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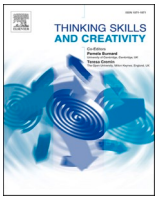

Are creative users more apt in reusing and adopting Open Government Data (OGD)? Gender differences

Charalampos Alexopoulos [a], Stuti Saxena [b,*], Nina Rizun [c], Ricardo Matheus [d], Marijn Janssen [d]

[a] Department of Information and Communications Systems Engineering, University of Aegean, Greece
[b] Department of Humanities and Social Sciences, Graphic Era University, India
[c] Department of Informatics in Management, Gdansk University of Technology, Poland
[d] Faculty of Technology, Policy and Management, TU Delft, The Netherlands

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ABSTRACT

Open Government Data (OGD) has been considered as a potent instrument for value creation and innovation by a range of stakeholders. Given that individual ingenuity is a function of individual and environmental factors, it is important to understand how the OGD adoption and usage is a factor of creative performance behaviors (CPB), viz., Problem Identification (PI), Information Search (IS), Idea Generation (IG) and Idea Promotion (IP) as well as creative self-efficacy (CSE). Invoking the adapted Unified Theory of Acceptance and Use of Technology (UTAUT) constructs alongside the moderating effects of CPB and CSE constructs and also gender, the present study seeks to underline the behavioural intention towards OGD adoption and usage among 362 undergraduate and postgraduate university students in India. The guiding research question is: "Is there any difference among the males and females in terms of their OGD adoption and usage as far as their creative propensities are concerned?" Findings from the PLS-SEM (Partial Least Squares-Structural Equation Modeling) procedures show that there are gender differences across the CPB and CSE constructs. The study's contribution lies in furthering our understanding of OGD adoption and use with the additional determinants of creativity literature.

1. Introduction

Open Government Data (OGD) initiatives have vindicated their scale, scope and utility across the globe given their impetus on transparency, accountability and citizen engagement in administration (Wirtz, Weyerer & Rosch, 2018). As an exemplar in the digital government initiatives' sequel and an advanced stage of e-government, OGD is conceptualized as the provision of datasets pertaining to the structural and functional facets of diverse indices including energy, environment, education, traffic, economy, society, industry and the like (Attard et al., 2015). OGD was hitherto kept in silos under wraps on account of the secrecy and sensitivity of the working of the administrative departments (Afful-Dadzie & Afful-Dadzie, 2017). However, with the call made by the ex-US President, Barack Obama, in 2009, OGD initiatives were adopted by the governments across different administrative tiers and among different government departments. OGD is made available free of cost without any specific software requirements or license via dedicated web portals. The lynchpin of OGD initiatives lies in the fact that different stakeholders including citizens, journalists, software developers,

* Corresponding author.
E-mail address: stutisaxenaogd.vishnu@gmail.com (S. Saxena).

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businessmen, volunteers, academia, etc. may re-use these datasets for value creation and innovation (Jetzek, Avital & Bjorn-Andersen, 2014) besides realising the goals of public administration, viz., economy, effectiveness and efficiency (Demircioglu, 2019). For adoption and re-use of OGD, it is important that the statistical analysis and interpretation is done apart from drawing inferences from the visualization tools. In continuity with this assertion, it has been appropriately underlined by Safarov and his colleagues that "citizen participation will essentially be determined by the prerequisites, like specific abilities and skills of the citizens (p. 9) which implies "technical skills and knowledge about data… such as knowledge about statistics or programming" (p. 11) (Safarov, Grimmelikhuijsen & Meijer, 2017).

Linking both the aspects of value creation and innovation and possession of specific skills for the adoption and re-use of OGD implies that the users need to be creative enough to design innovative solutions for societal purposes and improvisation in public service delivery formats- this is so because innovation (and value creation) is a consequent variable of creativity of individuals (and organizations, too) and the possession and honing of skills is a major determinant for innovation to take place (Amabile, Hennessey & Grossman, 1986). This leads to the research question for the present study: "Is there any difference among the males and females in terms of their OGD adoption and usage as far as their creative propensities are concerned?" Furthermore, since prior OGD-focused research has shown the gender differences in terms of OGD adoption and usage, the present study seeks to understand how the same get reflected in OGD adoption and usage in terms of creativity. It is surprising that despite the understandable link between creativity and skills, extant research on OGD has not sought to appreciate the nuances involved therein-the present study is the first attempt in this direction. Invoking the adapted Unified Theory of Acceptance and Use of Technology (UTAUT) model (Lnenicka et al., 2022) with the Creative Performance Behavior (CPB) scale (Ramamoorthy et al., 2005; Zhang & Bartol, 2010) and the Creative Self-Efficacy (CSE) scale (Chen & Zhang, 2019; Tierney & Farmer, 2002, 2011), hypotheses have been empirically validated among 362 actual OGD users (including undergraduate and postgraduate students only) from a popular private university based in India. Specifically, the moderating effects of CPB and CSE are being investigated in terms of the gender differences to study the relationships between the UTAUT constructs and the behavioural intention to adopt and use OGD. UTAUT model's application in the creativity domain has been recommended given that it explains the technology usage behavior appropriately (Rahimi, 2020). The present study addresses the call made by Charalabidis and his colleagues that OGD-focused research is required "to identify and understand better the necessary skills required for OGD analysis and processing (by OGD users' side)" (Charalabidis, Alexopoulos & Loukis, 2016: 53). Finally, the study contributes towards furthering our understanding of the technology adoption and usage from the perspective of a developing country (Weerakkody, Dwivedi & Kurunananda, 2009) taking the specific case of India.

The rest of the paper is structured as follows: a brief on the research veering on CPB and CSE alongside that on gender as an influencing factor in OGD adoption and usage is presented in the next section followed by the research design with the deliberation on the findings. Thereafter, conclusion is provided along with the limitations and directions for further research with a rounding off by the practitioner implications deduced from this study.

2. Related research

2.1. Creativity and technology adoption and usage

Creativity and information technology need to be integrated (Collin et al., 2017; Henriksen et al., 2021; Jackson et al., 2012) and the latter has been attested to boost individual creativity (Pacauskas & Rajala, 2017). It has been stressed that even the organizations require to "identify highly creative individuals who are able to develop novel and useful ideas, which are the outcome of creativity… and that Information Technology (IT) plays a significant role in creativity" (Wolverton et al., 2022). Likewise, the domain-specific knowledge and experience facilitate value-added creative outcomes in the forms of innovations, products and services (Li et al., 2007; Zeng, Proctor & Salvendy, 2011). Therefore, two facets may be inferred here: first, technology requires creative products, outcomes and innovations to sustain itself (Baron, Patterson & Harris, 2006; Rahimi & Park, 2020), and, second, creativity is an important metric for individuals engaged in value creation and innovation involving the deployment of information technology.

As far as the invocation of the IS models for understanding creativity vis-a-vis information technology is concerned, there are some examples from previous literature. The closest research to ours is the one where the DeLone and McLean Information Success (IS) model, creative self-efficacy and Technology Acceptance Model (TAM) have been integrated to understand the moderating effect of creative self-efficacy between actual Internet usage and employee creative performance and this moderating effect stands clinched (Yamin & Sweiss, 2020). In another study, TAM was integrated with creativity (i.e. idea generation and execution) besides other variables (fixation and inspiration) to understand the students' attitudes towards interactive technologies in classroom settings of digital media basic modelling course (Xu, Fan & Li, 2019). However, there are other cases wherein the Theory of Planned Behavior and Technology Acceptance Model (TAM) have also been invoked to understand the technology adoption and implications (for instance, Learning Management System (LMS) for fashion design courses, Facebook for collaborative learning, social media for marketing, mobile app, cloud computing,) in creativity industries (Ali, Gongbing & Mehreen, 2018; Chen et al., 2012; Elfeky & Elbyaly, 2021; Febrianty et al., 2019; Siregar et al., 2018). Nevertheless, in line with our research objectives and with due concurrence of four experts and authors themselves, UTAUT model was invoked for the present study.

2.2. Gender as potential moderator

Three kinds of findings may be ascertained in terms of gender differences in terms of their creativity: studies attesting that males are more likely to evince creativity; females are more likely to evince creativity and the ones where insignificant results are obtained

Table 1
Research on gender and creativity.

Males are more strongly evincing creativity than the females		
Author/s	Context	Inferences
Bor & Divine, 2015	Adoption of music technology degree courses given the implications of creativity for music	Males-in comparison with the females- are more likely to adopt music technology courses
Terrell et al., 2016	Open source software contributions	Open source software contributions of males are liable to be acknowledged provided that the gender of the contributors is revealed
Loarne-Lemaire et al., 2021	Innovative solutions for climate change across gender	Women are not likely to be considered for contributing to solutions for climate change as far as public R&D policies are concerned
Taylor et al., 2020	Creativity in terms of employment status in US industries	Males are more likely to evince organizational support for creativity and males have more creative innovative performance behaviors
Foss, Woll & Moilanen, 2013	Innovative ideas cognizance and implementation in the Norwegian energy sector	Innovative ideas of males are acknowledged more in comparison with those of the females
Lebuda & Karwowski, 2013	Assessment of product creativity in 4 different domains (art, science, music, and poetry)	Males are judged as being more creative than the females as far as creative products are concerned
Hora et al., 2021	Impact of Creative Self-efficacy on creative performance in retail sector	Males are more likely to have creative self-efficacy which results in improved creative performance
Females are more strongly evincing creativity than the males		
Author/s	**Context**	**Inferences**
Smith, Sardeshmukh & Combs, 2016	Entrepreneurial intention among the males and females	Females' creativity assumes more importance than that of the males in terms of their entrepreneurial intention
Terrell et al., 2016	Open source software contributions	Open source software community recognizes the contributions of females more than those of males
Felix, Flores & Frankwick, 2022	New product development teams	Teams with more females are more likely to evince Idea Generation and Creative Performance Behavior outcomes
Hora et al., 2021	Impact of Creative Self-efficacy on creative performance in retail sector	Team creative self-efficacy is more strong in female cohorts
Insignificant results for males' versus *females' creativity*		
Author/s	**Context**	**Inferences**
Cerne et al., 2022	Creative self-efficacy of digital workers	Neither males nor females had different perceptions regarding the novelty and usefulness dimensions of innovative outcomes

Table 2
The UTAUT and CPB and CSE framework with constructs and corresponding items.

Construct	Definition	Corresponding items	Items sources
Direct effect of adapted UTAUT model factors on behavioural intention to use and adopt OGD			
Performance Expectancy (PE)	The extent to which an individual believes that using OGD will help her in realizing benefits related to her performance in the job/work.	PE1: Using OGD is beneficial for me and useful in my daily life. PE2: Using OGD will help me to accomplish my research quickly. PE3: Using OGD will increase my productivity in my study. PE4: Using OGD improves my performance in my study and its quality.	Venkatesh et al. (2003); Saxena and Janssen (2017); Talukder et al. (2019); Zuiderwijk et al. (2015)
H1: *Performance Expectancy has a positive effect on Behavioural Intention to use and adopt OGD.*			
Effort Expectancy (EE)	The extent to which an individual perceives the easiness linked with the implementation/use of OGD.	EE1: I realize learning to use OGD is easy. EE2: I clearly understand how to use OGD. EE3: I do not have difficulty in explaining why using OGD may be beneficial. EE4: I find ease in using the OGD portal.	Venkatesh et al. (2003); Saxena and Janssen (2017); Talukder et al. (2019); Zuiderwijk et al. (2015)
H2: *Effort Expectancy has a positive effect on Behavioural Intention to use and adopt OGD.*			
Social Influence (SI)	The extent to which an individual realizes the importance of others' perceptions regarding her to use OGD.	SI1: People who influence my behavior think that I should use OGD. SI2: People who are important to me (e.g., family, friends) think that I should use OGD. SI3: People who are important to me (e.g., colleagues, study contacts) think that I should use OGD.	Venkatesh et al. (2003); Saxena and Janssen (2017); Talukder et al. (2019); Zuiderwijk et al. (2015)
H3: *Social Influence has a positive effect on Behavioural Intention to use and adopt OGD.*			
Facilitating Conditions (FC)	The extent to which an individual believes that an organizational and technical infrastructure is in place to support the use of OGD.	FC1: I have the necessary resources to use OGD. FC2: OGD portal is compatible with other systems that I use. FC3: A specific person, group or representative (either from government, non-government, academic, legal, etc.) is available for assistance with difficulties concerning the use of OGD.	Venkatesh et al. (2003); Saxena and Janssen (2017); Talukder et al. (2019); Zuiderwijk et al. (2015)
H4: *Facilitating Conditions has a positive effect on Behavioural Intention to use and adopt OGD.*			
Voluntariness of Use (VU)	The extent to which an individual perceives that OGD use is voluntary or of free will.	VU1: Although it might be helpful, using OGD is certainly not compulsory for my research or other activities. VU2: My research and other activities do not require me to use OGD.	Moore and Benbasat (1991); Saxena and Janssen (2017); Zuiderwijk et al. (2015)
H5: *Voluntariness of Use has a positive effect on Behavioural Intention to use and adopt OGD.*			
System Quality (SQ)	The extent to which the performance of the information system in terms of reliability, convenience, ease of use, functionality and other system metrics impacts an individual's willingness to adopt and use OGD.	SQ1: Structure of OGD portal is user-friendly. SQ2: The OGD portal that I engaged with is available at all times and responds at an acceptable speed. SQ3: The OGD portal provides datasets in different file formats and open licenses. SQ4: The OGD portal provides features needed (e.g., data visualization, data request, feedback mechanism, quality rating). SQ5: The OGD portal provides guidance and documentation to download and interpret the data.	DeLone and McLean (2003); Purwanto, Zuiderwijk and Janssen (2020); Talukder et al. (2019)
H6: *System Quality has a positive effect on Behavioural Intention to use and adopt OGD.*			
Information Quality (IQ)	The extent to which the characteristics of the output offered by the information system, such as accuracy, timeliness and completeness impact an individual's willingness to adopt and use OGD.	IQ1: I get the necessary information through the OGD portal. IQ2: The OGD portal provides up-to-date information. IQ3: Information from the OGD portal is reliable to me.	DeLone and McLean (2003); Talukder et al. (2019)
H7: *Information Quality has a positive effect on Behavioural Intention to use and adopt OGD.*			
Data Quality (DQ)	The extent to which OGD is free from errors apart from being complete, accurate, appropriately formatted as per acknowledged standards and is ready for reuse.	DQ1: OGD I engaged with are free from errors. DQ2: OGD I engaged with are complete (i.e., cover all attributes needed, no missing value). DQ3: OGD I engaged with are well-formatted. DQ4: It is easy to link or combine a dataset to/ with other OGD.	Purwanto, Zuiderwijk and Janssen (2020)
H8: *Data Quality has a positive effect on Behavioural Intention to use and adopt OGD.*			
Trust (TR)	The extent to which OGD can be trusted.	TR1: OGD providers can be trusted. TR2: The OGD that I engaged with seemed truthful to me.	Purwanto, Zuiderwijk and Janssen (2020)

(*continued on next page*)

Table 2 (*continued*)

Construct	Definition	Corresponding items	Items sources
		TR3: The OGD I engaged with can be trusted.	
H9: *Trust has a positive effect on Behavioural Intention to use and adopt OGD.*			
Moderating effect of CPB constructs on the relationship between each of the UTAUT constructs with respect to the behavioural intention to use and adopt OGD			
Problem Identification	The extent to which an individual believes that she has appropriately defined the problem which requires OGD.	PI1: I spend considerable time trying to understand the nature of the problem. PI2: I think about the problem from multiple viewpoints. PI3: I decompose a difficult problem into parts to obtain greater understanding.	Ramamoorthy et al. (2005); Zhang and Bartol (2010)
H10C1–10C9: *Problem Identification has a moderating effect on the relationship between UTAUT constructs and Behavioural Intention to use and adopt OGD. Thus, the positive relationship between the UTAUT constructs and Behavioural Intention to use and adopt OGD would be higher for users with high Problem Identification.*			
Information Search (IS)	The extent to which an individual believes that OGD can provide ample information which is diverse and relevant to the problem and the same may be integrated.	IS1: I consult a wide variety of information when solving a problem. IS2: I search for information in order to solve the problem. IS3: I spend considerable time looking for relevant information when solving a problem.	
H11C1–11C9: *Information Search has a moderating effect on the relationship between UTAUT constructs and Behavioural Intention to use and adopt OGD. Thus, the positive relationship between the UTAUT constructs and Behavioural Intention to use and adopt OGD would be higher for users with high Information Search.*			
Idea Generation (IG)	The extent to which an individual believes that alternative solutions may be generated using OGD and the best one be picked to solve the problem.	IG1: I engage in generating original solutions for problems. IG2: I consider diverse sources of information in generating new ideas. IG3: I generate number of alternatives to the same problem before I choose the final solution. IG4: I devise potential solutions that move away from established ways of doing things.	
H12C1–12C9: *Idea Generation has a moderating effect on the relationship between UTAUT constructs and Behavioural Intention to use and adopt OGD. Thus, the positive relationship between the UTAUT constructs and Behavioural Intention to use and adopt OGD would be higher for users with high Idea Generation.*			
Idea Promotion (IP)	The extent to which an individual believes that her creative solutions using OGD are recognized and acknowledged by colleagues/seniors and others.	IP1: I engage in making colleagues/seniors enthusiastic for innovative ideas. IP2: I acquire approvals easily from colleagues/seniors for innovative ideas. IP3: I work towards transforming innovative ideas into useful applications. IP4: I mobilize support for innovative ideas.	
H13C1–13C9: *Idea Promotion has a moderating effect on the relationship between UTAUT constructs and Behavioural Intention to use and adopt OGD. Thus, the positive relationship between the UTAUT constructs and Behavioural Intention to use and adopt OGD would be higher for users with high Idea Promotion.*			
Moderating effect of CSE constructs on the relationship between each of the UTAUT constructs with respect to the behavioural intention to use and adopt OGD			
Creative Self-efficacy (CSE)	The extent to which an individual believes that she can generate creative results using OGD.	CSE1: I have confidence in my ability to solve problems creatively. CSE2: I have a knack for further developing the ideas of others. CSE3: I feel that I am good at generating novel ideas.	Chen & Zhang, 2019; Tierney & Farmer, 2002, 2011
H14C1–14C9: *Creative Self-efficacy has a moderating effect on the relationship between UTAUT constructs and Behavioural Intention to use and adopt OGD. Thus, the positive relationship between the UTAUT constructs and Behavioural Intention to use and adopt OGD would be higher for users with high Creative Self-efficacy.*			
Gender	The extent to which there are gender differences in terms of their OGD adoption and usage as far as their creative propensities are concerned.		
H15C1–15C9 & Male/Female differences: There are gender differences in terms of the OGD adoption and usage as far as the creative propensities are concerned			
Behavioural Intention (BI)	The extent of individual readiness and willingness to adopt and use OGD.	BI1: I intend to use OGD and data portals in the future. BI2: I predict that I will use OGD and data portals in my daily life. BI3: I plan to use OGD and data portals frequently.	Venkatesh et al. (2003); Saxena and Janssen (2017); Talukder et al. (2019); Zuiderwijk et al. (2015)

(Table 1).

Males and females have different attitudinal disposition towards technology adoption (Lee & Wu, 2012; Livingstone, 2012; Tomte & Hatlevik, 2006; Venkatesh, Morris & Ackerman, 2000). For instance, ICT (Information and Communications Technology) usage is more pronounced among the males than the females such that the former are more likely to tap ICT for academic pursuits and the latter for non-academic purposes as well (Livingstone, 2012; Notten & Kraaykamp, 2009; Peter & Valkenburg, 2006; Xiao & Sun, 2022). Similar findings were attested in the case of the agricultural-ICT adoption and usage wherein males were more inclined towards it than the female counterparts in Senegal (Voss et al., 2021) but opposite results were found in another case of agricultural-ICT adoption and usage in Ghana (Quaye et al., 2022). Likewise, in the case of adoption of smart locks for homes, females-as compared with the males-were more driven towards its usage given the novel features (Stanislav & Raquel, 2021). Vis-a-vis the adoption of m-Health technologies, both males and females were found to have propensities towards its adoption but the perceptions were different-for females, the perceived usefulness mattered more and for males, perceived ease of use mattered more (Hoque, 2016). Contrastingly, in another case of smartphones adoption, males were more inclined to use it on account of the perceived ease of use and both males and females do not have any different attitudinal dispositions towards smartphones adoption as far as perceived usefulness is concerned (Sakkthivel & Ramu, 2018). Furthermore, there are gender differences in terms of e-learning adoption and the same gets reflected in the academic performance (Wongwatkit et al., 2021). Similarly, multimedia technology adoption and usage was found to be different among the male and female students for facilitating as e-learning channels (Park et al., 2019). At the same, there are studies that show that gender differences do not matter in computer usage (Al-Share, Grandon & MIller, 2004) or mobile commerce platform, for instance (Lee, Glass & Records, 2008).

In the public sector settings, females were more inclined to adopt and use e-government than the males (Al-Zaharani, Al-Karaghouli & Weerakkody, 2018). In the specific case of OGD adoption and usage, only two studies have factored gender as an intervening variable (Saxena & Janssen, 2017; Zuiderwijk, Janssen & Dwivedi, 2015)-the first study infers that females are more likely to adopt and use OGD for non-professional purposes in contrast with the males who prefer OGD adoption and usage for academic purposes and the second study showed that there were no gender differences as far as OGD adoption and usage is concerned.

2.3. Summing up

As mentioned in the preceding Section, OGD is a "technology" (Kalampokis, Tambouris & Tarabanis, 2011; Ubaldi, 2013) and there is a need for the assessment of the creative potential in the usage and adoption of this "technology" for value creation and innovation by the diverse stakeholders. Thus, the present study seeks to invoke the two dimensions of creativity literature, CPB and CSE for understanding their implications for OGD adoption and usage. As such, CPB has been defined as the activities involved in responding to a task which result in creative products, innovations or services (Montag, Maertz & Baer, 2012) and CSE is the belief that an individual has in generating creative results or outcomes (Mathisen & Bronnick, 2009; Puente-Diaz, 2016). Intertwining the aforesaid, two research questions shall be studied: "Is there any difference among the males and females in terms of their OGD adoption and usage as far as their creative propensities are concerned?"

3. Research design

3.1. Framework and hypotheses design

The framework for the study has been summarized in Table 2 wherein the construct items have been delineated. Fig. 1 summarizes the model along with the hypotheses wherein the moderating effects of gender, CPB and CSE have been investigated with respect to the adoption and usage of OGD. It may be deduced from Fig. 1 that we are aiming to test the hypotheses linking the impact of gender, CPB and CSE constructs on the relationship between each of the UTAUT constructs with respect to the behavioural intention to use and adopt OGD (as presented by the two dashed arrows) apart from the direct relationships between the adapted UTAUT model and the behavioural intention to use and adopt OGD (as presented by the solid arrow).

3.2. Data collection and analysis

There were 11 questions regarding the demographic characteristics of the respondents and their extent of usage of OGD (Table 3). A pilot study was also conducted to ensure the reliability of the questionnaire. Furthermore, 10 academic experts from engineering, management and social sciences inclusive of the doctoral scholars were requested to share their inputs regarding the consistency, sequence and relevance of the items. Based on the feedback from the aforesaid, the final questionnaire was administered on 362 undergraduate and postgraduate students from an established private university in India. Students have been taken into the consideration-set of the researchers for investigating OGD phenomena and its accouterments (Alexopoulos, Loukis & Charalabidis, 2016; Crusoe et al., 2019; Lnenicka et al., 2022; Ruijer & Meijer, 2020) as also across other realms linked with technology usage (Abu-Shanab & Haider, 2015; Adapa et al., 2018; Ardies et al., 2015; Mensah, 2020). The structured questionnaire was administered via online mode after in-person interaction with the respondents regarding the purpose of the study. The structured questionnaire was framed with the Likert scale ranging from "Strongly Agree" to "Strongly Disagree". The entire process of data collection was done between March, 2022 and November, 2022. For the analysis of the interrelationships between the variables in the model, the structural equation modeling (SEM) was used. Warpl-PLS 7.0 software (Kock, 2021) was used for conducting the Partial Least Squares (PLS)-SEM method with adjustment for bootstrapping (i.e. 5000 subsamples) to ensure that the normality of data is approximated (Wong, 2013).

4. Results

4.1. Respondents' characteristics and experiences with OGD

Table 3 provides a summary of the descriptive statistics pertaining to the respondents apart from their usage propensity of OGD. It may be deduced from Table 3 that the female respondents (59.66 %) are more in comparison with the males. In terms of the age composition of the respondents, most of them figure in the 16–20 years of age bracket (66.85 %) and are in their undergraduate (Bachelor's) courses (92.26 %). A maximum number of students are from the engineering (29.55 %) and humanities and social sciences (25.13 %) domains. Furthermore, regarding the specific questions pertaining to the respondents' interaction with OGD, a sizeable number considers OGD to be important (42.26 %) and the frequency of usage of OGD is implicit of the regular OGD usage by the respondents. There were 2 questions which provided the option of multiple answering: purposes for using OGD and the portals/types of OGD being used. For the former question, a maximum number of respondents engaged with OGD for seeking information (40.05 %), doing the statistical analysis (35.91 %) and data linking tasks (28.72 %). Regarding the second question, it may be deduced that a sizeable number of respondents engage with the "National/Regional/Local government Open Data Portals" (56.35 %) besides referring to the sectoral OGD on business/economy (30.93 %) and health (31.21 %).

4.2. Measurement model

Partial Least Squares-Structural Equation Modelling (PLS-SEM) method via Warp-PLS 7.0 is being used for the present study. The first step is related to measurement modelling. The R-squared for the model (without the moderator) was 0.804 and the adjusted R-squared was 0.800 and this is suggestive of the predictive power of the model. From Table 4, it may be deduced that the reliability scores are above 0.7 and the convergent validity (Average Variance Extracted (AVE)) is more than 0.5 (Hair et al., 2021). In sum, the construct measures are reliable and valid.

Furthermore, the Fornell and Larcker (1981) values are being taken into account for assessing the discriminant validity (Table 5) which shows that the values are higher than the values in the rows and columns. Furthermore, heterotrait-monotrait ratio (HTMT) values are being taken into account and the HTMT values should be below 0.85–0.9 for structural models (Henseler, Ringle and Sarstedt, 2015). As evident from Table 5, the diagonally-placed Fornell and Larcker values (in bold) are higher than the value in their rows and columns and the HTMT values (in italics) are lower than the threshold values and this indicates that the discriminant validity holds true. Thus, the discriminant validity holds good.

4.3. Structural model assessment

A bootstrapped model was run with 5000 subsamples. For drawing inferences regarding the moderating variables, interactions have been operationalized following the two-stage approach which facilitates parameter recovery and statistical power (Chin, Marcolin & Newsted, 2003; Becker, Ringle & Sarstedt, 2018; Henseler & Chin, 2010). Kenny and Judd (2019) and Cohen (1988) affirmed that 0.005, 0.01 and 0.025 respectively indicate small, medium and large effect sizes of moderation. Findings from the interaction effects may be summarized in Table 6.

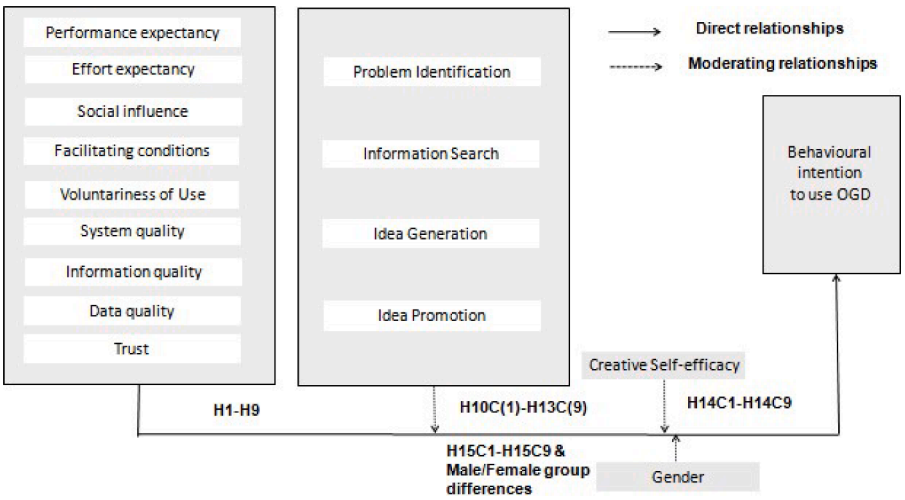

Fig. 1. A model (with hypotheses) for evaluating the behavioural intention for adoption of OGD.

Table 3
Demographic profiles of respondents and their responses to selected questions.

	Total	Percentage
Gender		
Males	146	40.33
Females	216	59.66
Age		
16–20 years	242	66.85
21–25 years	114	31.49
26–30 years	3	0.008
Above 30 years	3	0.008
Level of study		
Bachelor's	334	92.26
Master's/PhD's/PostDoc's	28	0.07
Year of study		
1st year	119	32.87
2nd year	108	29.83
3rd year	73	20.16
4th year	49	13.53
5th year	6	0.016
Other	7	0.019
Academic background		
Humanities and social sciences	91	25.13
Engineering	107	29.55
Management/commerce	36	9.94
Law	24	6.62
Nursing/medical	42	11.60
Hospitality/hotel management	13	3.59
Other	49	13.53
To what extent are OGD purposeful for you?		
Very important	49	13.53
Important	153	42.26
Neutral	127	35.08
Unimportant	4	1.10
Very unimportant	29	8.01
How often do you use OGD?		
Daily or multiple times a day	41	11.32
Weekly or a few times in a week	90	24.86
Monthly or a few times in a month	102	28.17
Yearly or a few times in a year	89	24.58
Do not know	43	11.87
For what purposes do you use OGD? (Tick all those applicable)		
To perform statistical analysis	130	35.91
For data linking (combining and integrating different datasets)	104	28.72
To write academic publications	63	17.40
To perform policy research	18	4.97
To perform investigations (non-scientific and non-policy)	77	21.27
For information purposes (e.g., COVID-19, etc.)	145	40.05
For political and policy-making decisions	11	3.03
For curiosity and/or recreation	27	7.45
For daily operation in work	85	23.48
For news reporting	6	1.65
Other	2	0.55
No use	1	0.27
Which of the following types of OGD have you used? (Tick all those applicable)		
National/Regional/Local government open data portal	204	56.35
European data portal	27	7.45
OECD (Organization for Economic-Cooperation and Development)	36	9.94
United Nations Open Portal (UNData)	57	15.74
World bank	48	13.25
Agriculture and food	24	6.62
Culture	45	12.43
Business and economy	112	30.93
Crime and justice	37	10.22
Education	88	24.30
Environment	74	20.44
Government spending	82	22.65
Health	113	31.21
Mapping	37	10.22
Society	48	13.25
Regions and cities	63	17.40
Transport	52	14.36
Other	26	7.18

5. Multi group analysis (MGA)

Given the moderating effects of gender, MGA was conducted with Warp PLS 7.0 software (Kock, 2021). Before drawing inferences regarding the MGA, the measurement invariance condition was ascertained (Appendix 1-Supplementary material). Table 7 summarizes the most important results. The results that are not included in Table 7 are considered insignificant or not supported.

6. Discussion

With a specific focus on the gender differences, the present study invoked the adapted UTAUT model with the CPB and CSE constructs for understanding the relationships between the UTAUT constructs and the behavioural intention to adopt and use OGD. Regarding the moderating effects of Problem Identification on UTAUT constructs, the effects were weak for males (Problem Identification*Effort Expectancy; Idea Generation*Performance Expectancy; Idea Generation*Trust; Creative Self-efficacy*Effort Expectancy; Creative Self-efficacy*Voluntariness of Use; Creative Self-efficacy*Data Quality) but not for the others (Problem Identification*Social Influence; Problem Identification*Facilitating Conditions; Problem Identification*Data Quality; Information Search*Social Influence; Information Search*Information Quality; Idea Generation*Performance Expectancy; Idea Generation*Voluntariness of Use; Idea Generation*System Quality; Idea Promotion*Performance Expectancy; Idea Promotion*Effort Expectancy; Idea Promotion*Social Influence; Creative Self-efficacy*Data Quality). Also, there are similar positive (i.e. strong influence in impacting OGD adoption and usage) connotations (Problem Identification*Performance Expectancy; Idea Promotion*System Quality; Creative Self-efficacy*Social Influence) and similar negative (i.e. antagonistic influence in impacting OGD adoption and usage) connotations among the males and females vis-a-vis certain relationships (Problem Identification*Trust; Information Search*Facilitating Conditions; Information Search*Voluntariness of Use; Information Search*System Quality; Information Search*-Data Quality; Information Search*Trust; Idea Generation*Effort Expectancy; Idea Generation*Social Influence; Idea Generation*Facilitating Conditions; Idea Generation*Information Quality; Idea Promotion*Facilitating Conditions; Idea Promotion*Data Quality; Idea Promotion*Trust; Creative Self-efficacy*System Quality; Creative Self-efficacy*Information Quality).

These results are clinched by the findings from previous research as well. For instance, Open Data Performance Expectancy has been conceptualized in terms of the possibilities of "analysing materials promoting open data in the Internet" (Soltysik-Piorunkiewicz & Zdonek, 2021: 1) therefore Problem Identification would require the scrutiny and analysis of OGD, albeit differently among the males and females. Furthermore, these results are reflective of the role of creative thinking for idea generation pursuits (Awang et al., 2020) among the students vis-a-vis OGD. Also, these results are reflective of the need for individual discretion and autonomy while engaging with OGD (Buvik, 2016; Lu et al., 2019) wherein applications of individual creativity are best reflected (Damanpour et al., 2018). On account of the students' creative engagement with OGD, collaborative knowledge exchange and co-production is also facilitated via co-initiation and co-creation pursuits (Lewis et al., 2020). Additionally, these results are suggestive of the networking and transferring of knowledge which is facilitated via the creative engagement of the individual users which results in value derivation and innovation pursuits (Clarke & Craft, 2018). Also, As far as the non-significant relationships with the other dimensions is concerned, it may be appreciated that Problem Identification vis-a-vis OGD is not a certainty for being successful in the first shot, therefore, impacts of Voluntariness of Use/System Quality/Information quality become secondary.

Regarding the gender differences across the moderating effects of Information Search on UTAUT constructs, it has been attested that Performance Expectancy has been considered as a significant precursor to effective problem-solving (Reinhanrd, Weissgerber & Wenzel, 2019) which requires Information Search activities. Information Search has been considered significant in terms of Performance Expectancy as well as Effort Expectancy for the consumers-travelers, in this case- adopting mobile technologies (Oh, Lehto & Park, 2009) or omnichannel retail environments (Ryu, 2021). Thus, these assertions are in contrast with our findings where

Table 4
Measures of internal consistency reliability and convergent validity.

	Alpha (Cronbach's alpha)	rhoC (Composite reliability)	AVE (Average Variance Extracted)
Performance Expectancy (PE)	0.930	0.950	0.826
Effort Expectancy (EE)	0.890	0.924	0.752
Social Influence (SI)	0.923	0.951	0.867
Facilitating Conditions (FC)	0.876	0.924	0.802
Voluntariness of Use (VU)	0.902	0.939	0.836
System Quality (SQ)	0.909	0.933	0.738
Information Quality (IQ)	0.912	0.944	0.850
Data Quality (DQ)	0.909	0.936	0.785
Trust (TR)	0.958	0.973	0.923
Behavioral intention to adopt and use OGD (BI)	0.926	0.953	0.871
Problem Identification (PI)	0.922	0.873	0.798
Information Search (IS)	0.926	0.881	0.807
Idea Generation (IG)	0.928	0.896	0.762
Idea Promotion (IP)	0.939	0.914	0.795
Creative Self-Efficacy (CSE)	0.936	0.898	0.83

Information Search*Performance Expectancy and Information Search*Effort Expectancy were found non-significant in terms of OGD adoption and usage-this may be on account of the students' not considering Information Search as something that is critical or difficult for OGD adoption and usage. Social Influence has a marked impact on the Information Search behaviors for technology adoption, case in point being the perusal of online anonymous user reviews (Zhao, Stylianou & Zheng, 2018). Furthermore, given that social networks are considered as important conduits for information diffusion too (Bakshy et al., 2012) which is important for the user community to understand and draw patterned inferences from the shared information appropriately. Furthermore, creativity is a function of the creative environment which is suggestive of congenial work/organizational culture (Muller & Ulrich, 2013; Yang, Zhou & Xu, 2022), therefore the Facilitating Conditions should be favorable for Information Search. Information Quality is a function of an individual's "search behavior" and the judgment of Information Quality is a function of the "characteristics of sources, knowledge, situation, ranking in search output, and general assumption" (Rieh, 2002: 145). Information Search is facilitated with complete, accurate and timely data which are the key attributes of Data Quality (Chen et al., 2014). Information Search also includes the complex process of data integration involving heterogenous datasets, therefore, the findings in our present study are attested (Devillers et al., 2007).

Regarding the gender differences across the moderating effects of Idea Generation on UTAUT constructs, it has been shown that Idea Generation involves knowledge activation and idea production (Nijstad & Stroebe, 2006) and both of them are significant in terms of the Performance Expectancy and Effort Expectancy. Social Influence helps in idea selection, especially in the case of dilemma (Fleury et al., 2020). It has been attested that the exchange of ideas increases brainstorming and it has a significant impact on performance (Paulus et al., 1996). This becomes all the more important because the idea exchange process furthers motivation and boosts creativity (Paulus & Brown, 2007). Information acquired during the Idea Generation stage should be qualitatively robust because it has a direct impact on the quality of the invention (Walsh, Lee & Nagaoka, 2016). Similarly, the effectiveness of Idea Generation has been found to be a factor of four factors: data quantity, data quality, data novelty and data variety (Linsey et al., 2011) but the Idea Generation*Data Quality results were found insignificant in the present study which may be on account of the simple OGD applications or the high-value OGD provisioned across the portals that are being used by the students.

Regarding the gender differences across the moderating effects of Idea Promotion on UTAUT constructs, the effects were not significant for Voluntariness of Use and Information Quality. Facilitating Conditions are important in terms of the organizational climate which rewards and acknowledges creativity (Muller & Ulrich, 2013; Yang, Zhou & Xu, 2022). Likewise, Perceived Organizational Support (POS), job autonomy, congenial leader-employee relationships have been attested as a significant predictor of innovative behaviors (Carnevale et al., 2017; Ramamoothy et al., 2005; Yu & Frenkel, 2013). Regarding the influence of Social Influence, it has been shown that implementation of creative ideas requires the social networks which facilitate in building strong relationships and furthering individual creativity (Baer, 2012). Idea promotion happens via formal and informal channels and the Voluntariness of Use gets reflected in the creative "champions" (users with commitment, autonomy and self-motivated) who use contextual knowledged to their advantage (Howell & Boies, 2004; Mansfield, Holzle & Gemunden, 2010). Innovation quality is a function of the information characteristics (i.e. Information Quality), case in point being the open innovation platforms (Zhou et al., 2022). Data quality in the sense of Big Data, for instance, is important for generating dynamic/adaptive capabilities via physical and human capital which further creative outcomes (Erevelles, Fukawa & Swayne, 2016). Likewise, it was attested how the users' (i.e. farmers, in this case) were successful in their experimentation and discovery processes through the advanced data quality accessed by them (Hagmann & Chuma, 2002). As far as the non-significant relationships are concerned, the students might not consider impressing their innovative ideas upon others based on Voluntariness of Use which is actually not so critical for Idea Promotion or Information Quality, which might be good enough already or required for simple OGD applications, for instance.

Finally, as far as the gender differences across the moderating effects of Creative Self-efficacy on UTAUT constructs, the effects were not significant for Performance Expectancy, Facilitating Conditions and Trust. Self-performance expectations are considered significant for individual creativity (Hossain, Liu & Kumar, 2020) but these expectations do not necessarily translate to excellence in outcomes. However, social networks have been found to have significant relationships with creative self-efficacy (Gong, Kim & Liu, 2020) and this is in line with our finding. Likewise, organizational climate (leadership, for instance) is conceived to be a significant determinant of creative self-efficacy (Han & Bai, 2020) but in our case, Facilitating Conditions has not been found to be influential. Finally, creative self-efficacy may not be a determining factor of OGD usage and adoption vis-a-vis the other variables for the sample chosen in the present study owing to the relatively small scale of innovative behavior required of their occupational status.

Table 5
Fornell–Larcker criterion values and the HTMT values for checking discriminant validity.

	PE	EE	SI	FC	VU	SQ	IQ	DQ	TR	BI
PE	**0.909**	*0.911*	*0.672*	*0.761*	*0.386*	*0.660*	*0.774*	*0.721*	*0.686*	*0.687*
EE	0.828	**0.867**	*0.800*	*0.858*	*0.469*	*0.713*	*0.785*	*0.797*	*0.698*	*0.723*
SI	0.624	0.727	**0.931**	*0.847*	*0.374*	*0.608*	*0.708*	*0.721*	*0.591*	*0.617*
FC	0.688	0.759	0.762	**0.895**	*0.502*	*0.705*	*0.754*	*0.703*	*0.621*	*0.678*
VU	0.356	0.423	0.341	0.448	**0.915**	*0.819*	*0.540*	*0.608*	*0.589*	*0.574*
SQ	0.609	0.645	0.560	0.631	0.743	**0.859**	*0.840*	*0.806*	*0.757*	*0.783*
IQ	0.713	0.708	0.648	0.674	0.491	0.769	**0.922**	*0.928*	*0.819*	*0.803*
DQ	0.665	0.719	0.661	0.630	0.557	0.737	0.842	**0.886**	*0.864*	*0.839*
TR	0.648	0.645	0.556	0.570	0.550	0.709	0.765	0.814	**0.961**	*0.936*
BI	0.638	0.657	0.571	0.612	0.527	0.721	0.738	0.776	0.881	**0.933**

Table 6
Inferences drawn from the hypotheses' testing.

Hypothesised relationships	Path coefficients	*p*-value	Effect size	Inference
H1: PE → BI	0.065	0.105	0.042	x
H2: EE → BIDD	0.075	0.075	0.049	x
H3: SI → BIDD	-0.004	0.466	0.003	x
H4: FC → BIDD	0.102	**0.025**	0.063	Facilitating Conditions are important considerations for OGD adoption and usage
H5: VU→ BIDD	0.039	0.228	0.021	x
H6: SQ → BIDD	0.124	**0.008**	0.089	System Quality is important consideration for OGD adoption and usage
H7: IQ → BIDD	0.016	0.383	0.012	x
H8: DQ → BIDD	0.093	**0.037**	0.072	Data Quality is important consideration for OGD adoption and usage
H9: TR → BIDD	0.63	**<0.001**	0.555	Trust is important consideration for OGD adoption and usage
H10C1: PI*PE → BI	-0.089	**0.043**	0.038	OGD adoption and usage does not warrant Problem Identification while considering its impact on work/academics
H10C2: PI*EE → BI	-0.132	**0.006**	0.06	OGD adoption and usage does not warrant Problem Identification while considering the ease of use while interacting with OGD
H10C3: PI*SI → BI	-0.105	**0.021**	0.043	OGD adoption and usage does not warrant Problem Identification while considering the impact of the significant others, viz. colleagues, family, friends, peers, etc.
H10C4: PI*FC → BI	-0.028	0.299	0.011	x
H10C5: PI*VU → BI	-0.134	**0.005**	0.043	OGD adoption and usage does not warrant Problem Identification while considering the voluntariness of the individual
H10C6: PI*SQ → BI	-0.166	**<0.001**	0.068	OGD adoption and usage does not warrant Problem Identification while considering the System Quality
H10C7: PI*IQ → BI	-0.213	**<0.001**	0.094	OGD adoption and usage does not warrant Problem Identification while considering the Information Quality
H10C8: PI*DQ → BI	-0.23	**<0.001**	0.111	OGD adoption and usage does not warrant Problem Identification while considering the Data Quality
H10C9: PI*TR → BI	0.008	0.443	0.003	x
H11C1: IS*PE → BI	-0.082	0.057	0.037	x
H11C2: IS*EE → BI	0.183	**<0.001**	0.091	OGD adoption and usage warrants Information Search in terms of the ease of use; more the information search, more the ease of use
H11C3: IS*SI → BI	-0.099	**0.028**	0.047	OGD adoption and usage does not warrant Information Search while considering the influence of peers, friends, colleagues, family, etc.
H11C4: IS*FC → BI	-0.06	0.124	0.027	x
H11C5: IS*VU → BI	0.089	**0.043**	0.03	OGD adoption and usage warrants Information Search in terms of the voluntariness of use; more the information search, more the voluntariness of use
H11C6: IS*SQ → BI	-0.09	**0.043**	0.041	OGD adoption and usage does not warrant Information Search while considering the System Quality
H11C7: IS*IQ → BI	-0.273	**<0.001**	0.128	OGD adoption and usage does not warrant Information Search while considering the Information Quality
H11C8: IS*DQ → BI	-0.309	**<0.001**	0.161	OGD adoption and usage does not warrant Information Search while considering the Data Quality
H11C9: IS*TR → BI	-0.11	**0.017**	0.052	OGD adoption and usage does not warrant Information Search while reposing Trust in the OGD or its sources
H12C1: IG*PE → BI	-0.182	**<0.001**	0.078	OGD adoption and usage does not warrant Idea Generation while considering the implications of OGD for academics/work
H12C2: IG*EE → BI	-0.289	**<0.001**	0.137	OGD adoption and usage does not warrant Idea Generation while considering the ease of use
H12C3: IG*SI → BI	-0.124	**0.008**	0.056	OGD adoption and usage does not warrant Idea Generation while considering the influence of family, friends, colleagues, peers, etc.
H12C4: IG*FC → BI	-0.207	**<0.001**	0.084	OGD adoption and usage does not warrant Idea Generation while considering the influence of facilitating conditions
H12C5: IG*VU → BI	-0.106	**0.02**	0.035	OGD adoption and usage does not warrant Idea Generation while considering voluntariness of use
H12C6: IG*SQ → BI	-0.207	**<0.001**	0.096	OGD adoption and usage does not warrant Idea Generation while considering the role of System Quality
H12C7: IG*IQ → BI	-0.251	**<0.001**	0.125	OGD adoption and usage does not warrant Idea Generation while considering the role of Information Quality
H12C8: IG*DQ → BI	-0.142	**0.003**	0.074	OGD adoption and usage does not warrant Idea Generation while considering the role of Data Quality
H12C9: IG*TR → BI	-0.262	**<0.001**	0.127	OGD adoption and usage does not warrant Idea Generation while considering the importance of reliable OGD and its sources
H13C1: IP*PE → BI	-0.109	**0.018**	0.043	OGD adoption and usage does not warrant Idea Promotion while considering the role of OGD for academics/work
H13C2: IP*EE → BI	0.119	**0.011**	0.053	Idea Promotion helps in making the OGD usage and adoption easier; efforts expended become lesser on account of more support about the credibility of the Idea
H13C3: IP*SI → BI	-0.172	**<0.001**	0.075	OGD adoption and usage does not warrant Idea Promotion while considering the influence of family, friends, colleagues, peers, etc.
H13C4: IP*FC → BI	-0.221	**<0.001**	0.101	OGD adoption and usage does not warrant Idea Promotion while considering the role of Facilitating Conditions
H13C5: IP*VU → BI	-0.013	0.403	0.004	x

(*continued on next page*)

Table 6 (*continued*)

Hypothesised relationships	Path coefficients	*p*-value	Effect size	Inference
H13C6: IP*SQ → BI	0.061	0.121	0.028	x
H13C7: IP*IQ → BI	-0.023	0.332	0.011	x
H13C8: IP*DQ → BI	-0.26	**<0.001**	0.137	OGD adoption and usage does not warrant Idea Promotion while considering the importance of Data Quality
H13C9: IP*TR → BI	-0.332	**<0.001**	0.148	OGD adoption and usage does not warrant Idea Promotion while considering the reliability of OGD or its sources
H14C1: CSE*PE → BI	-0.064	0.111	0.027	x
H14C2: CSE*EE → BI	0.015	0.389	0.007	x
H14C3: CSE*SI → BI	0.035	0.249	0.013	x
H14C4: CSE*FC → BI	0.032	0.269	0.012	x
H14C5: CSE*VU → BI	-0.102	**0.025**	0.031	OGD adoption and usage does not warrant Creative Self-efficacy while considering the voluntary usage
H14C6: CSE*SQ → BI	-0.176	**<0.001**	0.078	OGD adoption and usage does not warrant Creative Self-efficacy while considering the System Quality
H14C7: CSE*DQ → BI	-0.203	**<0.001**	0.098	OGD adoption and usage does not warrant Creative Self-efficacy while considering the Data Quality
H14C8: CSE*IQ → BI	0.172	**<0.001**	0.073	OGD adoption and usage is supported by Creative Self-efficacy while considering the role of Information Quality; higher the Creative Self-efficacy, more is the consideration given to Information Quality as far as OGD adoption and usage is concerned
H14C9: CSE*TR → BI	-0.115	**0.013**	0.056	OGD adoption and usage does not warrant Creative Self-efficacy while considering the reliability of OGD or its sources
H15C1: GEN*PE → BI	-0.139	**0.004**	0.054	Gender has an important role in OGD adoption and usage in terms of its importance for academics/work and it is more pronounced for females than for males
H15C2: GEN*EE → BI	0.106	**0.021**	0.038	Gender has an important role in OGD adoption and usage in terms of the ease of usage and it is more pronounced for males than for females
H15C3: GEN*SI → BI	0.06	0.124	0.021	x
H15C4: GEN*FC → BI	0.086	**0.049**	0.029	Gender has an important role in OGD adoption and usage in terms of the facilitating conditions and it is more pronounced for males than for females
H15C5: GEN*VU → BI	-0.031	0.276	0.01	x
H15C6: GEN*SQ → BI	-0.014	0.393	0.006	x
H15C7: GEN*IQ → BI	0.007	0.448	0.003	x
H15C8: GEN*DQ → BI	0.103	**0.024**	0.045	Gender has an important role in OGD adoption and usage in terms of the importance accorded to Data Quality and it is more pronounced for males than for females
H15C9: GEN*TR → BI	0.01	0.426	0.005	x

Table 7
Inferences from MGA.

	Path coefficients (Males)	Path coefficients (Females)	Group pair results (Males = 0; Females = 1) Absolute path coefficient differences	SE	*p* value (two-tailed)	Inference
PE-BI	0.275	0.023	0.252	0.104	0.008	Males, in comparison with females, adopt and use OGD while considering its impact on work/academics
DQ-BI	-0.021	0.22	0.241	0.104	0.01	Females, but not males, consider the role of Data Quality to adopt and use OGD
PI*PE-BI	0.517	0.047	0.47	0.102	<0.001	Males, in comparison with females, use Problem Identification to adopt and use OGD while considering its impact on work/academics
PI*EE-BI	-1.075	0.03	1.105	0.098	<0.001	Females, but not males, use Problem Identification to adopt and use OGD while experiencing ease of use
PI*SI-BI	1.12	-0.029	1.149	0.098	<0.001	Males, but not females, use Problem Identification to adopt and use OGD while considering the influence of significant others like family, friends, peers, etc.
PI*FC-BI	0.682	-0.099	0.781	0.1	<0.001	Males, but not females, use Problem Identification to adopt and use OGD while considering the role of facilitating conditions
PI*DQ-BI	0.67	-0.043	0.713	0.101	<0.001	Males, but not females, use Problem Identification to adopt and use OGD while considering the importance of Data Quality
PI*TR-BI	-0.544	-0.061	0.483	0.101	<0.001	Both males and females do not consider OGD reliability or that of its sources that much for adoption and usage but relatively, males are more concerned than the females
IS*SI-BI	0.22	-0.017	0.238	0.105	0.011	Males, but not females, use Information Search to adopt and use OGD while considering the impact of significant others like family, friends, peers, etc.
IS*FC-BI	-0.486	-0.023	0.463	0.102	<0.001	Both males and females do not consider Information Search in terms of facilitating conditions for OGD adoption and usage that much but relatively, males are more concerned than the females
IS*VU-BI	-0.41	-0.118	0.292	0.102	0.002	Both males and females do not consider Information Search to voluntarily use and adopt OGD but relatively, males are more concerned than the females
IS*SQ-BI	-0.607	-0.172	0.436	0.099	<0.001	Both males and females do not consider Information Search to have any relationship with System Quality to use and adopt OGD but relatively, males are more concerned than the females
IS*IQ-BI	0.09	-0.375	0.465	0.102	<0.001	Males, but not females, use Information Search to adopt and use OGD while considering the impact of Information Quality
IS*DQ-BI	-0.764	-0.404	0.36	0.096	<0.001	Both males and females do not consider Information Search to have any relationship with Data Quality to use and adopt OGD but relatively, males are more concerned than the females
IS*TR-BI	-0.485	-0.153	0.333	0.101	<0.001	Both males and females do not consider Information Search to have any relationship with the reliability of OGD or that of its sources to use and adopt OGD but relatively, males are more concerned than the females
IG*PE-BI	1.259	-0.254	1.513	0.094	<0.001	Males, but not females, engage in Idea Generation to adopt and use OGD while considering the impact on work/academics
IG*EE-BI	-1.211	-0.473	0.739	0.092	<0.001	Both males and females do not engage in Idea Generation to further the ease of use and adoption of OGD but relatively, males are more concerned than the females
IG*SI-BI	-0.444	-0.179	0.265	0.101	0.004	Both males and females do not engage in Idea Generation for use and adoption of OGD but relatively, males are more concerned than the females as far as the role of significant others, viz., family, friends, peers, etc. is concerned
IG*FC-BI	-0.795	-0.166	0.629	0.098	<0.001	Both males and females do not engage in Idea Generation to use and adopt OGD but relatively, males are more concerned than the females regarding the facilitating conditions
IG*VU-BI	0.594	-0.027	0.621	0.101	<0.001	Males, but not females, engage in Idea Generation to adopt and use OGD while considering the voluntary use
IG*SQ-BI	1.226	-0.239	1.465	0.094	<0.001	Males, but not females, engage in Idea Generation to adopt and use OGD while considering the role of System Quality

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Table 7 (*continued*)

	Path coefficients (Males)	Path coefficients (Females)	Group pair results (Males = 0; Females = 1) Absolute path coefficient differences	SE	*p* value (two-tailed)	Inference
IG*IQ-BI	-0.065	-0.592	0.527	0.1	<0.001	Both males and females do not engage in Idea Generation for use and adoption of OGD but relatively, females are more concerned than the males for Information Quality
IG*TR-BI	-0.965	0.211	1.177	0.096	<0.001	Females, but not males, engage in Idea Generation to adopt and use OGD while considering the role of System Quality
IP*PE-BI	0.553	-0.22	0.773	0.099	<0.001	Males, but not females, engage in Idea Promotion to adopt and use OGD while considering the impact on work// academics
IP*EE-BI	0.246	-0.385	0.63	0.1	<0.001	Males, but not females, engage in Idea Promotion to further ease of adoption and usage of OGD
IP*SI-BI	0.685	-0.276	0.961	0.098	<0.001	Males, but not females, engage in Idea Promotion to adopt and use OGD while considering the role of significant others, like friends, family, peers, etc.
IP*FC-BI	-0.369	-0.118	0.251	0.102	0.007	Both males and females are lesser inclined towards considering the importance of Idea Promotion for OGD adoption and usage but males are relatively more considerate of facilitating conditions
IP*SQ-BI	0.751	0.293	0.458	0.097	<0.001	Both males and females engage in Idea Promotion to adopt and use OGD while considering the importance of System Quality but males are more particular about it
IP*DQ-BI	-0.882	-0.157	0.724	0.098	<0.001	Both males and females are lesser inclined towards considering the importance of Idea Promotion for OGD adoption and usage but males are relatively more considerate of Data Quality
IP*TR-BI	-0.799	-0.25	0.548	0.097	<0.001	Both males and females are lesser inclined towards considering the importance of Idea Promotion for OGD adoption and usage but males are relatively more considerate of the reliability of OGD and that of its sources
CSE*EE-BI	-0.449	0.095	0.544	0.102	<0.001	Females, but not males, have more creative self-efficacy to further ease of adoption and usage of OGD
CSE*SI-BI	0.265	0.051	0.214	0.104	0.02	Both males and females have creative self-efficacy for OGD adoption and usage but Social Influence, i.e. the role of significant others like family, friends, colleagues, etc. is more pronounced for males than their counterparts
CSE*VU-BI	-0.814	0.075	0.889	0.099	<0.001	Females, but not males, have more creative self-efficacy towards voluntary adoption and usage of OGD
CSE*SQ-BI	-0.625	-0.043	0.582	0.101	<0.001	Both males and females do not consider creative self-efficacy for OGD adoption and usage but System Quality is more a point of concern for males than females in a comparative perspective
CSE*DQ-BI	0.518	-0.099	0.617	0.101	<0.001	Males, but not females, have more creative self-efficacy towards adoption and usage of OGD while considering the importance of Data Quality
CSE*IQ-BI	-0.001	-0.293	0.292	0.104	0.002	Both males and females do not consider creative self-efficacy for OGD adoption and usage but Information Quality is more a point of concern for females than males in a comparative perspective

7. Conclusion

The study's aim was to understand the gender differences across the moderating role of creative performance behaviors and creative self-efficacy on OGD adoption and usage. The study was conducted with a representative sample of undergraduate and postgraduate university students who were actual OGD users. The study's findings show that there are differences in the attitudinal dispositions of the males and females as far as both the dimensions are concerned. Three inferences may be drawn here: first, it is important that the creative outcomes be considered an important desirable for OGD users given the impetus on value creation and innovation by the different stakeholders; second, OGD adoption and usage is a function of creative self-efficacy as also self-efficacy in terms of technology adoption (Sayogo, Wang & Yuli, 2016), and, finally, analysis of OGD adoption and usage is important for creative industry workers (for instance, students in the academic settings) who engage in knowledge generation and exchange. Finally, as a contribution to furthering the understanding of the OGD initiatives from the perspective of a developing country (Kassen, 2019), it is anticipated that the present study shall spur increased interest of the policy-makers towards ensuring the success of this significant administrative innovation. Furthermore, the study shows the importance of identifying and furthering creative ingenuity among the students to increase their engagement with OGD.

The present study has limitations in its scope on account of the fact that the results might be different for the males and females

hailing from different occupational cohorts based in different contexts. Thus, further research is called for to further our understanding regarding the manner in which OGD is being used and adopted in a comparative landscape. Likewise, another research question that emerges from this study is regarding the role of creative performance behaviors with regard to the OGD interoperability issues. Finally, another line of research pertains to the manner in which the organizational factors and motivation levels impact the creative performance behaviors of the male and female OGD users in terms of adoption and usage.

CRediT authorship contribution statement

Charalampos Alexopoulos: Methodology, Resources, Software, Writing – original draft, Writing – review & editing, Conceptualization, Formal analysis. **Stuti Saxena:** Investigation, Methodology, Resources, Software, Writing – original draft, Writing – review & editing, Conceptualization, Data curation, Formal analysis. **Nina Rizun:** Methodology, Resources, Software, Visualization, Writing – original draft, Writing – review & editing, Formal analysis. **Ricardo Matheus:** Methodology, Resources, Software, Validation, Writing – original draft, Formal analysis. **Marijn Janssen:** Methodology, Project administration, Resources, Software, Supervision, Validation, Writing – original draft, Formal analysis.

Declaration of competing interest

Authors do not have any conflict of interest, whatsoever.

Data availability

Data will be made available on request.

Supplementary materials

Supplementary data associated with this article can be found, in the online version, at 10.1016/j.tsc.2024.101478.

References

Afful-Dadzie, E., & Afful-Dadzie, A. (2017). Liberation of public data: Exploring central themes in open government data and freedom of information research. *International Journal of Information Management, 37*(6), 664–672. https://doi.org/10.1016/j.ijinfomgt.2017.05.009

Al-Share, K., Grandon, E., & Miller, D. (2004). Antecedents of computer technology usage: Considerations of the technology acceptance model in the academic environment. *Journal of Computing Sciences in Colleges, 19*(4), 164–180. https://dl.acm.org/doi/10.5555/1050231.1050254.

Al-Zaharani, L., Al-Karaghouli, W., & Weerakkody, V. (2018). Investigating the impact of citizens' trust toward the successful adoption of e-government: A multigroup analysis of gender, age, and internet experience. *Information Systems Management, 35*(2), 124–146. https://doi.org/10.1080/10580494.2018.1440730

Ali, Z., Gongbing, B., & Mehreen, A. (2018). Understanding and predicting academic performance through cloud computing adoption: A perspective of technology acceptance model. *Journal of Computers in Education, 5*, 297–327. https://doi.org/10.1007/s40692-018-0114-0

Amabile, T. M., Hennessey, B. A., & Grossman, B. S. (1986). Social influences on creativity: The effects of contracted-for-reward. *Journal of Personality and Social Psychology, 50*, 14–23. https://psycnet.apa.org/doi/10.1037/0022-3514.50.1.14.

Attard, J., Orlandi, F., Scerri, S., & Auer, S. (2015). A systematic review of open government data initiatives. *Government Information Quarterly, 32*(4), 399–418. https://doi.org/10.1016/j.giq.2015.07.006

Awang, A. H., Haron, M., Zainuddin, R. I., & Saad, S. (2020). Formation of civil servants' creativity through transformative leadership. *Journal of Management Development, 39*(4), 499–515. https://doi.org/10.1108/jmd-04-2019-0142

Baer, M. (2012). Putting creativity to work: The implementation of creative ideas in organizations. *Academy of Management Journal, 55*(5), 1102–1119. https://doi.org/10.5465/amj.2009.0470

Bakshy, E., Rosenn, I., Marlow, C., & Adamic, L (2012). The role of social networks in information diffusion. In *Proceedings of ACM WWW*. https://doi.org/10.1016/j.im.2017.03.006

Baron, S., Patterson, A., & Harris, K. (2006). Beyond technology acceptance: Understanding consumer practice. *International Journal of Service Industry Management, 17*(2), 111–135. https://doi.org/10.1108/09564230610656962

Born, G., & Devine, K. (2015). Music technology, gender, and class: Digitization, educational and social change in Britain. *Twentieth-Century Music, 12*(2), 135–172. https://doi.org/10.1017/S1478572215000018

Buvik, K. (2016). The hole in the doughnut: A study of police discretion in a nightlife setting. *Policing and Society, 26*(7), 771–788. https://doi.org/10.1080/10439463.2014.989157

Carnevale, J. B., Huang, L., Crede, M., Harms, P., & Uhl-Bien, M. (2017). Leading to stimulate employees' ideas: A quantitative review of leader-member exchange, employee voice, creativity, and innovative behavior. *Applied Psychology, 66*(4), 517–552. https://doi.org/10.1111/apps.12102

Cerne, M., Bunjak, A., Wong, S. I., & Moh'd, S. S. (2022). I'm creative and deserving! From self-rated creativity to creative recognition. *Creativity and Innovation Management, 31*(4), 664–679. https://doi.org/10.1111/caim.12518

Chen, H., Hailey, D., Wang, N., & Yu, P. (2014). A review of data quality assessment methods for public health information systems. *International Journal of Environmental Research and Public Health, 11*(5), 5170–5207. https://doi.org/10.3390/ijerph110505170

Chen, H. C., Hsu, C. C., Chang, C. H., & Huang, Y. M. (2012). Applying the Technology Acceptance Model to evaluate the learning companion recommendation system on Facebook. In *IEEE Fourth International Conference on Technology for Education* (pp. 160–163). https://doi.org/10.1109/T4E.2012.36

Clarke, A., & Craft, J. (2018). The twin faces of public sector design. *Governance, 32*(1), 5–21. https://doi.org/10.1111/gove.12342

Chen, Y., & Zhang, L. (2019). Be creative as proactive? The impact of creative self-efficacy on employee creativity: A proactive perspective. *Current Psychology, 38*, 589–598. https://doi.org/10.1007/s12144-017-9721-6

Collin, K., Lemmetty, S., Herranen, S., Paloniemi, S., Auvinen, & Riivari, T.E. (2017). Professional agency and creativity in information technology work. In: Goller, M., Paloniemi, S. (eds.) Agency at work. *professional and practice-based learning*, 20. Springer, Cham. https://doi.org/10.1007/978-3-319-60943-0_13.

Damanpour, F., Sanchez-Henriquez, F., & Chiu, H. H. (2018). Internal and external sources and the adoption of innovations in organizations. *British Journal of Management, 29*(4), 712–730. https://doi.org/10.1111/1467-8551.12296

DeLone, W. H., & McLean, E. R. (2003). The DeLone and McLean model of information systems success: A ten-year update. *Journal of Management Information Systems, 19*(4), 9–30. https://doi.org/10.1080/07421222.2003.11045748

Demircioglu, M. A. (2019). Why does innovation in government occur and persist? Evidence from the Australian government. *Asia Pacific Journal of Public Administration, 41*(4), 217–229. https://doi.org/10.1080/23276665.2019.1692570

Devillers, R., Bedard, Y., Jeansoulin, R., & Moulin, B. (2007). Towards spatial data quality information analysis tools for experts assessing the fitness for use of spatial data. *International Journal of Geographical Information Science, 21*(3), 261–282. https://doi.org/10.1080/13658810600911879

Elfeky, A. I.. M., & Elbyaly, M. Y. H (2021). The use of data analytics technique in learning management system to develop fashion design skills and technology acceptance. *Interactive Learning Environments*. https://doi.org/10.1080/10494820.2021.1943688. In press.

Erevelles, S., Fukawa, N., & Swayne, L. (2016). Big data consumer analytics and the transformation of marketing. *Journal of Business Research, 69*(2), 897–904. https://doi.org/10.1016/j.jbusres.2015.07.001

Febrianty, Divianto, Hidayat, R., Fatmariani, & Rohana, T (2019). The perception on technology acceptance to the behaviors on the use of social media for marketing and its implications on the turnover of creative industry MSMEs in villages. In *, 1175. First International Conference on Advance and Scientific Innovation (ICASI)*, Article 012216. https://doi.org/10.1088/1742-6596/1175/1/012216

Felix, J., Flores, F., & Frankwick, G. L. (2022). Rewarding female inclusive new product teams. In J. Allen, B. Jochims, & S. Wu (Eds.), *Celebrating the past and future of marketing and discovery with social impact. AMSAC-WC 2021. Developments in Marketing Science: Proceedings of the Academy of Marketing Science*. Springer. https://doi.org/10.1007/978-3-030-95346-1_181.

Fleury, S., Agnes, A., Cados, L., Denis-Lutard, Q., Duchene, C., Rigaud, N., & Richir, S. (2020). Effects of social influence on idea selection in creativity workshops. *Thinking Skills and Creativity, 37*, Article 100691. https://doi.org/10.1016/j.tsc.2020.100691

Foss, L., Woll, K., & Moilanen, M. (2013). Creativity and implementations of new ideas: Do organisational structure, work environment and gender matter? *International Journal of Gender and Entrepreneurship, 5*(3), 298–322. https://doi.org/10.1108/IJGE-09-2012-0049

Gong, Y., Kim, T. Y., & Liu, Z. (2020). Diversity of social ties and creativity: Creative self-efficacy as mediator and tie strength as moderator. *Human Relations, 73*(12), 1664–1688. https://doi.org/10.1177/0018726719866001

Hagmann, J., & Chuma, E. (2002). Enhancing the adaptive capacity of the resource users in natural resource management. *Agricultural Systems, 73*(1), 23–39. https://doi.org/10.1016/S0308-521X(01)00098-1

Han, G. H., & Bai, Y. (2020). Leaders can facilitate creativity: The moderating roles of leader dialectical thinking and LMX on employee creative self-efficacy and creativity. *Journal of Managerial Psychology, 35*(5), 405–417. https://doi.org/10.1108/JMP-02-2019-0106

Henriksen, D., Creely, E., Henderson, M., & Mishra, P. (2021). Creativity and technology in teaching and learning: A literature review of the uneasy space of implementation. *Educational Technology Research and Development, 69*, 2091–2108. https://doi.org/10.1007/s11423-020-09912-z

Hoque, M. R. (2016). An empirical study of mHealth adoption in a developing country: The moderating effect of gender concern. *BMC Medical Informatics and Decision-Making, 16*. https://doi.org/10.1186/s12911-016-0289-0

Hora, S., Lemoine, G. J., Xu, N., & Shalley, C. E. (2021). Unlocking and closing the gender gap in creative performance: A multilevel model. *Journal of Organizational Behavior, 42*(3), 297–312. https://doi.org/10.1002/job.2500

Hossain, M. Y., Liu, Z., & Kumar, N. (2020). How does self-performance expectation foster breakthrough creativity in the employee's cognitive level? An application of self-fulfilling prophecy. *International Journal of Research in Business and Social Science, 9*(5), 116–128. https://doi.org/10.20525/ijrbs.v9i5.818

Howell, J. M., & Boies, K. (2004). Champions of technological innovation: The influence of contextual knowledge, role orientation, idea generation, and idea promotion on champion emergence. *The Leadership Quarterly, 15*(1), 123–143. https://doi.org/10.1016/j.leaqua.2003.12.008

Jackson, L. A., Witt, E. A., Games, A. I., Fitzgerald, H. E., von Eye, A., & Zhao, Y. (2012). Information technology use and creativity: Findings from the children and technology project. *Computers in Human Behavior, 28*(2), 370–376. https://doi.org/10.1016/j.chb.2011.10.006

Jetzek, T., Avital, M., & Bjorn-Andersen, N. (2014). Data-driven innovation through open government data. *Journal of Theoretical and Applied Electronic Commerce Research, 9*(2), 100–120. https://doi.org/10.4067/S0718-18762014000200008

Kalampokis, E., Tambouris, E., & Tarabanis, K. (2011). A classification scheme for open government data: Towards linking decentralised data. *International Journal of Web Engineering and Technology, 6*(3), 266–285. https://doi.org/10.1504/IJWET.2011.040725

Kassen, M. (2019). Open data and e-government-related or competing ecosystems: A paradox of open government and promise of civic engagement in Estonia. *International Technology for Development, 25*(3), 552–578. https://doi.org/10.1080/02681102.2017.1412289

Lebuda, I., & Karwowski, M. (2013). Tell me your name and I'll tell you how creative your work is: Author's name and gender as factors influencing assessment of products' creativity in four different teams. *Creativity Research Journal, 25*(1), 137–142. https://doi.org/10.1080/10400419.2013.752297

Lee, Y. H., & Wu, J. Y. (2012). The effect of individual differences in the inner and outer states of ICT on engagement in online reading activities and PISA 2009 reading literacy: Exploring the relationship between the old and new reading literacy. *Learning and Individual Differences, 22*(3), 336–342. https://doi.org/10.1016/j.lindif.2012.01.007

Lewis, J. M., McGann, M., & Blomkamp, E. (2020). When design meets power: Design thinking, public sector innovation and the politics of policymaking. *Policy & Politics, 48*(1), 111–130. https://doi.org/10.1332/030557319X15579230420081

Li, Y., Wang, J., Li, X., & Zhao, W. (2007). Design creativity in product innovation. *The International Journal of Advanced Manufacturing Technology, 33*, 213–222. https://doi.org/10.1007/s00170-006-0457-y

Linsey, J. S., Clauss, E. F., Kurtoglu, T., Murphy, T., Wood, K. L., & Markman, A. B. (2011). An experimental study of group idea generation techniques: Understanding the roles of idea representation and viewing methods. *Journal of Mechanical Design, 133*(3), Article 031008. https://doi.org/10.1115/1.4003498

Livingstone, S. (2012). Critical reflections on the benefits of ICT in education. *Oxford Review of Education, 38*(1), 9–24. https://doi.org/10.1080/03054985.2011.577938

Lnenicka, M., Nikiforova, A., Saxena, S., & Singh, P. (2022). Investigation into the adoption of open government data among students: The behavioral intention-based comparative analysis of three countries. *Aslib Journal of Information Management, 74*(3), 549–567. https://doi.org/10.1108/AJIM-08-2021-0249

Loarne-Lemaire, S.L., Bertrand, G., Razgallah, M., Maalaoui, A., & Kallmuenzer, A. (2021). Women in innovation processes as a solution to climate change: A systematic literature review and an agenda for future research. Technological Forecasting and Social Change, 164, 1220440. 10.1016/j.techfore.2020.120440.

Mansfeld, M. N., Holzle, K., & Gemunden, H. G. (2010). Personal characteristics of innovators–An empirical study of roles in innovation management. *International Journal of Innovation Management, 14*(6). https://doi.org/10.1142/S1363919610003033

Mathisen, G. E., & Bronnick, K. S. (2009). Creative self-efficacy: An intervention study. *International Journal of Educational Research, 48*, 21–29. http://doi.org/10.1016/j.ijer.2009.02.009.

Montag, T., Maertz, C. P., & Baer, M. (2012). A critical analysis of the workplace creativity criterion space. *Journal of Management, 38*(4), 1362–1386. https://doi.org/10.1177/0149206312441835

Muller, S. D., & Ulrich, F. (2013). Creativity and information systems in a hypercompetitive environment: A literature review. *Communications of the Association for Information Systems, 32*, 175–201. http://aisel.aisnet.org/cais/vol32/iss1/7/.

Nijstad, B. A., & Stroebe, W. (2006). How the group affects the mind: A cognitive model of idea generation in groups. *Personality and Social Psychology Review, 10*(3), 186–213. https://doi.org/10.1207/s15327957pspr1003_1

Notten, N., & Kraaykamp, G. (2009). Parents and the media: A study of social differentiation in parental media socialization. *Poetics, 37*(3), 185–200. https://doi.org/10.1016/j.poetic.2009.03.001

Oh, S., Lehto, X. Y., & Park, J. (2009). Travelers' intent to use mobile technologies as a function of effort and performance expectancy. *Journal of Hospitality Marketing & Management, 18*(8), 765–781. https://doi.org/10.1080/19368620903235795

Pacauskas, D., & Rajala, R. (2017). Information system users' creativity: A meta-analysis of the link between IT use and creative performance. *Information Technology & People, 30*(1), 81–116. https://doi.org/10.1108/ITP-04-2015-0090

Park, C. W., Kim, D. G., Cho, S., & Han, H. J. (2019). Adoption of multimedia technology for learning and gender difference. *Computers in Human Behavior, 92*, 288–296. https://doi.org/10.1016/j.chb.2018.11.029

Paulus, P. B., & Brown, V. R. (2007). Toward more creative and innovative group idea generation: A cognitive-social-motivational perspective of brainstorming. *Social and Personality Psychology Compass, 1*(1), 248–265. https://doi.org/10.1111/j.1751-9004.2007.00006.x

Paulus, P. B., Larey, T. S., Putman, V. L., Legett, K. L., & Roland, E. J. (1996). Social influence processing in computer brainstorming. *Basic and Applied Social Psychology, 18*(1), 3–14. https://doi.org/10.1207/s15324834basp1801_2

Peter, J., & Valkenburg, P. M. (2006). Research note: Individual differences in perceptions of Internet communication. *European Journal of Communication, 21*(2), 213–226. https://doi.org/10.1177/0267323105064046

Puente-Diaz, R. (2016). Creative self-efficacy: An explanation of its antecedents, consequences, and applied implications. *The Journal of Psychology, 150*(2), 175–195. https://doi.org/10.1080/00223980.2015.1051498

Purwanto, A., Zuiderwijk, A., & Janssen, M. (2020). Citizens' trust in open government data: A quantitative study about the effects of data quality, system quality and service quality. In *The 21st Annual International Conference on Digital Government Research* (pp. 310–318). ACM. https://doi.org/10.1145/3396956.3396958.

Quaye, W., Onumah, J. A., Boimah, M., & Mohammed, A. (2022). Gender dimension of technology adoption: The case of technologies transferred in Ghana. *Development in Practice, 32*(4), 434–447. https://doi.org/10.1080/09614524.2021.2000588

Rahimi, R. A. (2020). A survey of technology acceptance models in the creative industry: Exploring key limitations. In *13th International Conference on Developments in eSystems Engineering (DeSE)* (pp. 9–14). https://doi.org/10.1109/DeSE51703.2020.9450774

Rahimi, R. A., & Park, K. H. (2020). A comparative study of internet architecture and applications of online music streaming services: The impact on the global music industry growth. In *8th International Conference on Information and Communication Technology (ICoICT)* (pp. 1–6). https://doi.org/10.1109/ICoICT49345.2020.9166225

Ramamoorthy, N., Flood, P. C., Slattery, T., & Sardesai, R. (2005). Determinants of innovative work behavior: Development and test of an integrated model. *Creativity and Innovation Management, 14*(2), 142–150. https://doi.org/10.1111/j.1467-8691.2005.00334.x

Reinhanrd, M. A., Weissgerber, S. C., & Wenzel, K. (2019). Performance expectancies moderate the effectiveness of more or less generative activities over time. *Frontiers in Psychology, 10*, 1623. https://doi.org/10.3389/fpsyg.2019.01623

Rieh, S. Y. (2002). Judgment of information quality and cognitive authority in the web. *Journal of the American Society for Information Science and Technology, 53*(2), 145–161. https://doi.org/10.1002/asi.10017

Ryu, J. S. (2021). Performance expectancy and effort expectancy in omnichannel retailing. *The Journal of Industrial Distribution & Business, 12*(4), 27–34. https://doi.org/10.13106/jidb.2021.vol12.no4.27

Safarov, I., Grimmelikhuijsen, S. G., & Meijer, A. J (2017). Utilization of open government data: A systematic literature review of types, conditions, effects and users. *Information Polity, 22*(1), 1–24. https://doi.org/10.3233/IP-160014

Sakkthivel, A. M., & Ramu, N. (2018). Investigating the gender influence on technology adoption model towards smart phones-evidences from emerging economies. *International Journal of Business Excellence, 16*(1), 35–46. https://doi.org/10.1504/IJBEX.2018.10015764

Saxena, S., & Janssen, M. (2017). Examining open government data (OGD) usage in India through UTAUT framework. *Foresight (Los Angeles, Calif.), 19*(4), 421–436. https://doi.org/10.1108/FS-02-2017-0003

Sayogo, D. S., Wang, S., & Yuli, S. B. C. (2016). The values of public library in promoting an open government environment. In *Proceedings of the 17th International Digital Government Research Conference on Digital Government Research* (pp. 481–490). https://doi.org/10.1145/2912160.2912199

Siregar, J. J., Aryusmar, & Aryanti Wardaya Puspokusumo, R. A. (2018). The analysis of technology acceptance model in implementing knowledge management for Small Medium Sized Enterprises (SMEs) in a creative industry base on mobile application. In *International Conference on Engineering, Applied Sciences, and Technology (ICEAST)* (pp. 1–4). https://doi.org/10.1109/ICEAST.2018.8434441

Smith, R. M., Sardeshmukh, S. R., & Combs, G. M. (2016). Understanding gender, creativity, and entrepreneurial intentions. *Education + Training, 58*(3), 263–282. https://doi.org/10.1108/ET-06-2015-0044

Soltysik-Piorunkiewicz, A., & Zdonek, I. (2021). How Society 5.0 and Industry 4.0 ideas shape the open data performance expectancy. *Sustainability, 13*(2), 917. https://doi.org/10.3390/su13020917

Stanislav, M., & Raquel, B. F. (2021). Unlocking the smart home: Exploring key factors affecting the smart lock adoption intention. *Information Technology and People, 34*(2), 835–861. https://doi.org/10.1108/ITP-07-2019-0357

Talukder, M. S., Shen, L., Talukder, M. F. H., & Bao, Y. (2019). Determinants of user acceptance and use of open government data (OGD): An empirical investigation in Bangladesh. *Technology in Society, 56*, 147–156. https://doi.org/10.1016/j.techsoc.2018.09.013

Taylor, C., Ivcevic, Z., Moeller, J., & Brackett, M. (2020). Gender and support for creativity at work. *Creativity and Innovation Management, 29*(3), 453–464. https://doi.org/10.1111/caim.12397

Terrell, J., Kofink, A., Middleton, J., Rainear, C., Murphy-Hill, E., & Parnin, C. (2016). Gender bias in open source: Pull request acceptance of women versus men. https://doi.org/10.7287/peerj.preprints.1733v1.

Tierney, P., & Farmer, S. M. (2002). Creative self-efficacy: Its potential antecedents and relationship to creative performance. *The Academy of Management Journal, 45*(6), 1137–1148. https://doi.org/10.2307/3069429

Tierney, P., & Farmer, S. M. (2011). Creative self-efficacy development and creative performance over time. *Journal of Applied Psychology, 96*(2), 277–293. https://doi.org/10.1037/a0020952

Tomte, C., & Hatlevik, O. E. (2006). Gender-differences in self-efficacy ICT related to various ICT-user profiles in Finland and Norway. How do self-efficacy, gender and ICT-user profiles relate to findings from PISA 2006. *Computers & Education, 57*(1), 1416–1424. https://doi.org/10.1016/j.compedu.2010.12.011

Ubaldi, B. (2013). Open government data: Towards empirical analysis of open government data initiatives. *OECD Working Papers on Public Governance, 22*. https://doi.org/10.1787/5k46bj4f03s7-en

Venkatesh, V., Morris, M. G., & Ackerman, P. L. (2000). A longitudinal field investigation of gender differences in individual technology adoption decision-making processes. *Organizational Behavior and Human Decision Processes, 83*(1), 33–60. https://doi.org/10.1006/obhd.2000.2896

Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User acceptance of information technology: Toward a unified view. *MIS Quarterly, 27*(3), 425–478. https://doi.org/10.2307/30036540

Voss, R. C., Jansen, T., Mane, B., & Shennan, C. (2021). Encouraging technology adoption using ICTs and farm trials in Senegal: Lessons for gender equity and scaled impact. *World Development*, 146. https://www.sciencedirect.com/science/article/abs/pii/S0305750X21002357.

Walsh, J. P., Lee, Y. N., & Nagaoka, S. (2016). Openness and innovation in the US: Collaboration form, idea generation and implementation. *Research Policy, 45*(8), 1660–1671. https://doi.org/10.1016/j.respol.2016.04.013

Weerakkody, V., Dwivedi, Y. K., & Kurunananda, A. (2009). Implementing e-government in Sri Lanka: Lessons from the UK. *Information Trechnology for Development, 15*(3), 171–192. https://doi.org/10.1002/itdj.20122

Wirtz, B. W., Weyerer, J. C., & Rosch, M. (2018). Citizen and open government: An empirical analysis of antecedents of open government data. *International Journal of Public Administration, 41*(4), 308–320. https://doi.org/10.1080/01900692.2016.1263659

Wolverton, C. C., Rizzuto, T., Thatcher, J. B., & Chin, W. (2022). Individual Information Technology (IT) creativity: A conceptual and operational definition. *Information Technology & People*. https://doi.org/10.1108/ITP-08-2021-0590. In press.

Xiao, F., & Sun, L. (2022). Profiles of student ICT use and their relations to background, motivational factors, and academic achievement. *Journal of Research on Technology in Education, 54*(3), 456–472. https://doi.org/10.1080/15391523.2021.1876577

Xu, S., Fan, K. K., & Li, C. (2019). Applying interactive technology with technology acceptance model into digital media basic modeling course. In *International Association of Societies of Design Research Conference* (pp. 1–10). https://iasdr2019.org/uploads/files/Proceedings/le-f-1275-Xu-S.pdf.

Yamin, M. A. Y. Y., & Sweiss, I. K. (2020). Investigating employee creative performance with integration of DeLone and mcLean information system model and technology acceptance model: The moderating role of creative self-efficacy. *International Journal of Business Excellence, 22*(3), 396–417. https://doi.org/10.1504/IJBEX.2020.110969

Yang, G., Zhou, X., & Xu, Q. (2022). Information technology use and creativity in Chinese public sector employees: Work engagement as a mediator. *Social Behavior and Personality: An International Journal, 50*(9), 1–8. https://doi.org/10.2224/sbp.11803

Yu, C., & Frenkel, S. J. (2013). Explaining task performance and creativity from perceived organizational support theory: Which mechanisms are more important? *Journal of Organizational Behavior, 34*(8), 1165–1181. https://doi.org/10.1002/job.1844

Zeng, L., Proctor, R. W., & Salvendy, G. (2011). Fostering creativity in product and service development: Validation in the domain of Information Technology. *Human Factors, 53*(3), 245–270. https://doi.org/10.1177/0018720811409219

Zhang, X., & Bartol, K. M. (2010). Linking empowering leadership and employee creativity: The influence of psychological empowerment, intrinsic motivation, and creative process engagement. *Academy of Management Journal, 53*(1), 107–128. https://doi.org/10.5465/AMJ.2010.48037118

Zhao, K., Stylianou, A. C., & Zheng, Y. (2018). Sources and impacts of social influence from online anonymous user reviews. *Information & Management, 55*(1), 16–30. https://doi.org/10.1016/j.im.2017.03.006

Zhou, L., Zhang, Z., Zhao, L., & Yang, P. (2022). How user personality and information characteristics influence the creative information quality on open innovation platforms: An elaboration likelihood model. *Kybernetes, 51*(7), 2305–2325. https://doi.org/10.1108/K-01-2021-0029

Zuiderwijk, A., Janssen, M., & Dwivedi, Y. K. (2015). Acceptance and use predictors of open data technologies: Drawing upon the unified theory of acceptance and use of technology. *Government Information Quarterly, 32*(4), 429–440. https://doi.org/10.1016/j.giq.2015.09.005