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Would Self-determination Intervention Facilitate Leisure Travel Pursuit at Different Challenge Levels? – The Exploration among People with Mobility Impairments

Leisure travel provides promising benefits to human beings' wellbeing (Minnaert 2012), yet in many occasions also demands significant effort investment to cope with various constraints. In face of those constraints, people may easily give up if not being sufficiently motivated and unaware of the merits of leisure travel, such as its possible long-term benefits to self-development and wellbeing (Chen and Petrick 2016). There is accordingly a pressing need of cultivating stronger travel motivations among people so that they are empowered to persevere in travel pursuit despite challenges.

Self-determined travel motivations are thus proposed in this study as crucial to facilitating leisure travel pursuits regardless of travel constraints. It is premised on the highly influential Self-determination Theory (SDT) (Deci and Ryan 2000) and assumes that people are more likely to persisting and succeeding in travel pursuits if motivated to travel freely out of individual interest and values (self-determined motivations), as opposed to expecting external contingent outcomes such as recognition by others and self-esteem (controlled motivations). This study thereby explores the mechanism underlying the self-determination facilitation of leisure travel pursuit, among a relatively homogeneous population of people with mobility impairments (PwMI). In addition, considering that individuals under different circumstances may encounter varied levels of travel challenges, this study also examines the possible variation of SDT travel facilitation (i.e., the variation of mechanism and effectiveness) across different challenge levels for PwMI, in order to guide tourism businesses, rehabilitation professionals, and companions of PwMI on how to deliver customized SDT interventions to empower PwMI's travel pursuits (Murphy et al. 2009). The investigation into SDT variation by challenge levels is through an emerging method estimating an *index of moderated mediation* (Hayes 2015a). It is a competitively accurate and efficient detection of moderated mediation relationships and has great potential for broad applications in tourism research.

Literature Review

Self-determination theory (SDT) explains how different motivation types of human behavior can result in varied procedures and outcomes of decision-making, performance, and psychological well-being (Sheldon et al. 2004). SDT states that with intrinsic motivation, people behave based on innate interests or aspirations in life goals. People with extrinsic motivation, however, mostly act in response to a sense of pressure for certain outcomes from external forces. An alternative motivation type, identified motivation, is a highly internalized extrinsic motivation, where externally provided incentives are integrated into the individual own values (Ryan and Deci 2000). *Intrinsic* and *identified* motivations generally serve as the basis for autonomous behaviors, and are thus classified as *self-determined motivations*.

Empirical studies on SDT across a variety of fields (i.e. education, sports, health care) posit that when people are autonomously motivated, they show more effective performances, greater enjoyment, and a deeper sense of wellbeing (Hanssen et al. 2014). Notably, self-determined motivations are found in regular goal pursuit behaviors (i.e., dieting, tobacco abstinence, overcoming procrastination) as facilitating goal pursuit intentions and progress (Cerasoli, Nicklin, and Ford 2014, Ciani et al. 2011), persistence despite difficulties (Hardre and Reeve 2003, Koestner et al. 2015) and perseverance despite failures (Pelletier et al. 2001). Considering the

potential motivational deficiency of leisure travel pursuit than the regular goal pursuits, cultivating self-determined motivations should be more effective to facilitate leisure travel pursuit. The travel facilitation by self-determined motivations is hence hypothesized.

Furthermore, in order to cultivate self-determined motivations, three basic psychological needs should be satisfied, notably, autonomy and competence, and to a lesser degree relatedness (Deci and Ryan 2000). Autonomy refers to activity engagement due to intrinsic interest or concordance with their central values (Weinstein, Przybylski, and Ryan 2013). Competence reflects the desire to master an activity (Deci and Ryan 2002), and relatedness is the desire to connect with and receive support from others. Therefore, how self-determined motivations can be facilitated by psychological need satisfaction, and ultimately, facilitates travel pursuit propensities, is examined in this study (H1-3).

H1: Perceived autonomy satisfaction from taking a trip affects PwMI's leisure travel propensities (H1a: travel purchase intention, and H1b: travel effort persistence), through the mediation of self-determined motivations.

H2: Perceived competence satisfaction from taking a trip affects PwMI's leisure travel propensities (H2a: travel purchase intention, and H2b: travel effort persistence), through the mediation of self-determined motivations.

H3: Perceived relatedness satisfaction from taking a trip affects PwMI's leisure travel propensities (H3a: travel purchase intention, and H3b: travel effort persistence), through the mediation of self-determined motivations.

Scholars indicate that SDT mechanisms may vary across life domains (i.e., leisure, work) and possibly across circumstances (i.e., difficult vs. easy tasks) (Vallerand and Lalande 2011, Milyavskaya and Koestner 2011). Specifically, some scholars believe that self-determined goal pursuits are generally fostered under moderate goal difficulty levels, whereas significant difficulties would be discouraging (Fenner et al. 2013). But self-determined goal pursuits are also found to be salient among individuals seeking to overcome higher-level challenges, as many such individuals perceive these challenges as boosting their individual growth (Mouratidis and Michou 2011, Green-Demers, Pelletier, and Ménard 1997). All above perspectives implied the possible difference of SDT goal-pursuit facilitation across challenge levels, yet have discrepancy concerning the valence of the challenge-level moderating effects. The current study thus systematically examines the existence and valence of challenge-level moderation of SDT goal facilitation (H4-6), with moderated mediation analysis and in the setting of PwMI leisure travel pursuits.

H4: The facilitation of self-determined leisure travel propensities (H4a: travel purchase intention, and H4b: travel effort persistence) by perceived autonomy satisfaction varies with increased travel challenge levels.

H5: The facilitation of self-determined leisure travel propensities (H5a: travel purchase intention, and H5b: travel effort persistence) by perceived competence satisfaction varies with increased travel challenge levels.

H6: The facilitation of self-determined leisure travel propensities (H6a: travel purchase intention, and H6b: travel effort persistence) by perceived relatedness satisfaction varies with increased travel challenge levels.

Methodology

A quasi-experimental design is adopted in this study, with two PwMI comparison groups answering a Qualtrics survey that measuring SDT mechanisms and travel propensities under unchallenging and challenging travel scenarios, respectively. The two surveys for two groups only differ in the travel challenge level of a resort travel package, based on which participants rate their perceived psychological need satisfaction, travel motivations and travel propensities. The travel package is presented as being of great value to achieving PwMI's life goals (i.e., strengthening physical and mental wellness, building social connections), in order to allow the possibility of being intrinsically motivated to join this trip. The package notes the feasibility of the trip in relation to costs, facility accessibility, and service accommodation, which are the manipulated attributes separating the two surveys' challenge levels (Buhalis and Michopoulou 2011, Lord and Patterson 2008). The manipulation effectiveness was confirmed with participants' ratings of perceived desirability versus feasibility of the package, upon their completion of the survey.

Participants for the unchallenging travel scenario were 80 individuals with mobility aids, recruited in summer 2014 among 1,200 subscribers of a weekly newsletter, Indiana Institute on Disability and Community. The minimum sample size for detecting the mediation effect with all covariates controlled and given a large effect size (.4) at the power of .8 is guaranteed ($n \geq 46$). The participants for the challenging travel scenario were subscribers of New Mobility Magazine targeting PwMI. Email blasts sent to 9,000 randomly selected subscribers in the U.S. resulted in 495 completed survey in spring 2015. The low response rate can be attributed to a majority of subscribers being institutions, who could not participate, instead of PwMI. The demographic discrepancy (including physical functionality) between the two groups' respondents matches the design of unchallenging versus challenging travel scenarios, where PwMI with relatively lower travel capacity answered the challenging survey and those with higher capacity answers the unchallenging survey.

Perceived psychological need satisfaction was measured with the seven-point Likert Need-Satisfaction scale (9 items) (Sheldon et al. 2001), adapted to the leisure travel settings. Three items measured psychological needs of perceived autonomy, competence, and relatedness, with the Cronbach's Alpha value of .7, .84, and .89, respectively, satisfied the .7 cut-off criteria (Nunnally and Bernstein 1994). Self-determined travel motivations were measured with six items (three each for assessed intrinsic and identified motivation) adapted from the seven-point Likert Exercise Self-Regulation Questionnaire (SRQ-E) to the leisure travel context (Gagne 2003), with satisfactory reliability ($\alpha_{\text{intrinsic}} = .87$ and $\alpha_{\text{identified}} = .89$). Confirmatory factor analyses were also conducted using LISREL 8.7 on both Psychological Needs and Motivations Scales. Both models provided a good fit to the data (Needs model: $\chi^2(18) = 26.84$, $p = .09 > .05$, CFI = 1, SRMR = .019, RMSEA = .033; Motivations model: $\chi^2(36) = 64.51$, $p = .002 > .001$, CFI = 1, SRMR = .021, RMSEA = .043), significant factor loadings (.68 ~ .91, $p < .001$), as well as satisfactory composite reliability levels (.84 ~ .9), AVE estimates (.63 ~ .75), and discriminant validity levels (with AVE higher than its squared correlation coefficients with other constructs (.53 ~ .67)), (Hair et al. 1998). Respondents then rated their *travel propensities* using a five-point Likert scale (1 = Very unlikely, 5 = Very likely), including package purchase intention, and expected effort persistence in further information searching, regardless of purchase intention. The *control variables* were also measured with single questions, including individual travel frequency and general satisfaction, previous resort experience/preferences, length of time since acquiring their

mobility impairment, frequency of travel with companions, perceived desirability and feasibility of the package, physical functionality, and socio-demographic information: age, gender, educational level, and household income.

Regarding data analyses, Hayes' (2015a) *index of moderated mediation* was adopted to test the moderated mediation relationships, using the PROCESS macro of IBM SPSS Statistics (Hayes 2015b). Hayes (2015a) revealed that the moderation of at least one path in traditional moderated mediation research (Preacher, Rucker, and Hayes 2007) should not be a requirement in claiming a moderated mediation effect. Hayes' approach draws inference about moderated mediation based on the size of the "index of moderated mediation," which reveals the strength of associations between an indirect effect as an entity and the moderator. Consequently, as long as a statistically significant association is identified, there is no need to establish the moderated mediation relationship through testing separate paths of the mediation model. Moreover, Hayes' (2015a) approach adopts bootstrap confidence intervals, which do not require estimations of analytical standard errors for mediation paths. It is therefore robust to heterogeneity of error variances as well as heteroscedasticity, justifying test moderations in this study with unequal sample sizes and error variances across different moderator values.

Results

The manipulation effectiveness was checked and confirmed through independent-samples t-tests, which revealed a significant difference in rated *feasibility* scores between unchallenging ($M=4.41$, $SD=.54$) and challenging ($M=2.27$, $SD=.99$) groups ($t(195)=-27.2$, $p<.001$), but no significant difference in perceived value scores between challenging ($M=3.89$, $SD=.67$) and unchallenging ($M=4.11$, $SD=.53$) groups ($t(200)=-1.12$, $p>.05$).

The hypothesized mechanism of SDT travel facilitation (H1-3) was examined within both unchallenging and challenging contexts using the four-step mediation test procedure (Baron and Kenny 1986), with the PROCESS macro of IBM SPSS Statistics (Hayes 2015b). The Sobel test and the bootstrapping procedure that generated a sample size of 10,000 and 95 percent confidence intervals further confirmed the revealed mediation relationships (Table 1). The results indicate that, when applied to leisure travel pursuits among PwMI, the SDT mechanisms that depict relationships between psychological need satisfaction, self-determined motivations, and goal pursuit behaviors are only fully supported when PwMI have significant travel challenges. With unchallenging scenarios, however, psychological need satisfaction still facilitates travel pursuits, yet not necessarily through self-determined motivations.

Table 1. SDT Mediation in Unchallenging and Challenging Settings

Variables	Mediation Relationships	Steps	<i>b</i>	<i>SE</i>	<i>t</i>	<i>p</i>	<i>Sobel test (z)</i>	<i>95% CI</i>	
Unchallenging Scenario									
Psych. Needs -> EFF	COM -> IDN -> EFF	X -> Y	.33	.09	3.61***	.001	3.6***	[.15, .47]	
		X -> M	.54	.08	6.81***	.000			
		MIX -> Y	.51	.12	4.28***	.000			
		XIM -> Y	.05	.11	.46	.644			
	REL -> IDN -> EFF	X -> Y	.44	.1	4.19***	.000	2.31*	[.03, .44]	
		X -> M	.68	.06	11.47***	.000			
		MIX -> Y	.36	.15	2.37*	.02			
		XIM -> Y	.2	.16	1.22	.23			
Challenging Scenario									
Psych. Needs -> PUR	AUT -> ITI -> PUR	X -> Y	.17	.05	3.66***	.000	5.08***	[.15, .33]	
		X -> M	.8	.03	24.7***	.000			
		MIX -> Y	.29	.06	5.2***	.000			
		XIM -> Y	-.07	.06	-1.11	.267			
	AUT -> IDN -> PUR	X -> Y	.17	.05	3.66***	.000	5.2***	[.13, .28]	
		X -> M	.75	.04	20.54***	.000			
		MIX -> Y	.27	.05	5.38***	.000			
		XIM -> Y	-.03	.06	-.6	.548			
	REL -> ITI -> PUR	X -> Y	.08	.03	2.89***	.004	4.43***	[.05, .13]	
		X -> M	.53	.04	12.35***	.000			
		MIX -> Y	.17	.04	4.76***	.000			
		XIM -> Y	-.01	.03	-.24	.812			
	REL -> IDN -> PUR	X -> Y	.08	.03	2.89***	.004	4.23***	[.05, .13]	
		X -> M	.51	.04	12.5***	.000			
		MIX -> Y	.16	.04	4.51***	.000			
		XIM -> Y	.00	.03	.03	.973			
	Psych. Needs -> EFF	COM -> ITI -> EFF	X -> Y	.33	.09	3.61***	.001	3.6***	[.15, .47]
			X -> M	.54	.08	6.81***	.000		
			MIX -> Y	.51	.12	4.28***	.000		
			XIM -> Y	.05	.11	.46	.64		
COM -> IDN -> EFF		X -> Y	.33	.09	3.61***	.001	2.88**	[.04, .2]	
		X -> M	.66	.04	17.52***	.000			
		MIX -> Y	.18	.06	2.92**	.004			
		XIM -> Y	-.03	.06	-.5	.62			

* *p* ≤ .05, ** *p* ≤ .01, *** *p* ≤ .001

Possible variations of the overall SDT mechanisms in facilitating travel pursuits across challenge levels (H4-6) were then tested using Hayes' (2015a) *index of moderated mediation*. The results supported H4b but not H4a by showing that only the autonomy effects on *travel effort persistence* through self-determined motivations are suppressed with increasing travel challenges, after holding constant the perceived package desirability and feasibility, gender, and age (AUT->ITI->EFF: index = -.16, 95%CI = [-.32, -.02]; AUT->IDN->EFF: index = -.23, 95%CI = [-.36, -.11]). The 95 percent bootstrap confidence intervals for all the above indices did not include zero, thereby established valid moderated mediations. H5 was also supported, as the increased challenge levels in general positively moderated the competence indirect effects on travel propensities through self-determined motivations, with the perceived package desirability and feasibility, resorts preference, travel frequency, gender, and physical functionality held constant

(index = .18, 95% CI = [.07, .3]). Furthermore, H6 was supported when examining indirect relatedness effects on travel propensities through self-determined motivations. Increased challenge levels generally suppressed indirect relatedness effects, holding constant the perceived package value and feasibility, resort preference, travel frequency, and gender (the indices range from -.21 to -.03) and with no-zero-included 95 percent bootstrap confidence intervals. To summarize, enhanced challenge levels strengthened the competence facilitation of travel propensities through self-determined motivations, which is in contrast to the weakened relatedness facilitation and partially consistent autonomy facilitation of travel effort persistence through self-determined motivations. This indicates that with increasing travel challenges, the ranking of psychological needs by the extent of effects on self-determined motivations is competence, followed by autonomy, and relatedness the least important.

The moderations of specific mediation links are also observed from the moderated mediation models to understand where in the SDT mechanism lie the most significant variations by challenge levels. In accordance with non-tourism research findings, the travel facilitation by self-determined motivations is largely unchanged by challenge levels, and thus self-determined motivations are relatively consistent leisure travel facilitator despite challenges. The only exception is the suppressed facilitation of travel effort persistence by *identified motivation* with increased challenges (IDN×W: $\beta = -.4$, $SE = .11$, $p < .05$), which implies that identified travel motivation, driven by internalized utilitarian benefits such as gaining knowledge or health improvement, may not be sufficient for convincing PwMI to persevere in face of difficulties. It echoes with existing SDT studies that the more autonomous motivation (intrinsic motivation) is necessary for greater effort persistence despite difficulties (Russell and Bray 2010).

Conclusion and Discussion

One theoretical contribution of the current study is extending the applicability of SDT mechanisms to explain leisure travel pursuits among PwMI, a special goal pursuit that demands motivational empowerment. *Self-determination facilitation* is statistically supported as a promising tool to facilitate travel pursuits. This study also echoes the literature on SDT facilitation of regular goal pursuits that at high challenge levels, intrinsic motivation is a more consistent facilitator and thus should be the focal point for promoting challenge coping (Standage, Duda, and Ntoumanis 2005). Advertising encouraging PwMI's travel pursuits should thus cultivate inner travel interest among this population, by connecting with their existing life or career interest. This could be more effective than enticing people with utilitarian benefits of travel (identified motivation), or even worse, projecting any social expectations for them to travel (controlled motivations).

Importantly, this study for the first time demonstrates the variation of SDT mechanisms by the situational factor of travel challenge levels. Such exploration provides useful implications to the general population, beyond PwMI only. Such context-based exploration allows customized design of motivational interventions based on different individuals or travel scenarios with varied travel challenge levels. Such interventions can then be embedded in travel marketing/training programs targeting corresponding tourist groups to offset the discouraging effects of objective challenges, and better empower people to travel.

Specifically, motivational interventions for those PwMI with *significant* travel challenges should deliver motivating messages that primarily induce individuals to break the complex trip plan into

manageable small tasks and to embrace small wins from conquering barriers (*competence support*), so as to enhance their faith in own capabilities/potential. These people should also be encouraged to self-explore their values/goals as related to travel and cultivate their inner travel interests (*autonomy support*). Yet for those with *moderate* travel challenges, competence support appears to be less necessary, whereas *relatedness support* is more crucial by stressing the opportunities to meet other people with common interest and build social networks that can enhance their perceived social support for travel.

Methodologically, the adoption of *index of moderated mediation* (Hayes 2015a) has the advantage of confirming moderated mediation effects without having to conduct a set of inferential tests on each mediation path. This holistic perspective is more accurate and straightforward for interpreting the context-based importance of satisfying different psychological needs to facilitate leisure travel pursuits. The empirical results in this study further confirm the methodological proposition by MacKinnon and Fairchild (2009) and Hayes (2015a), that the identified moderation of separate paths may not be sufficient to confirm the moderation of the entity of an indirect effect. Moreover, the study's experimental manipulation of the moderator variable further adds to the restrictiveness of existing moderated mediation research on similar topics.

A limitation with the current study though is the quasi-experimental design with the unequal sample sizes and demographic differences between the two experimental groups. A completely randomized experimental design needs to be conducted in the future study to provide a more restrictive revalidation of the revealed moderated mediations.

Key References

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