to read through the story regarding the barriers each of the six elves encountered on the road. On average, the participants spent around 10 minutes reading through the story together with the reflection section, which is information comparable to the debriefing session in the experimental group, including the content of learning characteristics of six types of disabilities and reflecting on the actions they can take in the real-world environment to help people with disabilities. After the reading, a post-questionnaire followed immediately, measuring participants' empathy toward the elves in the story, enjoyment of the reading, prosocial intentions toward people with disabilities, and basic demographic information. In addition, we provided an incentive as a lucky draw of twenty Starbucks gift cards worth 150 NT dollars each card for participants who turned in the valid questionnaire the chance to win. Fifty-five questionnaires were sent out, 47 were recollected, 8 invalid questionnaires (with incomplete data) were excluded, and the effective rate was 85.45%. The post-questionnaire of the control group is in Appendix 3.

Figure 4.3 ***The Procedure of Study***



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4.4 Measures

First, empathy was measured by four items extracted from the Empathy Quotient (EQ) (Baron-Cohen & Wheelwright, 2004). Based on the three-factor structure of EQ (Lawrence et al., 2004), the empathy items used in this questionnaire were categorized as the cognitive empathy factor and emotional reactivity factor according to the structure proposed. In addition, these empathy items' wordings were adapted to correspond to what the participants experienced in the board game and text-reading condition, respectively. For the experimental group, the participants were asked to use a 5-point scale (*1 = strongly disagree, 5 = strongly agree*) to express how much they agree or disagree with the statement of the four items, including emotional reactivity items: (a) When I was playing the board game, I felt upset as the elf I helped encountered barriers on the road (b) When I was playing the board game, I felt delighted as other players got happy because his/her elf was rescued; and cognitive empathy items: (c) Now, I can understand why the elf I helped felt helpless when he/she encountered barriers on the road (d) Now, I can understand why the elf I helped felt scared when going outside. For the control group, the wordings of the four items were adapted to conform to the story content: (a) When I was reading the story, I felt upset as the elves in the plot encountered barriers on the road (b) When I was reading the story, I felt delighted as the elves in the plot got happy because they received help during their trouble on the road; and cognitive empathy items: (c) Now, I can understand why the Floral Gé-gé would feel helpless when she got lost on the road and couldn’t find the MRT station (d) Now, I can understand why Green Sŭn-Sŭn would feel scared when he heard sirens from the fire trucks. The Cronbach's alpha is 0.81 for empathy items, and an overall empathy score was derived from the measurement.

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Second, three items measuring enjoyment were extracted and adapted from the Game Users Experience Satisfaction Scale (GUESS) (Phan et al., 2016). Regarding the experimental group, the participants were asked to use a 5-point scale (*1 = strongly disagree, 5 = strongly agree*) to rate the level of agreement for (a) I consider *The Journey* an interesting game, (b) I enjoyed the process of playing *The Journey* very much (c) I would like to play *The Journey* one more time if I have the chance. Regarding the control group, the wordings of enjoyment items were adapted for the reading condition: (a) I consider *The Journey* a very interesting story (b) I enjoyed the process of reading *The Journey* very much (c) I would like to read *The Journey* one more time if I have the chance. The Cronbach's alpha is 0.89 for these three items concerning enjoyment measurement.

Third, prosocial intentions toward people with disabilities were measured using four created items: (a) Are you willing to participate in volunteering work that provides services to people with disabilities (Volunteering) (b) Are you willing to donate part of your income (allowance) to a charity group that helps people with disabilities (Donation) (c) When you see a blind person having difficulty crossing the road, are you willing to help this person (Helping) (d) When you take a bus, are you willing to wait patiently for the bus driver to put down a ramp and assist a passenger with a wheelchair to get on (Acceptance). The participants were asked to use a 5-point scale (*1 = strongly unwilling, 5 = strongly willing*) to rate their prosocial intentions items. As for the Volunteering and Donation, participants were asked to further respond to how many times they are willing to participate in the volunteering work per year and how much NT dollars they are willing to donate per month.

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In addition, we distributed an online survey to examine the level of perceived costs to these four prosocial intention items. Sixty-three undergraduate students were recruited from colleges in Taiwan. They were asked to use a 5-point scale (*1 =lowest cost, 5 = highest cost*) to rate the level of costs (e.g., time, money, and efforts to be paid) they perceived for each helping situation statement. After collecting the data, we used R to run the principal component analysis, which revealed the existence of two factors among these four items and then conducted the exploratory factor analysis. As Table 4.1 demonstrated, Factor 1 was labeled high-cost prosocial intentions due to the high loadings by the following two items: (a) Are you willing to participate in volunteering work that provides services to people with disabilities (b) Are you willing to donate part of your income (allowance) to a charity group that helps people with disabilities. This first factor explained 38% of the variance with factor loadings from .84 to .87. The second factor derived was labeled low-cost prosocial intentions due to the high loading by the following two items: (c) When you see a blind person having difficulty crossing the road, are you willing to help this person (d) When you take a bus, are you willing to wait patiently for the bus driver to put down a ramp and assist a passenger with a wheelchair to get on. This factor explained 36% of the variance with factor loadings from .81 to .83.

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Table 4.1 ***Exploratory Factor Analysis of Prosocial Intentions Items***

Items	Factors		Dimension
	1	2	
Are you willing to participate in volunteering work that provides services to people with disabilities? (Volunteering)	**.84**	.24	High-Cost Prosocial Intentions
Are you willing to donate part of your income (allowance) to a charity group that helps people with disabilities? (Donation)	**.87**	-.14	
When you see a blind person having difficulty crossing the road, are you willing to help this person? (Helping)	.20	**.81**	Low-Cost Prosocial Intentions
When you take a bus, are you willing to wait patiently for the bus driver to put down a ramp and assist a passenger with a wheelchair to get on? (Acceptance)	-.11	**.83**	

4.5 Analyses and Results

To test the efficacy of the serious board game on low-cost prosocial intentions (H1a) and high-cost prosocial intentions (H1b), independent sample *t*-tests were conducted. Since the two items measuring low-cost prosocial intentions were not strongly correlated, r (99) = 0.31, $p < .01$, we regarded each item as the independent outcome variable. As can be seen, Table 4.2 showed that there was a statistically significant difference in the prosocial intentions of Helping, t (99) = 2.66, $p < .01$, and game players (M = 4.43, SD = 0.66) showed more significant prosocial intentions than the text readers (M = 4.06, SD = 0.70). In addition, results also indicated a statistically significant difference in the prosocial intentions of Acceptance, t (70) = 3.95, $p < .001$, and as predicted that game players (M = 4.83, SD = 0.42) expressed more significant prosocial intentions than the text readers (M = 4.34, SD = 0.76). Therefore, H1a was supported.

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Concerning the high-cost prosocial intentions, because a high correlation was not found between the two items, r (99) = 0.20, $p < .05$, we regarded each item as the independent outcome variable. As can be seen in Table 4.3, the analysis yielded a nonsignificant difference between the two conditions in terms of the prosocial intentions of Volunteering, t (81) = -0.94, $p = .35$, and the game players (M = 2.30, SD = 2.36) showed less prosocial intentions than the text readers (M = 2.85, SD = 3.37). Besides, there was a statistically significant difference found between the two conditions in the prosocial intentions of Donation, t (56) = -4.36, $p < .001$. Consistent with our prediction, the text readers (M = 754.74, SD = 834.11) expressed significantly greater prosocial intentions than the game players (M = 186.11, SD = 302.26). As a result, H1b was supported.

Table 4.2 ***t-test Results of Serious Board Game on Low-Cost Prosocial Intentions***

	Mean (Standard Deviation)		df	*t*	p value
	Board Game (N = 54)	Text-reading (N = 47)			
Helping a blind person having difficulty crossing the road (Helping)	4.43 (0.66)	4.06 (0.70)	99	2.66	< .01
Waiting patiently for the bus driver to put down a ramp and assist a passenger with a wheelchair to get on (Acceptance)	4.83 (0.42)	4.34 (0.76)	70	3.95	< .001

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Table 4.3 ***t-test Results of Serious Board Game on High-Cost Prosocial Intentions***

	Mean (Standard Deviation)		df	*t*	p value
	Board Game (N = 54)	Text-reading (N = 47)			
Participating in the volunteering work that provides service to people with disabilities (Volunteering)	2.30 (2.36)	2.85 (3.37)	81	-0.94	0.35
Donating part of income/allowance to a charity group that helps people with disabilities (Donation)	186.11 (302.26)	754.74 (834.11)	56	-4.36	< .001

Furthermore, this study examined the indirect effects of serious board games through empathy. It was hypothesized that empathy mediates the effect of serious board games on low-cost prosocial intentions. Within the 95% confidence interval, a series of regression analyses were carried out to test the hypothesis by using the mediate function of the psych package in R. As Figure 4.4 illustrated, the serious board game positively predicted the prosocial intentions of Helping ($\beta = 0.36$, $p < .01$). Analyzing the indirect effects, results revealed that empathy significantly mediated the relationship between the serious board game and prosocial intentions of Helping, the mediation path coefficient is 0.14 (95% CI, .13 to .14). The serious board game positively affected empathy ($\beta = 1.12$, $p < .05$) and empathy, in turn, positively affected the prosocial intentions of Helping ($\beta = 0.12$, $p < .001$). Nevertheless, the results also suggested that even after accounting for the mediating role of empathy, the serious board game still had a positive impact on prosocial intentions of Helping

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(β = 0.22, $p < .1$), and following Baron and Kenny's (1986) mediation analysis method, it was concluded as a partial mediation.

In addition, Figure 4.4 also showed that the serious board game was significantly associated with prosocial intentions of Acceptance (β = 0.49, $p < .001$). Regarding the indirect effects, results revealed that empathy significantly mediated the relationship between the serious board game and prosocial intentions of Acceptance; the mediation path coefficient is 0.08 (95% CI, .07 to .08). The serious board game significantly associated with empathy (β = 1.12, $p < .05$) and empathy, in turn, significantly affected the prosocial intentions of Acceptance (β = 0.07, $p < .01$). However, the results also suggested that even after accounting for the mediating role of empathy, the serious board game still significantly influenced prosocial intentions of Acceptance (β = 0.41, $p < .001$), and based on Baron and Kenny's (1986) approach, it was concluded as a partial mediation.

These findings proved that when empathy was elicited, people showed significantly greater low-cost prosocial intentions (Helping and Acceptance, respectively). However, the serious board game still contributed to the low-cost prosocial intentions (Helping and Acceptance, respectively) beyond what was accounted for by empathy. These results supported the H2 for a mediation effect of empathy.

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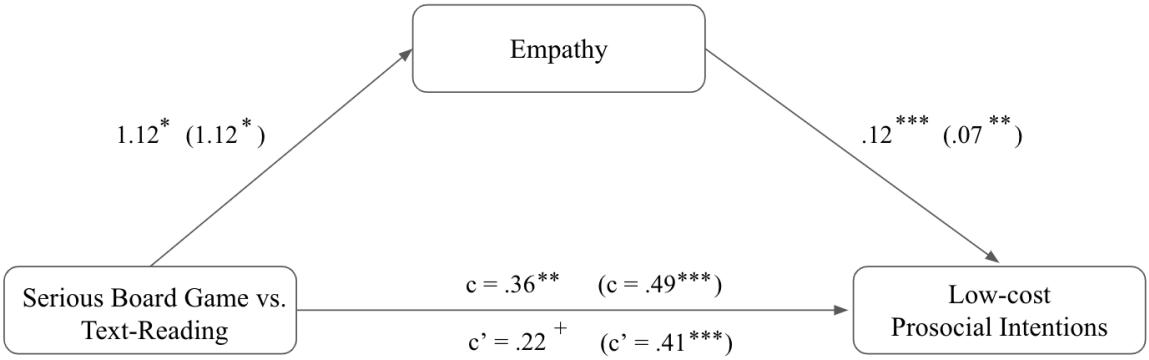
Figure 4.4 ***The Examined Statistical Model of The Mediation Effect of Empathy in H2***



Note. The results of Helping shown without brackets; the results of Acceptance shown in the brackets.
+ Coefficient is significant at the 0.1 level;
* Coefficient is significant at the 0.05 level;
** Coefficient is significant at the 0.01 level;
*** Coefficient is significant at the 0.001 level.

Moreover, this study also examined the mediating role of empathy for high-cost prosocial intentions. The mediation analysis results shown in Figure 4.5 revealed that within the 95% confidence interval, the serious board game had a negative yet nonsignificant effect on prosocial intentions of Volunteering (β = -.55, p = .34). The serious board game positively affects empathy (β = 1.12, p < .05), whereas empathy did not significantly influence prosocial intentions of Volunteering (β = 0.08, p = .56). Thus, the mediation effect was not found. Concerning the prosocial intentions of Donation, Figure 4.5 demonstrated that within the 95% confidence interval, the serious board game had a significantly negative effect on prosocial intentions of Donation (β = -559.63, p < .001). Although the serious board game positively affected empathy (β = 1.12, p < .05), empathy had a nonsignificant negative effect on prosocial intentions of Donation (β = -11.42, p = .68). Therefore, the mediation was not found as well.

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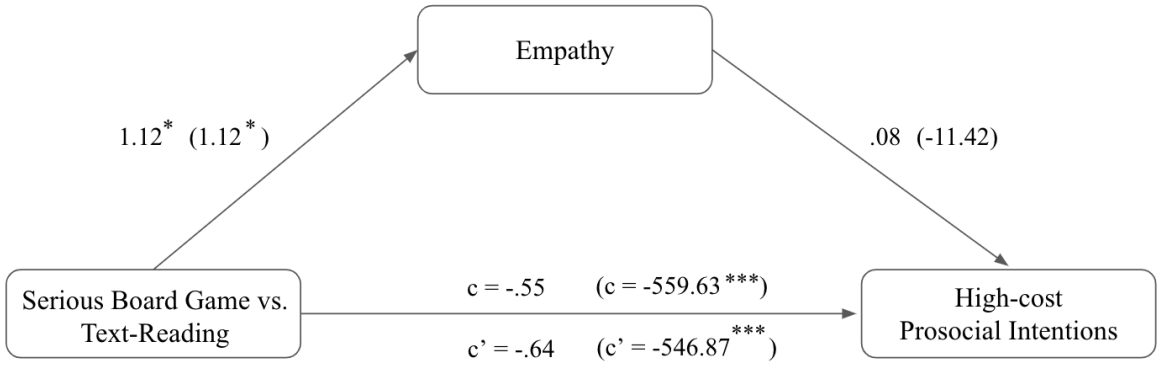
Figure 4.5 ***The Examined Statistical Model of The Mediation Effect of Empathy for High-Cost Prosocial Intentions***



Note. The results of Volunteering shown without brackets; the results of Donation shown in the brackets.
+ Coefficient is significant at the 0.1 level;
* Coefficient is significant at the 0.05 level;
** Coefficient is significant at the 0.01 level;
*** Coefficient is significant at the 0.001 level.

Additionally, an independent sample *t*-test was conducted to examine the effect of the serious board game on enjoyment. The results in Table 4.4 demonstrated no significant difference in enjoyment between the two conditions, t (99) = 1.47, p = .14. Game players (M = 12.37, SD = 2.84) showed no statistically significant differences in enjoyment compared to the text readers (M = 11.72, SD = 2.10).

Table 4.4 ***t-test Results of Serious Board Game on Enjoyment***

	Mean (Standard Deviation)		df	*t*	p value
	Board Game (N = 54)	Text-reading (N = 47)			
Enjoyment	12.37 (2.84)	11.72 (2.10)	99	1.47	.14

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4.6 Discussion

In conclusion, the study's results revealed that there were significant differences in low-cost prosocial intentions (Helping and Acceptance, respectively) toward people with disabilities between the serious board game and text-reading conditions. In terms of high-cost prosocial intentions, the results were opposite that game players showed less prosocial intentions of Volunteering than the text readers. Moreover, text readers showed significant differences in greater prosocial intentions of Donation than the game players. Furthermore, the analysis revealed that empathy partially mediated the relationship between the serious board game and low-cost prosocial intentions; however, the mediation of empathy was not found for the serious board game on high-cost prosocial intentions. The regression analyses indicated that the serious board game significantly decreased participants' prosocial intentions of Donation. Another finding was that the serious board game did not lead to a significant difference in enjoyment than the traditional text-reading approach, suggesting that participants may play the games more seriously and enjoy less fun because serious games prioritize educational purposes beyond entertainment.

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Chapter 5: General Discussion

In recent years, games have become a popular medium for companies to engage customers, employees, and potential stakeholders in an interactive and immersive way. With the best practices of gamified tools emerging in for-profit organizations, nonprofit organizations also seek to leverage the power of games to attract supporters and stakeholders toward the social causes they advocate for. Therefore, in this research, we attempted to examine the effectiveness of serious games on prosocial intentions toward people with disabilities by using a serious board game, *The Journey*, developed by a local NPO in Taiwan. Moreover, we investigated what psychological process may take place to influence the proposed effect.

5.1 Summary of Findings

A one-factor between-subjects experiment was conducted to test two hypotheses. Based on the analytical results, we found that the serious board game promoted greater low-cost prosocial intentions than the text-reading approach; in contrast, concerning the high-cost prosocial intentions, the subjects in the text-reading condition demonstrated a significantly greater intention to donate money to a charity group that helps people with disabilities and also expressed more intentions to participate in volunteering work that provides services to people with disabilities, compared to the subjects in the serious board game condition. Furthermore, empathy partially mediated the effect of the serious board game on low-cost prosocial intentions. However, empathy did not mediate the relationship between the serious board game and high-cost prosocial intentions. It is worth noting that the serious board game positively affected empathy in both high-cost and low-cost helping situations; however, empathy did not significantly affect prosocial intentions when helping is costly. Besides, the

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serious board game significantly decreased high-cost prosocial intentions of Donation and did not affect the prosocial intentions of Volunteering.

According to the findings, the level of perceived costs of helping influences prosocial intentions. In other words, people tend to be more concerned for themselves than others in need when helping is costly (Batson, 1983). In terms of high-cost helping situations like volunteering and donation, which require relatively higher costs for helpers, presumably, barriers increased for people's willingness to help. However, when helping is not costly, adopting a serious board game can positively affect people's prosocial intentions toward people with disabilities. Additionally, positive reinforcement strengthens a behavior by providing outcomes that people find rewarding, resulting in the repetition of this behavior (Skinner, 1938). The corresponding prosocial behavior to the two low-cost helping situations is both simulated in the game, whereas the high-cost helping situations, including volunteering and donation, are not directly presented in the game. During the play of *The Journey*, once players helped other players' elves in need, they received a two-point gift card as an immediate reward. Since rewards in the game positively reinforce the corresponding prosocial behavior to low-cost helping situations, subjects are more likely to have greater prosocial intentions toward such helping situations after the play.

In addition to empathy elicited, the influences of the level of perceived costs and positive reinforcement may also explain the effectiveness of the serious board game on the low-cost prosocial intentions in this study. Nevertheless, the serious board game backfired on the high-cost prosocial intentions. In line with past research (Batson, 1983), although the serious board game did elicit empathy among players, the predominant other-oriented concern turned into self-centered concern because of the costly helping, leading to less intention to volunteer and

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a significantly decreased intention to donate. Additionally, persuasion knowledge may provide a theoretical foundation for explaining this result. According to the persuasion knowledge model, consumers develop knowledge about the persuasion motives and goals of the agent (e.g., marketer and salesperson) and as well as persuasion tactics adopted, thereby using this persuasion knowledge to cope with the agent's attempts (Friestad & Wright, 1994). Further, Brehm's (1966) reactance theory indicated that people desire freedom in their behavior and do not want to be manipulated. Therefore, when people recognize that the agent is attempting to influence them, they tend to resist such persuasion attempts (Sagarin et al., 2002; Wei et al., 2008). In addition, when an ulterior motive is highly accessible, it increases the target's use of persuasion knowledge, resulting in less favorable impressions of the influence agent (Campbell & Kirmani, 2000).

In the present research, a facilitator from the NPO guided the board game intervention. At the end of the debriefing session, the facilitator encouraged participants to help disabled people by supporting their organization, such as liking and sharing the organization's Facebook page, helping to promote products from their sheltered factory, and donating to support their services. Consequently, the serious board game experience may be perceived as a persuasion tactic to support the organization rather than purely learning to help people with disabilities. In other words, while responding to high-cost prosocial intentions items (Volunteering and Donation, respectively), participants may activate their persuasion knowledge and associate these helping acts with benefiting the organization, resulting in resistance to the persuasion attempts.

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5.2 Theoretical Contribution

This study contributes by building a conceptual model highlighting empathy's mediating role in the serious game and prosocial intention relationship. Past studies mainly refer to empathy as the outcome to explain the effect of serious games for prosocial purposes (Sterkenburg & Vacaru, 2018; Nieh & Wu, 2018; Ferreira et al., 2021), few studies have looked into empathy as the underlying mechanism contributing to the prosocial intentions. Peng's (2010) empirical studies have claimed that role-taking, which has a strong correlation with empathy, was proven valid in examining the effect of serious games on willingness to help. However, the psychological process, which is directly about the empathy elicited by games, has been rarely discussed in the literature regarding serious games for prosocial purposes.

Another contribution of this research is that this study suggests that the effectiveness of serious games on low-cost prosocial intentions is distinct from high-cost prosocial intentions. Previous research has shown inconsistent results regarding the effectiveness of serious games on prosocial behavior and attitude changes (Lavender, 2008; Peng, 2010; Roussos &Dovidio, 2016; Nieh & Wu, 2018); this study further distinguished two dimensions of the prosocial outcomes — high-cost and low-cost — to allow for a more in-depth analysis of the effectiveness of serious games. By indicating that the perceived cost of helping impacts prosocial intentions, the serious games promote low-cost prosocial intentions rather than high-cost prosocial intentions.

5.3 Implication for Practices

The findings in this research provide practical implications for managers in NPOs. This study helps to remind NPOs of some pitfalls and good practices while adopting serious games

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to engage current and future supporters for their prosocial causes by demonstrating that serious games have positive effects on promoting low-cost prosocial intentions yet hinder prosocial intentions of volunteering and donation, which require a relatively higher cost to help. Besides the higher cost considered to be paid, the resistance to persuasion may also get in the way when the organization explicitly reveals the message concerning call-to-action to support the organization during the serious game intervention. In this case, the influence agent, the NPO itself, will also be less sincere in the participants' eyes (Campbell & Kirmani, 2000).

On the other hand, the findings of this study suggested that empathy mediated the effect of serious games on prosocial intentions. As a result, it is crucial to purposely incorporate antecedents that elicit empathy (Baston, 2007) in the game design, which in turn promotes prosocial intentions. Moreover, the positive reinforcement of the desired behavior (Skinner, 1938) in the game may lead to the change or acquisition of the behavior. Therefore, NPOs that intend to engage supporters through serious games should also pay attention to the game's content being directly relevant to their objectives and, most importantly, to reinforce the desired behavior in the game scenario.

5.4 Limitations and Future Directions

There are some limitations of this study and suggestions for future research. First, the present study assumes that persuasion knowledge (Friestad & Wright, 1994) may be one of the potential reasons for the negative effect of serious games on high-cost prosocial intentions; however, there is a lack of empirical evidence for this assumption. It thus paves the way for future research to statistically evaluate whether there may exist a potential mediation path of persuasion knowledge when the NPO presents during the serious game intervention, which

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in turn activates participants' persuasion knowledge such as suspicious thoughts and inference of persuasion motives (Friestad & Wright, 1994; Campbell & Kirmani, 2000), resulting in resistance to the persuasion attempts (Brehm, 1966; Sagarin et al., 2002; Wei et al., 2008). On the flip side, there is also the possibility that the presence of the NPO makes the commitment to the items regarding willingness to donate and volunteer seem more realistic to participants than without the NPO's presence, thus inducing truthful answers; however, this factor was not manipulated in the present study. Second, the medium of *The Journey* is a board game, which differs from digital games in terms of settings of gameplay (in-person vs. virtual), ways of communication among multi-players (Zagal et al., 2006), and the level of dynamic and interactive visual effects (Barbara, 2017). Therefore, it will be interesting to study the impact of different mediums of games on prosocial intentions by comparing board games and digital games. Third, the game design itself influences the effectiveness of serious games for fostering empathy (Belman & Flanagan, 2010), which in turn increases or decreases prosocial intentions. In the present study, we only use one specific board game to examine the effect of serious games on prosocial intentions, mainly focusing on cooperative tasks to promote other-oriented behavior. We suggest that future studies can also look into the effect of different game types (cooperative and competitive) (Xu et al., 2011) to investigate whether games played competitively with a self-oriented focus or games played cooperatively with an other-oriented focus may play a decisive role in further strengthening or weakening the relationship between serious games and prosocial intentions. Fourth, the sample selected for this study was college students due to the collaboration with Syin-Lu Social Welfare Foundation's campus advocacy program. The population was between 18 and 25, and thus the generalizability of the present findings may be limited to the

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group of young adults. In order to generalize results to a broader adult population, future studies should note the age-related differences in empathy and prosocial behavior (Sze et al., 2012) and include samples from different age groups (e.g., older, middle-aged, and young adults). Finally, although the present study tested an empathy-mediation model in which serious games were hypothesized to impact prosocial intentions, in the absence of long-term effects examination, longitudinal studies are proposed for future research.

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Appendices

Appendix 1. Text-Reading Material

心路基金會
Syin-Lu Social Welfare Foundation

《精靈出門去》
The Journey

故事–《精靈出門去》
The Journey

今天是風和日麗的一天，六位精靈- 紅吱吱、白帥帥、金閃閃、花格格、青筍筍和烏嚕嚕，約好了要一 起去大安森林公園野餐，他們六位精靈各自從自己的家出發，前往大安森林公園會合。
It's a sunny and beautiful day. Six elves, Red Jhih-jhih, White Shuài-shuài, Gold Shǎn-Shǎn, Floral Gé-gé, Green Sǔn-Sǔn, and Dark Lu-lu, planned to have a picnic together at Daan Forest Park. Each of them departed from their houses, heading to meet at Daan Forest Park.

花格格精心地打扮一番後，準備出門搭捷運去。平常只要走三分鐘的路程就可以抵達捷運站，不知怎地， 都十分鐘過去了，花格格還是沒有走到捷運站，同一個街口她來來回回經過好多次，就是找不到捷運的入口。就在這個時候，有一個警察伯伯看到了徬徨無助的花格格，主動上前去詢問她需要什麼幫助，花格格這才在警察伯伯的幫忙下開心地走到了捷運站。
Floral Gé-gé carefully dressed up and then headed towards the MRT station. Usually it would take her only three minutes to arrive, but somehow, she couldn't reach the station after ten minutes. She wandered back and forth around the same street corner several times, but she just couldn't find the entrance to MRT. Then, a policeman saw the helpless Floral Gé-gé and approached her asking what assistance she needed. Finally, Floral Gé-gé was happily guided to the MRT station with policeman's help.

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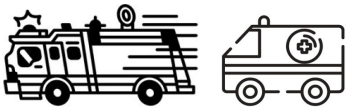
紅吱吱哼著歌走在路上，不料前方的馬路正在施工，但由於紅吱吱聽不到正在施工的噪音，無法預先知道路況，好險施工的人員設置了閃燈警示，他才注意到了施工。施工處還設置了人行道改道指引牌，紅吱吱看不太懂改道的指引牌，多虧了現場施工人員用紙寫字和畫圖向他溝通說明，紅吱吱這才順利地走到安全的人行通道上。

Red Jhih-jhih was humming a song when he walked on the street. Unexpectedly, the road ahead was under construction. Since Red Jhih-jhih was not able to hear the construction noises, he couldn't foresee such condition. Fortunately, the construction staff had set up a flashing alarm, which helped Red Jhih-jhih notice the situation. There was also a sign indicating the change of routes on the sidewalk. Red Jhih-jhih couldn't comprehend this sign. Thanks to people on the construction site who gave instructions to Red Jhih-jhih by writing and drawing on a piece of paper, he finally got to the safe pedestrian walk.

青筍筍走在路上的時候，突然遇到數輛急駛前往火災現場救援的消防車與救護車，刺耳的警笛聲和喇叭聲，令他焦慮緊張不安，害怕地捂著耳朵躲在一邊，完全陷入自己的世界裡。好在路旁的警察看到了青筍筍的識別證，並且通知社工來協助安撫與引導，等候青筍筍慢慢地平復心情之後，好心的社工姐姐再陪伴著青筍筍一起前往大安森林公園。

When Green Sŭn-Sŭn was walking on the street, suddenly, several fire trucks and ambulances on the way to the fire passed by. Piercing siren sounds and honks made him nervous and restless. He was so scared that he covered his ears and hid on the side, immersing himself in his own world. Luckily, a police officer saw Green Sŭn-Sŭn's identification card and notified a social worker to come to comfort and guide him. The kind social worker waited until Green Sŭn-Sŭn' slowly recovered himself and accompanied Green Sŭn-Sŭn' to Daan Forest Park together.



金閃閃興高采烈地坐在她的輪椅上行駛在路上，她心裡想著太好了大安森林公園離我家很近，過幾條馬路就可以到了，趁著天氣正好，就直接靠輪椅抵達吧！不料才剛過一個街口，在金閃閃原先預定行經的道路途中，竟因道路施工出現路障需繞道而行。但是，要改走的另一條路不便於輪椅推行，金閃閃只好改搭乘公車前往大安森林公園。最後多虧了公車司機協助放置斜坡板，才讓金閃閃高興地搭上車順利抵達目的地。

Gold Shăn-Shăn drove her wheelchair excitedly on the road. "It's good that Daan Forest Park is very close to my place; it's only a few blocks away. I can just go there by wheelchair since it's a lovely day," she thought. However, after Gold Shăn-Shăn passed just one crossing walk, a roadblock appeared on her original route due to construction, and she had to take a detour. Making things worse, the alternative route was not wheelchair-friendly, either. As a result, Gold Shăn-Shăn could only take the bus to Daan Forest Park. Thanks to the bus driver's assistance in setting up the ramp, Gold Shăn-Shăn went onto the bus smoothly and happily arrived at her destination.

白帥帥走在路上，心想著大安森林公園我知道怎麼去，之前爸爸帶我去過了好幾次，就是從家附近的台大醫院站上車後，往象山方向搭三站就會到了。白帥帥進了台大醫院捷運站，但在月台上的他卻非常害怕，他突然不知道前往象山是要搭乘左手邊還是右手邊的捷運車廂，往象山方向的標誌是哪一個？他在月台上看了半天都看不懂。這時候有一位好心的老奶奶看到白帥帥焦急地在月台上走來走去，主動上前詢問並幫助他搭上前往象山方向的捷運車廂。

White Shuài-shuài thought on the way, "I know how to get to Daan Forest Park. My father had taken me there several times before. I can get on the Xiangshan-bound train at NTU Hospital Station near my place and get off after passing three stations." White Shuài-shuài walked into NYU Hospital Station, but he got very scared on the platform. He suddenly couldn't tell which side was Xiangshan-bound and which sign indicated the right direction. He searched on the platform for a while but just couldn't understand. Then, a kind old lady saw the anxious White Shuài-shuài walking around on the platform. She approached and asked him what was going on and helped him take the MRT train heading to Xianghan.

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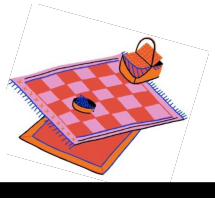
烏嚕嚕開心地走出了家門，一路上有著手杖和她的導盲犬的幫助，在行走過程中都非常順利。不料前方道路上有一個坑洞，坑洞旁邊雖然有拉起黃色警戒布條，提醒行人不要踩到，但烏嚕嚕不僅看不見，手中的導盲杖也無法感測到警戒布條。幸運的是快靠近坑洞前，有一個音源裝置重複播放著：「前方道路有坑洞，請小心腳步！」才讓烏嚕嚕順利避開一場危機，平安開心地抵達大安森林公園和朋友們會合。

Dark Lu-lu left her home happily. She was assisted by her cane and her cute guide dog. Everything went smoothly during her walk until a hole appeared on the road ahead. Although there were yellow cordons around the hole to remind pedestrians not to step in, Dark Lulu was not able to see, and her guide cane couldn't detect the warning tapes, either. Luckily, when she was close to the hole, an amplifier repeatedly broadcasted, "A hole is on the road ahead. Watch your step!" Dark Lulu thus avoided this danger and happily arrived Daan Forest Park safe and sound to meet her friends.

外出，對這六位精靈朋友來說就像是一場冒險，途中可能會出現一些意想不到的狀況和挑戰，但是在輔助的公共設施及他人的協助下，這六位可愛的精靈朋友們最終可以克服種種的路上突發狀況，成功到達大安森林公園，一起度過歡樂的野餐時光。

Going outside is like an adventure for these six elves. There can be unexpected conditions and challenges along the way. But, with the support from the public facilities and other people, these six elves could eventually overcome various kinds of sudden happenings on the road and arrive at Daan Forest park to enjoy a great picnic time together.



認識這六位可愛的精靈朋友 Meet Our Six Adorable Elves

1) 花格格(精神障礙朋友) Floral Gé-gé (People with mental disorder)

想一想：Let's think!

a. 馬路上五顏六色的燈光看板、吵雜的喇叭和人車聲音，花格格會受到什麼影響? 在馬路上會遇到什麼困難呢?

How do shiny, colorful billboards as well as noisy honking and street sounds on the road affect Floral Gé-gé? What kind of difficulties would she encounter on the road?

a. 如果你在路上看見了遇到困難的花格格，你可以怎麼做呢?

If you meet Floral Gé-gé in difficulty on the road, what can you do to help?

經過適當的治療及穩定就醫、服用藥物，精神障礙朋友也可以有像一般人一樣的作息與生活，雖然仍有可能因為季節性、環境或未知之壓力因素而影響病情的穩定，但我們可以透過理解與同理，給予精神障礙朋友更多的接納與支持。

Through proper treatment, regular medical visits, and medication, people with mental disorders can have a regular life like average people. Although some factors such as seasons, environment, and unknown pressure can still affect mental stability, through our awareness and empathy, we can welcome and support people with mental disorders.

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2) 紅吱吱(聽覺障礙朋友) Red Jhih-jhih (People with hearing impairment)

想一想：Let's think!

a. 對於聲音的接收，還有理解與溝通有困難的紅吱吱，在馬路上會遇到什麼危險呢?

For Red Jhih-jhih, it is difficult to receive sounds as well as comprehend and communicate. What danger would he face on the roads?

a. 如果你在路上看見了遇到困難的紅吱吱，你可以怎麼做呢?
If you meet Red Jhih-jhih in difficulty on the road, what can you do to help?

由於聽力受損，聽覺障礙朋友在接收聲音的訊息上有困難。我們可以透過聽覺以外的多感官運用，例如：文字、圖示、手語、溝通板或唇語...等方式，輔助聽覺障礙朋友溝通及生活。

Due to impaired hearing, people with hearing disability face challenges in receiving audio messages. We can use other senses, such as written words, graphs, sign languages, communication boards, or lip reading to assist people with hearing disabilities to communicate and live their lives.

3) 青筍筍(自閉症朋友) Green Sŭn-Sŭn (People with autism)

想一想：Let's think!

a. 害怕與人接觸，在陌生環境中容易緊張的青筍筍，在馬路上會遇到什麼困難呢?

Green Sŭn-Sŭn is scared to face people and gets nervous easily in an unfamiliar environment. What challenges would he face on the road?

a. 如果你在路上看見了遇到困難的青筍筍，你可以怎麼做呢?

If you see Green Sŭn-Sŭn in difficulty on the road, what can you do to help?

因為先天腦部的發展障礙，讓自閉症(肯納症)朋友對於眼睛看到、耳朵聽到和其他感官的感受會與多數一般人不同，因此在人際互動和環境適應上較為困難，我們可以協助降低環境中聲光及碰觸的刺激，讓自閉症(肯納症)朋友可以感受到環境的支持與友善。

Because of congenital development barrier in their brain, people with autism (Kanner's Syndrome) differ from most people in visual, hearing, and other sentient perception. Therefore, it is more difficult for them to interact with other people and adapt to the environment. We can help reduce the stimuli from sounds and lights in the environment as well as from touching, so that people with autism (Kanner's Syndrome) can feel the support and friendliness from surroundings.

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4) 金閃閃(肢體障礙朋友) Gold Shǎn-Shǎn (People with physical disability)

想一想：Let's think!

a. 以輪椅代步、行動不方便的金閃閃，在馬路上會遇到什麼困難呢?

Gold Shǎn-Shǎn moves in a wheelchair. What difficulties would she encounter on the road?

a. 如果你在路上看見了遇到困難的金閃閃，你可以怎麼做呢?
If you see Gold Shǎn-Shǎn in difficulty on the road, what can you do to help?

因為四肢或是軀幹無法自主運用，肢體障礙朋友在需要運用肢體操作的動作或移動上容易遭遇困難。我們可以透過各式行動和生活輔具的運用，以及打造無障礙空間與生活環境，讓肢體障礙朋友可以在社區中行動與生活無礙。

Unable to freely exercise limbs and body, people with physical disabilities may easily face difficulty when motor skills are required to move or travel. We can utilize various assistive equipment for moving and living as well as create an accessible space and environment to help people with physical disabilities to move and live in communities without any barriers.

5) 白帥帥(智能障礙朋友) White Shuài-shuài (people with intellectual disability)

想一想：Let's think!

a. 看不懂路標，不理解交通規則的白帥帥，在馬路上會遇到什麼困難呢?

Unable to comprehend traffic signs and rules, what challenges would White Shuài-shuài face on the road?

a. 如果你在路上看見了遇到困難的白帥帥，你可以怎麼做呢?
If you meet White Shuài-shuài in difficulty on the road, what can you do to help?

因為腦部認知及理解功能限制或損傷，智能障礙朋友對於事情的理解、和環境互動的能力在學習上或運用上會比同年紀的同伴緩慢和不容易學會。我們可以透過示範與實際操作，或是肢體協助、口語及視覺提示...等方式，協助智能者朋友學習及理解。

With limited cognitive and comprehension ability or injuries in the brain, people with intellectual disabilities are slower or less likely to learn to understand things and interact with their surroundings than their counterparts at the same age. By demonstration or implementation, we can help people with intellectual disabilities to learn and comprehend through methods such as physical assistance, oral and verbal hints, etc.

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6) 烏嚕嚕(視覺障礙朋友) Dark Lu-lu (People with visual impairment)

想一想：Let's think!

a. 看不清/看不見東西的烏嚕嚕，出門走在馬路上會遇到什麼困難呢?

Dark Lu-lu cannot see clearly/completely; what challenges would she face when she walks on the road outside?

a. 如果你在路上看見了遇到困難的烏嚕嚕，你可以怎麼做呢?
If you meet Gold Shăn-Shăn in difficulty on the road, what can you do to help?

視覺障礙朋友因為視力受損，導致在日常生活、學習、行動及社交上產生許多限制。我們可以透過運用定向訓練、白手杖、導盲犬、科技輔具...等各種支持方式，以及無障礙環境的設置，讓視覺障礙朋友可以在社區中安心行走、生活無礙。

People with visual impairment encounter many limitations in daily life, learning, movements, and social interaction because of impaired vision. We can support them with orientation training, white canes, guide dogs, and technic assistive equipment as well as an accessible environment. This way, people with visual impairment can walk with ease in communities and live barrier-free life.

思考時間 Reflection

透過剛剛的閱讀，讓我們更多了解這六種障別的朋友，現在，邀請您想想以下幾個問題：

Through reading previous paragraphs, we can understand more about these six elves with different disabilities. Now, let's think about the following questions:

1) 您有認識到紅吱吱(聽覺障礙朋友)跟一般人有哪些不同的地方嗎？

Have you realized how Red Jhih-jhih (people with hearing impairment) differ from others?

2) 您能夠理解為什麼外出對於障礙者(精神障礙者、智能障礙者、視覺障礙者、肢體障礙者、視覺障礙者、聽覺障礙者)會是一大挑戰嗎？

Can you understand why going outside would be a big challenge for people with disabilities (people with mental disorders, intellectual disabilities, visual impairment, physical disabilities, and hearing impairment)?

3) 想想看，我們的公共空間設計對於障礙者來說是否足夠友善呢？

Is our design for public space friendly enough for people with disabilities?

4) 我是否願意支持在我所處的校園、職場或社區中，都能夠具備更友善障礙者的規劃和設計，好讓障礙者可以更無礙地融入社會？

Am I willing to support more friendly planning and design for my campus, workspace, or community so that people with disabilities can fit into society more easily?

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Appendix 2. Post-questionnaire of the Experimental Group

您好：

感謝您參與心路基金會《精靈出門去》身障桌遊體驗！懇請您撥冗 3 分鐘的時間填答此問卷，幫助我們進行非營利組織的相關研究。本問卷為學術研究性質，採用匿名方式，並不涉及任何商業行為，敬請安心填答。問卷蒐集活動結束後，將抽出 20 位「完整填答」者，致送 20 份星巴克$150 飲料券，以茲感謝。

財團法人心路社會福利基金會
台灣大學企業管理碩士專班研究生 呂蕙安
敬上

Hello!

Thank you for participating in *The Journey*, a board game for experiencing disabilities developed by Syin-Lu Social Welfare Foundation. Please take three minutes to complete the following questionnaire, which can help us research nonprofit organizations. The questionnaires are of academic purpose and anonymous. Please rest assured that they are not involved in any commercial use. To show our appreciation, after we finish collecting the questionnaires, we will randomly select 20 people who fully complete the questionnaires and send an NT150-dollar Starbucks drink voucher for each.

Sincerely,
Huei-An Lu
National Taiwan University Global MBA Candidate
Syin-Lu Social Welfare Foundation

一、 以下題目為《精靈出門去》桌遊中的相關描述，請仔細閱讀題目，並勾選最符合您感受和想法的答案，共計 7 題，每題為單選題：
Below are the descriptions relevant to the board game *The Journey*. Please carefully read each sentence and choose one answer that matches the most how you feel and think about the description. There are seven descriptions in total. Please only select one answer for each.

1. 玩桌遊時，當我所幫助的精靈外出遇到障礙時，我也感到煩惱
□非常同意 □同意 □還好 □不同意 □非常不同意
When I was playing the board game, I felt upset as the elf I helped encountered barriers on the road.
□Strongly agree □Agree □Neutral □Disagree □Strongly disagree

2. 玩桌遊時，當其他玩家因他的精靈被救援而感到開心時，我也很開心
□非常同意 □同意 □還好 □不同意 □非常不同意

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When I was playing the board game, I felt delighted as other players got happy because his/her elf was rescued.
☐Strongly agree ☐Agree ☐Neutral ☐Disagree ☐Strongly disagree

3. 現在，我能理解為什麼我幫助的精靈遇到路障時，他會感到無助
☐非常同意 ☐同意 ☐還好 ☐不同意 ☐非常不同意
Now, I can understand why the elf I helped felt helpless when he/she encountered barriers on the road.
☐ Strongly agree ☐ Agree ☐ Neutral ☐ Disagree ☐ Strongly disagree

4. 現在，我能理解為什麼我幫助的精靈在外出時，他會感到害怕
☐非常同意 ☐同意 ☐還好 ☐不同意 ☐非常不同意
Now, I can understand why the elf I helped felt scared when going outside.
☐Strongly agree ☐Agree ☐Neutral ☐Disagree ☐Strongly disagree

5. 我覺得《精靈出門去》桌遊很好玩
☐非常同意 ☐同意 ☐還好 ☐不同意 ☐非常不同意
I consider *The Journey* an interesting game.
☐Strongly agree ☐Agree ☐Neutral ☐Disagree ☐Strongly disagree

6. 我很享受玩《精靈出門去》桌遊的過程
☐非常同意 ☐同意 ☐還好 ☐不同意 ☐非常不同意
I enjoyed the process of playing *The Journey* very much.
☐Strongly agree ☐Agree ☐Neutral ☐Disagree ☐Strongly disagree

7. 如果有機會的話，我想要再玩一次《精靈出門去》桌遊
☐非常同意 ☐同意 ☐還好 ☐不同意 ☐非常不同意
I would like to play *The Journey* one more time if I have the chance.
☐Strongly agree ☐Agree ☐Neutral ☐Disagree ☐Strongly disagree

二、 請依據您的意願填答以下題目，共計 4 題，每題為單選題：
Please answer the following questions based on your willingness. There are four multiple-choice questions in total.

1. 您願不願意參與服務身心障礙者的志工活動？
☐願意，並且一年願意參加_____次 ☐不願意
Are you willing to participate in volunteering work that provides services to people with disabilities?
☐Yes. I am willing to participate for _____ times a year. ☐No, I am not.

2. 您願不願意將部份收入(零用錢)捐給幫助身心障礙者的公益團體？

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□願意，並且一個月願意捐新_____元 □不願意

Are you willing to donate part of your income (allowance) to a charity group that helps people with disabilities?

□Yes. I am willing to donate NT$_____ per month. □No, I am not.

3. 當您看見一位盲人過馬路時遭遇困難，您願不願意主動上前幫助他？

□非常願意 □願意 □還好 □不願意 □非常不願意

When you see a blind person having difficulty crossing the road, are you willing to help this person?

□Strongly willing □Willing □Neutral □Unwilling □Strongly unwilling

4. 當您搭乘公車時，遇到一位身障人士要上車，您願不願耐心等待司機放置公車斜坡板幫助坐輪椅的身障乘客上車？

□非常願意 □願意 □還好 □不願意 □非常不願意

When you take a bus, are you willing to wait patiently for the bus driver to put down a ramp and assist a passenger with a wheelchair to get on?

□Strongly willing □Willing □Neutral □Unwilling □Strongly unwilling

三、您的基本資料 Your Information

1. 性別 Gender

□男 Male □女 Female

2. 年齡 Age

□18-25 □26-35 □36-45 □46-55 □56-65 □> 65

3. 職業 Occupation

□公教人員 □商 □工 □服務業 □農林漁牧 □軍人 □學生 □其他 _____

□Public service or teachers □Business □Manufacturing □Service industry □Agriculture, forestry, fishing, or livestock farming □Military service □Students □Others _____

4. 教育程度 Highest Education Level

□國中(含以下) □高中(職) □專科/大學 □研究所(含以上)

□Middle school (and under) □High school or vocational school □College/university □Graduate school (and above)

5. 您的手機號碼後四碼數字：_____

The last four digits of your cellphone number.

6. 若您想參加問卷抽獎，請留下您的電子郵件信箱：_____

If you would like to participate in the lucky draw, please leave your email address.

請再檢查一次，確認每一題都有回答到，以避免漏答，非常感謝您的協助！

Please check again and make sure you completed and did not miss any questions.

Thank you very much for your assistance!

doi:10.6342/NTU202300170

Appendix 3. Post-questionnaire of the Control Group

您好：

感謝您閱讀完《精靈出門去》的故事！懇請您撥冗 3 分鐘的時間填答此問卷，幫助我們進行非營利組織的相關研究。本問卷為學術研究性質，採用匿名方式，並不涉及任何商業行為，敬請安心填答。問卷蒐集活動結束後，將抽出 20 位「完整填答」者，致送 20 份星巴克$150 飲料券，以茲感謝。

財團法人心路社會福利基金會
台灣大學企業管理碩士專班研究生 呂蕙安
敬上

Hello!

Thank you for reading the story *The Journey.* Please take three minutes to complete the following questionnaire, which can help us research nonprofit organizations. The questionnaires are of academic purpose and anonymous. Please rest assured that they are not involved in any commercial use. To show our appreciation, after we finish collecting the questionnaires, we will randomly select 20 people who fully complete the questionnaires and send an NT150-dollar Starbucks drink voucher for each.

Sincerely,
Huei-A Lu
National Taiwan University Global MBA Candidate
Syin-Lu Social Welfare Foundation

一、 以下題目為《精靈出門去》故事中的相關描述，請仔細閱讀題目，並勾選最符合您感受和想法的答案，共計 7 題，每題為單選題：

Below are the descriptions relevant to the story *The Journey*. Please carefully read each sentence and choose one answer that matches the most how you feel and think about the description. There are seven descriptions in total. Please only select one answer for each.

1. 閱讀時，當故事中的精靈朋友們外出遇到障礙時，我也感到煩惱
   □非常同意 □同意 □還好 □不同意 □非常不同意
   When I was reading the story, I felt upset as the elves in the plot encountered barriers on the road.
   □Strongly agree □Agree □Neutral □Disagree □Strongly disagree

2. 閱讀時，當故事中的精靈朋友們在路上遇到困難被幫助而感到開心，我也很開心
   □非常同意 □同意 □還好 □不同意 □非常不同意
   When I was reading the story, I felt delighted as the elves in the plot got happy because they received help during their trouble on the road.
   □Strongly agree □Agree □Neutral □Disagree □Strongly disagree

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3. 現在，我能理解為什麼花格格在街上迷路找不到捷運站時，他會感到無助
□非常同意 □同意 □還好 □不同意 □非常不同意
Now, I can understand why Floral Gé-gé would feel helpless when she got lost on the road and couldn't find the MRT station.
□ Strongly agree □ Agree □ Neutral □ Disagree □ Strongly disagree

4. 現在，我能理解為什麼青筍筍聽到消防車的鳴笛聲，他會感到害怕
□非常同意 □同意 □還好 □不同意 □非常不同意
Now, I can understand why Green Sŭn-Sŭn would feel scared when he heard sirens from the fire trucks.
□Strongly agree □Agree □Neutral □Disagree □Strongly disagree

5. 我覺得《精靈出門去》的故事很有趣
□非常同意 □同意 □還好 □不同意 □非常不同意
I consider *The Journey* a very interesting story.
□Strongly agree □Agree □Neutral □Disagree □Strongly disagree

6. 我很享受閱讀《精靈出門去》故事的過程
□非常同意 □同意 □還好 □不同意 □非常不同意
I enjoyed the process of reading *The Journey* very much.
□Strongly agree □Agree □Neutral □Disagree □Strongly disagree

7. 如果有機會的話，我想要再讀一次《精靈出門去》的故事
□非常同意 □同意 □還好 □不同意 □非常不同意
I would like to read *The Journey* one more time if I have the chance.
□Strongly agree □Agree □Neutral □Disagree □Strongly disagree

二、 請依據您的意願填答以下題目，共計 4 題，每題為單選題：
Please answer the following questions based on your willingness. There are four multiple-choice questions in total.

1. 您願不願意參與服務身心障礙者的志工活動？
□願意，並且一年願意參加_____次 □不願意
Are you willing to participate in volunteering work that provides services to people with disabilities?
□Yes. I am willing to participate for _____ times a year. □No, I am not.

2. 您願不願意將部份收入(零用錢)捐給幫助身心障礙者的公益團體？
□願意，並且一個月願意捐新_____元 □不願意
Are you willing to donate part of your income (allowance) to a charity group that helps people with disabilities?

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□Yes. I am willing to donate NT$_____ per month. □No, I am not.

3. 當您看見一位盲人過馬路時遭遇困難，您願不願意主動上前幫助他？
□非常願意 □願意 □還好 □不願意 □非常不願意
When you see a blind person having difficulty crossing the road, are you willing to help this person?
□Strongly willing □Willing □Neutral □Unwilling □Strongly unwilling

4. 當您搭乘公車時，遇到一位身障人士要上車，您願不願耐心等待司機放置公車斜坡板幫助坐輪椅的身障乘客上車？
□非常願意 □願意 □還好 □不願意 □非常不願意
When you take a bus, are you willing to wait patiently for the bus driver to put down a ramp and assist a passenger with a wheelchair to get on?
□Strongly willing □Willing □Neutral □Unwilling □Strongly unwilling

三、您的基本資料 Your Information

1. 性別 Gender
□男 Male □女 Female
2. 年齡 Age
□18-25 □26-35 □36-45 □46-55 □56-65 □> 65
3. 職業 Occupation
□公教人員 □商 □工 □服務業 □農林漁牧 □軍人 □學生 □其他 _____
□Public service or teachers □Business □Manufacturing □Service industry
□Agriculture, forestry, fishing, or livestock farming □Military service □Students
□Others _____
4. 教育程度 Highest Education Level
□國中(含以下) □高中(職) □專科/大學 □研究所(含以上)
□Middle school (and under) □High school or vocational school □College/university
□Graduate school (and above)
5. 您的手機號碼後四碼數字：_____
The last four digits of your cellphone number.
6. 若您想參加問卷抽獎，請留下您的電子郵件信箱：_____
If you would like to participate in the lucky draw, please leave your email address.

請再檢查一次，確認每一題都有回答到，以避免漏答，非常感謝您的協助！
Please check again and make sure you completed and did not miss any questions.
Thank you very much for your assistance!

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