APPENDIX. FOUR-DIMENSIONAL USER ATTRIBUTE

Dimension	Attribute category	Attribute	Reference
Background	Demographic information	Gender	Rowley et al., 2017; Deng et al., 2020; Lorigo et al., 2006; Ahmed et al., 2004; Ford et al., 2009; LaValley et al., 2017; Gahlawat et al., 2017; Ford et al., 2001
		Age	Sanchiz et al., 2017b; Nori et al., 2020; Makondo et al., 2018; Ahmed et al., 2004; LaValley et al., 2017; Gahlawat et al., 2017; Ford et al., 2001; Weideman & Uys, 2004
		Discipline	Vilar & Žumer, 2008
	Past experiences and memories	Search experience	Al-Maskari & Sanderson, 2011; Zanganeh & Hariri, 2018; Hsieh-Yee, 1993; Shiri & Revie, 2003; Ford et al., 2009; Gahlawat et al., 2017; Ahmed et al., 2004; Arguello, 2014
		System usage experience	Okhovati et al., 2017; Palmquist & Kim, 2000; Ahmed et al., 2004; Hsu & Walter, 2015
		Information technology use	Nori et al., 2020; Alotaibi & Johnson, 2020; Thatcher, 2008; Ahmed et al., 2004; Sanchiz et al., 2017b; Liaw & Huang, 2003; Madjid et al., 2003
		Affected memory	Savolainen, 2012
		Work task experience	Makondo et al., 2018
	Knowledge and familiarity	Prior knowledge	Sanchiz et al., 2017b; Khosrowjerdi & Iranshahi, 2011; Alotaibi & Johnson, 2020; Hsieh-Yee, 1993; Gahlawat et al., 2017; Madjid et al., 2003; Arguello, 2014
	Interest and involvement	Interest	Zanganeh & Hariri, 2018; Kelly et al., 2015; Ahmed et al., 2004; Gahlawat et al., 2017; Arguello, 2014; O'Brien et al., 2020
		Involvement with work task and search task	Hsu & Walter, 2015
	Ability	Search ability	Li et al., 2021b; Hsu & Walter, 2015
		Work task ability	Sussman & Siegal, 2003
	Social Support	Context-specific social support	Li, 2013

Expectancy	Task expectancy	Expected task difficulty	Liu et al., 2019a; Li et al., 2021a; Kelly et al., 2015
		Expected task complexity	Li et al., 2021a; Kelly et al., 2015; O'Brien et al., 2020
	Emotinal expectancy	Expected positive emotion	Zanganeh & Hariri, 2018
		Expected negative emotion	Zanganeh & Hariri, 2018
	Cognitive expectancy	Expected usefulness	Li et al., 2021b; Cothran, 2011; Huang et al., 2012; Alotaibi & Johnson, 2020; Liaw & Huang, 2003; Wang et al., 2016b; Mao et al., 2016; Liu et al., 2019c; Hsu & Walter, 2015; Kim, 2010; Law et al., 2006; Teo et al., 2003; Lavidas et al., 2020
		Expected ease of use	Li et al., 2021a; Cothran, 2011; Huang et al., 2012; Alotaibi & Johnson, 2020; Liaw & Huang, 2003; Liu et al., 2019c; Hsu & Walter, 2015; Kim, 2010; Law et al., 2006; Lavidas et al., 2020
Experience	Task experience	Perceived task difficulty	Li et al., 2021a; Kelly et al., 2015; Ford et al., 2009; Liu et al., 2010; Liu et al., 2014; Arguello, 2014
		Perceived task complexity	Li et al., 2021a; Byström & Järvelin, 1995; Li & Belkin, 2008; O'Brien et al., 2020
		Task satisfaction	Zanganeh & Hariri, 2018; Liu & Han, 2020; Fox et al., 2005; Huffman & Hochster, 2007; Jiang et al., 2015; Liu et al., 2015; Mao et al., 2016; Wang et al., 2014; Liu et al., 2019d; Liu et al., 2014
	Emotional experience	Positive emotion	Zanganeh & Hariri, 2018; Huang et al., 2012; Kelly et al., 2015; Liaw & Huang, 2003; Liu et al., 2019; Lopatovska, 2014; Gwizdka & Lopatovska, 2009; Wang et al., 2000; Bilal & Bachir, 2007
		Negative emotion	Zanganeh & Hariri, 2018; Feild et al., 2010; Lopatovska, 2014; Gwizdka & Lopatovska, 2009; Wang et al., 2000; Bilal & Bachir, 2007
		Attainment value	Savolainen, 2012; Sigaard & Skov, 2015
		Perceived control	Savolainen, 2008; Chang et al., 2009; Sigaard & Skov, 2015

	Cognitive experience	Information processing based on the System 1	Kowalczy & Gerlach, 2015
		Information processing based on the System 2	Kowalczy & Gerlach, 2015
System evaluation and usage intention	System evaluation	Attitude	Liaw & Huang, 2003; Liu et al., 2019c; Teo et al., 2003; Lavidas et al., 2020
		Trust	Wang et al., 2016b; Lynch, 2001; Hsu & Walter, 2015; Law et al., 2006
		Expectation confirmation	Zhao et al., 2015; Wang et al., 2016b
		Satisfaction	Cothran, 2011; Makondo et al., 2018; Okhovati et al., 2017; Kelly et al., 2015; Ahmed et al., 2004; Li et al., 2021b; Zhao et al., 2015; Wang et al., 2016b; Teo et al., 2003
	Usage intention	Usage intention	Cothran, 2011; Huang et al., 2012; Alotaibi & Johnson, 2020; Liaw & Huang, 2003; Liu et al., 2019c; Kim, 2010; Law et al., 2006; Lavidas et al., 2020
		Continuance intention	Zhao et al., 2015

REFERENCE

Ahmed, S. Z., McKnight, C., & Oppenheim, C. (2004). A study of users' performance and satisfaction with the Web of Science IR interface. *Journal of Information Science*, 30(5), 459-468.

Al-Maskari, A., & Sanderson, M. (2011). The effect of user characteristics on search effectiveness in information retrieval. *Information Processing & Management*, 47(5), 719-729.

Alotaibi, F., & Johnson, F. (2020). Why we like Google Scholar: postgraduate students' perceptions of factors influencing their intention to use. *Aslib Journal of Information Management*, 72(4), 587-603.

Arguello, J. (2014). Predicting Search Task Difficulty. In *European Conference on Information Retrieval* (pp. 88-99).

Bilal, D., & Bachir, I. (2007). Children's interaction with cross-cultural and multilingual digital libraries. II. Information seeking, success, and affective experience. *Information Processing & Management*, 43(1), 65-80.

Byström, K., & Järvelin, K. (1995). Task complexity affects information seeking and use. *Information Processing & Management*, 31(2), 191-213.

Chang, C. C., Lin, C. Y., Chen, Y. C., & Chin, Y. C. (2009). Predicting information-seeking intention in academic digital libraries. *The Electronic Library*, 27(3), 448-460.

Cothran, T. (2011). Google Scholar acceptance and use among graduate students: A quantitative study. *Library & Information Science Research*, 33(4), 293-301.

Deng, S. L., Zhao, A. Q., Fu, S. X., Liu, Y., Fan, W. J., & Jiang, Y. T. (2020). Music-search behaviour on a social Q&A site: A cross-gender comparison. *Journal of Information Science*, 46(4), 560-574.

Feild, H. A., Allan, J., Jones, R. (2010). Predicting searcher frustration. In *Proceedings of the 33rd international ACM SIGIR conference on Research and Development in Information Retrieval* (pp 34–41).

Ford, N., Eaglestone, B., Madden, A., & Whittle, M. (2009). Web searching by the “general public”: an individual differences perspective. *Journal of Documentation*, 65(4), 632-667.

Ford, N., Miller, D., & Moss, N. (2001). The Role of Individual Differences in Internet Searching: An Empirical Study. *Journal of the American Society for Information Science and Technology*, 52(12), 1049-1066.

Fox, S., Karnawat, K., Mydland, M., Dumais, S., & White, T. (2005). Evaluating Implicit Measures to Improve Web Search. *ACM Transactions on Information Systems*, 23(2), 147-168.

Gahlawat, T., Bhatia, P. K., & Mehrotra, D. (2017). The Relationship between User Preferences in Interactive Information Retrieval Evaluation. In *2017 6th International Conference on Reliability, Infocom Technologies and Optimization (Trends and Future Directions)* (pp. 423-426).

Gwizdka, J., & Lopatovska, I. (2009). The Role of Subjective Factors in the Information Search Process. *Journal of the American Society for Information Science and Technology*, 60(12), 2452-2464.

Hsieh-Yee, I. (1993). Effects of Search Experience and Subject Knowledge on the Search Tactics of Novice and Experienced Searchers. *Journal of the American Society for Information Science*, 44(3), 161-174.

Hsu, L. L., & Walter, Z. (2015). Search Engine or Content Website? A Local Information Seeking Classification Model Based on Consumer Characteristics and Website Perceptions. *International Journal of Human-Computer Interaction*, 31(4), 263-276.

Huang, S. L., Lin, S. C., & Chan, Y. C. (2012). Investigating effectiveness and user acceptance of semantic social tagging for knowledge sharing. *Information Processing & Management*, 48(4), 599-617.

Huffman, S. B., & Hochster, M. (2007). How Well does Result Relevance Predict Session Satisfaction?. In *Proceedings of the 30th annual international ACM SIGIR conference on Research and development in information retrieval* (pp. 567-574).

Jiang, J. P., Awadallah, A. H., Shi, X. L., & White, R. W. (2015). Understanding and Predicting Graded Search Satisfaction. In *Proceedings of the Eighth ACM International Conference on Web Search and Data Mining* (pp. 57-66).

Kelly, D., Arguello, J., Edwards, A., & Wu, W. C. (2015). Development and Evaluation of Search Tasks for IIR Experiments using a Cognitive Complexity Framework. In *Proceedings of the 2015 International Conference on The Theory of Information Retrieval* (pp. 101-110).

Khosrowjerdi, M., & Iranshahi, M. (2011). Prior knowledge and information-seeking behavior of PhD and MA students. *Library & Information Science Research*, 33(4), 331-335.

Kim, Y. M. (2010). The Adoption of University Library Web Site Resources: A Multigroup Analysis. *Journal of the American Society for Information Science and Technology*, 61(5), 978-993.

Kowalczyk M, Gerlach J P. (2015). Business Intelligence & Analytics and Decision Quality-Insights on Analytics Specialization and Information Processing Modes. In *ECIS 2015 Completed Research Papers Proceedings* (Paper 110).

LaValley, S. A., Kiviniemi, M. T., & Gage-Bouchard, E. A. (2017). Where people look for online health information. *Health Information & Libraries Journal*, 34(2), 146-155.

Lavidas, K., Achriani, A., Athanassopoulos, S., Messinis, I., & Kotsiantis, S. (2020). University students' intention to use search engines for research purposes: A structural equation modeling approach. *Education and Information Technologies*, 25(4), 2463-2479.

Law, E. L. C., Klobučar, T., & Pipan, M. (2006). Analysis of user attitude and behaviour in evaluating a personalized search engine. In *Proceedings of the 13th European conference on Cognitive ergonomics: trust and control in complex socio-technical systems* (pp. 1-9).

Li, C. Y. (2013). Persuasive messages on information system acceptance: a theoretical extension of elaboration likelihood model and social influence theory. *Computers in Human Behavior*, 29(1), 264-275.

Li, Y., & Belkin, N. J. (2008). A faceted approach to conceptualizing tasks in information seeking. *Information Processing & Management*, 44(6), 1822-1837.

Li, Y., Yuan, X., & Che, R. (2021). An investigation of task characteristics and users' evaluation of interaction design in different online health information systems. *Information Processing & Management*, 58(3), 102476.

Li, Z., Zhu, J., & Li, X. (2022). Factors influencing the behavior of multi-modal information search. *Library Hi Tech*, 40(5), 1459-1482.

Liaw, S. S., & Huang, H. M. (2003). An investigation of user attitudes toward search engines as an information retrieval tool. *Computers in human behavior*, 19(6), 751-765.

Liu, C., Liu, J., & Belkin, N. J. (2014). Predicting search task difficulty at different search stages. In *Proceedings of the 23rd ACM International Conference on Conference on Information and Knowledge Management* (pp. 569–578).

Liu, C., Liu, Y. H., Gedeon, T., Zhao, Y., Wei, Y., & Yang, F. (2019a). The effects of perceived chronic pressure and time constraint on information search behaviors and experience. *Information Processing & Management*, 56(5), 1667-1679.

Liu, J. Q., & Han, F. Y. (2020). Investigating Reference Dependence Effects on User Search Interaction and Satisfaction: A Behavioral Economics Perspective. In *Proceedings of the 43rd International ACM SIGIR Conference on Research and Development in Information Retrieval* (pp. 1141-1150).

Liu, J., Gwizdka, J., Liu, C., & Belkin, N. J. (2010). Predicting task difficulty for different task types. *Proceedings of the American Society for Information Science and Technology*, 47(1), 1–10.

Liu, J., Wang, J., Zhou, G., Zhang, G., Pan, Y., Sa, X., & Liu, T. (2019c). Scientific Data Sharing Platform Using Behavior Study Based on Extended TAM Model. In *International Conference on Man-Machine-Environment System Engineering* (pp. 21-30).

Liu, M. Y., Mao, J. X., Liu, Y. Q., Zhang, M., & Ma, S. P. (2019d). Investigating Cognitive Effects in Session-level Search User Satisfaction. In *Proceedings of the 25th ACM SIGKDD International Conference on Knowledge Discovery & Data Mining* (pp. 923-931).

Liu, Y., Chen, Y., Tang, J., Sun, J., Zhang, M., Ma, S., & Zhu, X. (2015). Different users, different opinions: Predicting search satisfaction with mouse movement information. In *Proceedings of the 38th international ACM SIGIR Conference on Research and Development in Information Retrieval* (pp. 493-502).

Lopatovska, I. (2014). Toward a model of emotions and mood in the online information search process. *Journal of the American Society for Information Science and Technology*, 65(9), 1775-1793.

Lorigo, L., Pan, B., Hembrooke, H., Joachims, T., Granka, L., & Gay, G. (2006). The influence of task and gender on search and evaluation behavior using Google. *Information Processing & Management*, 42(4), 1123-1131.

Lynch, C. A. (2001). When Documents Deceive: Trust and Provenance as New Factors for Information Retrieval in a Tangled Web. *Journal of the American Society for Information Science and Technology*, 52(1), 12-17.

Madjid, I., Stéphane, C., & Daniel, M. (2003). The effect of individual differences on searching the web. *Proceedings of the American Society for Information Science and Technology*, 40(1), 240-246.

Makondo, F. N., Kanyengo, C. W., & Kakana, F. (2018). Online search behaviour of University of Zambia Library and Information Studies students. *Library Hi Tech*, 36(4), 720-732.

Mao, J., Liu, Y., Zhou, K., Nie, J. Y., Song, J., Zhang, Ma,SP., Sun,J., & Luo, H. (2016). When does relevance mean usefulness and user satisfaction in web search?. In *Proceedings of the 39th International ACM SIGIR conference on Research and Development in Information Retrieval* (pp. 463-472).

Nori, R., Palmiero, M., Giusberti, F., Gambetti, E., & Piccardi, L. (2020). Web searching and navigation: Age, intelligence, and familiarity. *Journal of the Association for Information Science and Technology*, 71(8), 902-915.

O'Brien, H. L., Arguello, J., & Capra, R. (2020). An empirical study of interest, task complexity, and search behaviour on user engagement. *Information Processing & Management*, 57(3), 102226.

Okhovati, M., Sharifpoor, E., Aazami, M., Zolala, F., & Hamzehzadeh, M. (2017). Novice and experienced users' search performance and satisfaction with Web of Science and Scopus. *Journal of Librarianship and Information Science*, 49(4), 359-367.

Palmquist, R. A., & Kim, K. S. (2000). Cognitive style and on-line database search experience as predictors of Web search performance. *Journal of the American Society for Information Science*, 51(6), 558-566.

Rowley, J., Johnson, F., & Sbaffi, L. (2017). Gender as an influencer of online health information-seeking and evaluation behavior. *Journal of the Association for Information Science and Technology*, 68(1), 36-47.

Sanchiz, M., Chin, J., Chevalier, A., Fu, W. T., Amadieu, F., & He, J. (2017b). Searching for information on the Web: Impact of cognitive aging, prior domain knowledge and complexity of the search problems. *Information Processing & Management*, 53(1), 281-294.

Savolainen, R. (2008). Autonomous, controlled and half-hearted. unemployed people's motivations to seek information about jobs. *Information Research*, 13(4), 362.

Savolainen, R. (2012). Expectancy-value beliefs and information needs as motivators for task-based information seeking. *Journal of Documentation*, 68(4), 492-511. https://doi.org/10.1108/00220411211239075.Schmidt, B., Gemeinholzer, B., & Treloar, A. (2016). Open Data in Global Environmental Research: The Belmont Forum's Open Data Survey. *PloS One*, 11(1), e0146695.

Shiri, A. S., & Revie, C. (2003). The effects of topic complexity and familiarity on cognitive and physical moves in a thesaurus-enhanced search environment. *Journal of Information Science*, 29(6), 517-526.

Sigaard, K. T., & Skov, M. (2015). Applying an expectancy-value model to study motivators for work-task based information seeking. *Journal of Documentation*, 71(4), 709-732.

Sussman, S. W., & Siegal, W. S. (2003). Informational influence in organizations: An integrated approach to knowledge adoption. *Information Systems Research*, 14(1), 47-65.

Teo, H. H., Oh, L. B., Liu, C. H., & Wei, K. K. (2003). An empirical study of the effects of interactivity on web user attitude. *International Journal of Human-Computer Studies*, 58(3), 281-305.

Thatcher, A. (2008). Web search strategies: The influence of Web experience and task type. *Information Processing & Management*, 44(3), 1308-1329.

Vilar, P., & Žumer, M. (2008). Perceptions and importance of user friendliness of IR systems according to users' individual characteristics and academic discipline. *Journal of the American Society for Information Science and Technology*, 59(12), 1995-2007.

Wang, H. N., Song, Y., Chang, M. W., He, X. D., Hassan, A., & White, R. W. (2014). Modeling action-level satisfaction for search task satisfaction prediction. In *Proceedings of the 37th international ACM SIGIR Conference on Research & Development in Information Retrieval* (pp. 123-132).

Wang, P., Hawk, W. B., & Tenopir, C. (2000). Users' interaction with World Wide Web resources: An exploratory study using a holistic approach. *Information Processing & Management*, 36(2), 229-251.

Wang, S. L., Chen, Y. L., Kuo, A. M. H., Chen, H. M., & Shiu, Y. S. (2016b). Design and evaluation of a cloud-based Mobile Health Information Recommendation system on wireless sensor networks. *Computers & Electrical Engineering*, 49, 221-235.

Weideman, M., & Uys, C. S. (2004). The effect of search engine keyword choice and demographic features on Internet searching success. *Information Technology and Libraries*, 23(2), 58-65.

Zanganeh, M. Y., & Hariri, N. (2018). The role of emotional aspects in the information retrieval from the web. *Online Information Review*, 42(40), 520-534.

Zhao, Y., Deng, S. L., & Zhou, R. X. (2015). Understanding Mobile Library Apps Continuance Usage in China: A theoretical Framework and Empirical Study. *Libri-International Journal of Libraries and Information Studies*, 65(3), 161-173.