Does Consumer Innovativeness Matter? An Examination of Multi-Dimensional Consumer Innovativeness Motivation on Intention to Adopt 3D Printed Fashion Products

Jewon Lyu  
*Kent State University, jlyu@kent.edu*

Amrut Sadachar  
*Auburn University, amrut@auburn.edu*

Kim Hahn  
*Kent State University, khahn6@kent.edu*

Follow this and additional works at: [https://lib.dr.iastate.edu/itaa_proceedings](https://lib.dr.iastate.edu/itaa_proceedings)  
Part of the [Fashion Business Commons](https://lib.dr.iastate.edu/fashion_business), [Fashion Design Commons](https://lib.dr.iastate.edu/fashion_design), and the [Fiber, Textile, and Weaving Arts Commons](https://lib.dr.iastate.edu/fiber_textile_and_weaving_arts)

[https://lib.dr.iastate.edu/itaa_proceedings/2017/presentations/163](https://lib.dr.iastate.edu/itaa_proceedings/2017/presentations/163)

This Event is brought to you for free and open access by the Conferences and Symposia at Iowa State University Digital Repository. It has been accepted for inclusion in International Textile and Apparel Association (ITAA) Annual Conference Proceedings by an authorized administrator of Iowa State University Digital Repository. For more information, please contact digirep@iastate.edu.
Does Consumer Innovativeness Matter? An Examination of Multi-Dimensional Consumer Innovativeness Motivation on Intention to Adopt 3D Printed Fashion Products

Jewon Lyu, Kent State University, USA, Amrut Sadachar, Auburn University, USA, Kim Hahn, Kent State University, USA

Keywords: 3D printing, domain-specific fashion innovativeness, attitude, intention

Introduction

Compared to traditional manufacturing process, emergence of 3D printing is considered to bring a new era of business operation in fashion industry (D’Aveni, 2013). The rise of 3D printing is expected to replace traditional ways of production and its impact on the industry is anticipated to be $10.8 billion by 2021 (Allied Analytics, 2014). Although the adoption of 3D printing in fashion is slow and there are challenges around available materials in the technology, the advantages of adoption 3D printing such as reduced production and customizability have drawn attention from the industry professionals (Chabaud, 2015). From the consumer’s perspective, 3D printing offers unique experiences enabling them to be involved in the production process. Despite the increased discussion and attention towards 3D printing technology adoption in fashion, little research has been conducted to investigate why consumers adopt or reject 3D printed fashion goods (Parker, 2016). Thus, this study explores consumers’ motivations based on a multi-dimensional innovativeness scale to better account for consumer-3D printed fashion products adoption (Vandecasteele & Geuens, 2010).

Theoretical Foundation and Hypotheses Development

Theoretically grounded Roger’s diffusion of innovation (1995), the concept of innovativeness addresses the characteristics of the adopter in the process of new product and service purchases. However, as a generalized trait-like measure, general innovativeness has received criticism due to its low predictability on actual adoption behavior (Kirton, 1976). To overcome shortcomings from this approach and improve predictability, domain-specific scales which measure a product category specific innovativeness (i.e., domain specific) have been developed (Venkatraman, 1991). By combining these two predispositions with other variable such as communicated experience (e.g., fashion leadership), this study examines motivated consumer innovativeness (MCI) in the process of adopting a 3D printed fashion product, because consumers’ motives and desires are found to explain consumers’ shopping experiences (Dholakia, 1999). Since existing consumer innovativeness research tends to address innovation behavior based on hedonic and social perspectives, incorporating two more values such as functional and cognitive innovativeness seem to explain a wider range of consumers with different motivations (Vandecasteele & Geuens, 2010). Thus, the following hypotheses are developed.

H1a-d: Social (a), functional (b), hedonic (c), and cognitive (d) innovativeness will positively influence domain-specific fashion innovativeness.

H2: Domain-specific fashion innovativeness will positively influence attitude toward 3D printed fashion products.

H3: Attitude toward 3D printed fashion products will positively influence intention to adopt 3D printed fashion products.

H4: Fashion leadership will moderate the relationships between Social (a), functional (b), hedonic (c), and cognitive (d) innovativeness and domain-specific fashion innovativeness.
Methods Data were collected through an online survey administered through Amazon Mechanical Turk. The online survey consisted of 7-point Likert-type scales measuring social, functional, hedonic, and cognitive innovativeness (Vandecasteele & Geuens, 2010), domain-specific fashion innovativeness (Goldsmith & Hofacker, 1991), fashion leadership (Goldsmith, Frieden, & Kilsheimer, 1993), and semantic differential scales measuring attitude toward 3D printed fashion products (Wansink, 1994), and intention to adopt 3D printed fashion products (Ajzen & Fishbein, 1980). Demographic items were also included in the survey. SPSS was used to perform descriptive statistics, reliability analysis, Hayes’s moderation model (to test H4), whereas MPlus was used to run the confirmatory factor analysis (CFA) and structural equation modeling (SEM) to test the hypotheses H1-H3.

Results A total of 328 useable complete responses were collected. Respondents average age was 35 years and 79% of respondents were white (female 57% & male 43%). Cronbach’s α for all the constructs ranged from .71 to .95 demonstrating the required internal consistency. Measurement model had an acceptable model fit. Subsequent structural model resulted in an acceptable fit ($\chi^2 = 1511.80, df= 514, p < .001; \text{CFI} = .90; \text{RMSEA} = .07; \text{SRMR} = .09$). SEM results showed that all the hypotheses (H1-H3) were supported except H1c. Social ($\beta = .39, p = .000$), functional ($\beta = .38, p = .000$), and cognitive ($\beta = .26, p = .000$) innovativeness positively influenced domain-specific fashion innovativeness. Domain-specific fashion innovativeness positively influenced attitude toward 3D printed fashion products ($\beta = .58, p = .000$), which in turn positively influenced on attitude and intention ($\beta = .64, p = .000$). Hedonic innovativeness ($\beta = -.18, p = .108$) was not supported (H1c). In total, the proposed model explained 42% of the variance in intention to adopt 3D printed fashion products. Moderation analysis was run using Hayes’s (2012) process tool and revealed that fashion leadership did not moderate the relationships between the four innovativeness traits (i.e., social, functional, hedonic, and cognitive) and the domain-specific fashion innovativeness. Thus, H4 was not supported.

Conclusions/Implications The results of this study confirm the effects of motivational innovativeness as a predisposition to have a positive attitude towards adoption of 3D printed fashion products. Interestingly, hedonic innovativeness which address an affective or sensory stimulation and gratification has no strong effects on fashion innovativeness, demonstrating 3D printing technology is perceived as more functional task than fun/ enjoyable experience. The expected effects of fashion leadership on any relationship between four MCI constructs and fashion innovativeness indicate that opinion leadership is not important. Findings of this study provides insights to marketers by presenting importance of multi-dimensional motivations to adopt a new product.

Key References (A full reference list is available upon request):