

Indicators of the Learning Context for Supporting Personalized and Adaptive Learning Environments

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Key Publications Included in the Systematic Review

- Abdelrahman, R. M. (2020). Metacognitive awareness and academic motivation and their impact on academic achievement of Ajman University students. *Heliyon*, 6(9), Article e04192. <https://doi.org/10.1016/j.heliyon.2020.e04192>
- Abdous, M. (2019). Influence of satisfaction and preparedness on online students' feelings of anxiety. *The Internet and Higher Education*, 41, 34–44. <https://doi.org/10.1016/j.iheduc.2019.01.001>
- Abe, J. A. A. (2020). Big five, linguistic styles, and successful online learning. *The Internet and Higher Education*, 45, Article e100724. <https://doi.org/10.1016/j.iheduc.2019.100724>
- Abraham, D., McRae, K., & Mangels, J. A. (2019). 'A' for effort: Rewarding effortful retrieval attempts improves learning from general knowledge errors in women. *Frontiers in Psychology*, 10, 1–16. <https://doi.org/10.3389/fpsyg.2019.01179>
- Adekitan, A. I., & Salau, O. (2019). The impact of engineering students' performance in the first three years on their graduation result using educational data mining. *Heliyon*, 5(2), Article e01250. <https://doi.org/10.1016/j.heliyon.2019>
- Agonács, N., Matos, J. F., Bartalesi-Graf, D., & O'Steen, D. N. (2019). On the path to self-determined learning: A mixed methods study of learners' attributes and strategies to learn in language MOOCs. *International Journal of Learning Technology*, 14(4), 304–330. <https://doi.org/10.1504/IJLT.2019.106553>
- Ajabshir, Z. F. (2019). The effect of synchronous and asynchronous computer-mediated communication (CMC) on EFL learners' pragmatic competence. *Computers in Human Behavior*, 92, 169–177. <https://doi.org/10.1016/j.chb.2018.11.015>
- Al-Azzam, N., Elsalem, L., & Gombedza, F. (2020). A cross-sectional study to determine factors affecting dental and medical students' preference for virtual learning during the COVID-19 outbreak. *Heliyon*, 6(12), Article e05704. <https://doi.org/10.1016/j.heliyon.2020.e05704>
- Al-Rahmi, W. M., Yahaya, N., Alamri, M. M., Alyoussef, I. Y., Al-Rahmi, A. M., & Kamin, Y. B. (2019). Integrating innovation diffusion theory with technology acceptance model: Supporting students' attitude towards using a massive open online courses (MOOCs) systems. *Interactive Learning Environments*, 1–13. <https://doi.org/10.1080/10494820.2019.1629599>
- Alabdullatif, H., & Velázquez-Iturbide, J. Á. (2020). Personality traits and intention to continue using massive open online courses (ICM) in Spain: The mediating role of motivations. *International Journal of Human–Computer Interaction*, 36(20), 1953–1967. <https://doi.org/10.1080/10447318.2020.1805873>

- Albelbisi, N. A., Al-Adwan, A. S., & Habibi, A. (2021). Self-regulated learning and satisfaction: A key determinants of MOOC success. *Education and Information Technologies, 26*(3), 3459–3481. <https://doi.org/10.1007/s10639-020-10404-z>
- Alotumi, M. (2021). EFL college junior and senior students' self-regulated motivation for improving English speaking: A survey study. *Heliyon, 7*(4), Article e06664. <https://doi.org/10.1016/j.heliyon.2021.e06664>
- Altıok, S., Başer, Z., & Yükseltürk, E. (2019). Enhancing metacognitive awareness of undergraduates through using an e-educational video environment. *Computers & Education, 139*, 129–145. <https://doi.org/10.1016/j.compedu.2019.05.010>
- Álvarez-Huerta, P., Muela, A., & Larrea, I. (2021). Student engagement and creative confidence beliefs in higher education. *Thinking Skills and Creativity, 40*, Article e100821. <https://doi.org/10.1016/j.tsc.2021.100821>
- Aparicio, M., Oliveira, T., Bacao, F., & Painho, M. (2019). Gamification: A key determinant of massive open online course (MOOC) success. *Information & Management, 56*(1), 39–54. <https://doi.org/10.1016/j.im.2018.06.003>
- Armengol-Asparó, C., Mercader, C., & Ion, G. (2020). Making peer-feedback more efficient: what conditions of its delivery make the difference? *Higher Education Research & Development, 1*–14. <https://doi.org/10.1080/07294360.2020.1840527>
- Awidi, I. T., & Paynter, M. (2019). The impact of a flipped classroom approach on student learning experience. *Computers & Education, 128*, 269–283. <https://doi.org/10.1016/j.compedu.2018.09.013>
- Backmann, J., Weiss, M., Schippers, M. C., & Hoegl, M. (2019). Personality factors, student resiliency, and the moderating role of achievement values in study progress. *Learning and Individual Differences, 72*, 39–48. <https://doi.org/10.1016/j.lindif.2019.04.004>
- Baneres, D., Rodríguez-Gonzalez, M. E., & Serra, M. (2019). An early feedback prediction system for learners at-risk within a first-year higher education course. *IEEE Transactions on Learning Technologies, 12*(2), 249–263. <https://doi.org/10.1109/TLT.2019.2912167>
- Bäulke, L., Daumiller, M., & Dresel, M. (2021). The role of state and trait motivational regulation for procrastinatory behavior in academic contexts: Insights from two diary studies. *Contemporary Educational Psychology, 65*, Article e101951. <https://doi.org/10.1016/j.cedpsych.2021.101951>
- Beenen, G., & Arbaugh, B. (2019). Flipping class: Why student expectations and person-situation fit matter. *International Journal of Management Education, 17*(3), Article e100311. <https://doi.org/10.1016/j.ijme.2019.100311>
- Bernardo, A., Esteban, M., Cervero, A., Cerezo, R., & Herrero, F. J. (2019). The influence of self-regulation behaviors on university students' intentions of persistence. *Frontiers in Psychology, 10*, 1–8. <https://doi.org/10.3389/fpsyg.2019.02284>
- Berthelon, M., Bettinger, E., Kruger, D. I., & Montecinos-Pearce, A. (2019). The Structure of Peers: The Impact of Peer Networks on Academic Achievement. *Research in Higher Education, 60*(7), 931–959. <https://doi.org/10.1007/s11162-018-09543-7>
- Bobe, B. J., & Cooper, B. J. (2020). Accounting students' perceptions of effective teaching and approaches to learning: impact on overall student satisfaction. *Accounting & Finance, 60*(3), 2099–2143. <https://doi.org/10.1111/acfi.12364>

- Bouwmeester, R. A. M., de Kleijn, R. A. M., van den Berg, I. E. T., ten Cate, O. T. J., van Rijen, H. V. M., & Westerveld, H. E. (2019). Flipping the medical classroom: Effect on workload, interactivity, motivation and retention of knowledge. *Computers & Education*, *139*, 118–128. <https://doi.org/10.1016/j.compedu.2019.05.002>
- Broadbent, J., Sharman, S., Panadero, E., & Fuller-Tyszkiewicz, M. (2021). How does self-regulated learning influence formative assessment and summative grade? Comparing online and blended learners. *The Internet and Higher Education*, *50*, Article e100805. <https://doi.org/10.1016/j.iheduc.2021.100805>
- Brown, M. G., Schiltz, J., Derry, H., & Holman, C. (2019). Implementing online personalized social comparison nudges in a web-enabled coaching system. *Internet & Higher Education*, *43*, Article e100691. <https://doi.org/10.1016/j.iheduc.2019.100691>
- Buhr, E. E., Daniels, L. M., & Goegan, L. D. (2019). Cognitive appraisals mediate relationships between two basic psychological needs and emotions in a massive open online course. *Computers in Human Behavior*, *96*, 85–94. <https://doi.org/10.1016/j.chb.2019.02.009>
- Buil, I., Catalán, S., & Martínez, E. (2019). Encouraging intrinsic motivation in management training: The use of business simulation games. *International Journal of Management Education*, *17*(2), 162–171. <https://doi.org/10.1016/j.ijme.2019.02.002>
- Cabero-Almenara, J., Barroso-Osuna, J., Llorente-Cejudo, C., & del Mar Fernández Martínez, M. (2019). Educational uses of augmented reality (AR): Experiences in educational science. *Sustainability*, *11*(18), Article e4990. <https://doi.org/10.3390/su11184990>
- Cabero-Almenara, J., & Roig-Vila, R. (2019). The motivation of technological scenarios in augmented reality (AR): Results of different experiments. *Applied Sciences*, *9*(14), Article e2907. <https://doi.org/10.3390/app9142907>
- Cao, C., & Meng, Q. (2020). Exploring personality traits as predictors of english achievement and global competence among chinese university students: English learning motivation as the moderator. *Learning and Individual Differences*, *77*, Article e101814. <https://doi.org/10.1016/j.lindif.2019.101814>
- Caserta, S., Tomaiuolo, G., & Guido, S. (2021). Use of a smartphone-based student response system in large active-learning chemical engineering thermodynamics classrooms. *Education for Chemical Engineers*, *36*, 46–52. <https://doi.org/10.1016/j.ece.2021.02.003>
- Chaker, R., & Impedovo, M. A. (2021). The moderating effect of social capital on co-regulated learning for MOOC achievement. *Education and Information Technologies*, *26*(1), 899–919. <https://doi.org/10.1007/s10639-020-10293-2>
- Chakkaravarthy, K., Ibrahim, N., Mahmud, M., Hardaker, G., & Venkatasalu, M. R. (2020). Determinants of readiness towards self-directed learning among nurses and midwives: Results from national survey. *Nurse Education in Practice*, *47*, Article e102824. <https://doi.org/10.1016/j.nepr.2020.102824>
- Chan, S. H., Song, Q., Rivera, L. H., & Trongmateerut, P. (2016). Using an educational computer program to enhance student performance in financial accounting. *Journal of Accounting Education*, *36*, 43–64. <https://doi.org/10.1016/j.jaccedu.2016.05.001>

- Chang, C.-T., Tu, C.-S., & Hajiyev, J. (2019). Integrating academic type of social media activity with perceived academic performance: A role of task-related and non-task-related compulsive Internet use. *Computers & Education, 139*, 157–172. <https://doi.org/10.1016/j.compedu.2019.05.011>
- Chang, J.-J., Lin, W.-S., & Chen, H.-R. (2019). How attention level and cognitive style affect learning in a MOOC environment? Based on the perspective of brainwave analysis. *Computers in Human Behavior, 100*, 209–217. <https://doi.org/10.1016/j.chb.2018.08.016>
- Chen, H.-J. (2020). Clarifying the impact of surprise in e-learning system design based on university students with multiple learning goals orientation. *Education and Information Technologies, 25*(6), 5873–5892. <https://doi.org/10.1007/s10639-020-10249-6>
- Chen, H.-T. M., & Thomas, M. (2020). Effects of lecture video styles on engagement and learning. *Educational Technology Research & Development, 68*(5), 2147–2164. <https://doi.org/10.1007/s11423-020-09757-6>
- Chen, Y., Gao, Q., Yuan, Q., & Tang, Y. (2020). Discovering MOOC learner motivation and its moderating role. *Behaviour & Information Technology, 39*(12), 1257–1275. <https://doi.org/10.1080/0144929X.2019.1661520>
- Cheng, B., Wang, M., Moormann, J., Olaniran, B. A., & Chen, N.-S. (2012). The effects of organizational learning environment factors on e-learning acceptance. *Computers & Education, 58*(3), 885–899. <https://doi.org/10.1016/j.compedu.2011.10.014>
- Cheng, L. T. W., & Wang, J. W. (2019). Enhancing learning performance through Classroom Response Systems: The effect of knowledge type and social presence. *International Journal of Management Education, 17*(1), 103–118. <https://doi.org/10.1016/j.ijme.2019.01.001>
- Cheng, S.-L., & Xie, K. (2021). Why college students procrastinate in online courses: A self-regulated learning perspective. *Internet & Higher Education, 50*, Article e100807. <https://doi.org/10.1016/j.iheduc.2021.100807>
- Chiou, C.-C., Tien, L.-C., & Lee, L.-T. (2015). Effects on learning of multimedia animation combined with multidimensional concept maps. *Computers & Education, 80*, 211–223. <https://doi.org/10.1016/j.compedu.2014.09.002>
- Chittum, J. R., Jones, B. D., & Carter, D. M. (2019). A person-centered investigation of patterns in college students' perceptions of motivation in a course. *Learning and Individual Differences, 69*, 94–107. <https://doi.org/10.1016/j.lindif.2018.11.007>
- Chung, C.-C., Cheng, Y.-M., Shih, R.-C., & Lou, S.-J. (2019). Research on the learning effect of the positive emotions of "ship fuel-saving project" APP for engineering students. *Sustainability, 11*(4), Article e1136. <https://doi.org/10.3390/su11041136>
- Cidral, W., Aparicio, M., & Oliveira, T. (2020). Students' long-term orientation role in e-learning success: A Brazilian study. *Heliyon, 6*(12), Article e05735. <https://doi.org/10.1016/j.heliyon.2020.e05735>
- Cleary, A. M., McNeely-White, K. L., Hausman, H., Dawson, J., Kuhn, S., Osborn, R. M., Huebert, A. M., & Rhodes, M. G. (2021). Wearable technology for automatizing science-based study strategies: Reinforcing learning through intermittent smartwatch

- prompting. *Journal of Applied Research in Memory and Cognition*, Advance online publication. <https://doi.org/10.1016/j.jarmac.2021.01.001>
- Clynes, M., Sheridan, A., & Frazer, K. (2020). Student engagement in higher education: A cross-sectional study of nursing students' participation in college-based education in the republic of Ireland. *Nurse Education Today*, *93*, Article e104529. <https://doi.org/10.1016/j.nedt.2020.104529>
- Cogliano, M., Kardash, C. M., & Bernacki, M. L. (2019). The effects of retrieval practice and prior topic knowledge on test performance and confidence judgments. *Contemporary Educational Psychology*, *56*, 117–129. <https://doi.org/10.1016/j.cedpsych.2018.12.001>
- Cooks, J. A., & Ciesla, J. A. (2019). The impact of perfectionism, performance feedback, and stress on affect and depressive symptoms. *Personality and Individual Differences*, *146*, 62–67. <https://doi.org/10.1016/j.paid.2019.03.048>
- Cortizo, J., Rodríguez, E., Vijande, R., Sierra, J., & Noriega, A. (2010). Blended learning applied to the study of mechanical couplings in engineering. *Computers & Education*, *54*(4), 1006-1019. <https://doi.org/10.1016/j.compedu.2009.10.006>
- D'Aquila, J. M., Wang, D., & Mattia, A. (2019). Are instructor generated YouTube videos effective in accounting classes? A study of student performance, engagement, motivation, and perception. *Journal of Accounting Education*, *47*, 63–74. <https://doi.org/10.1016/j.jaccedu.2019.02.002>
- Dajani, D., & Hegleh, A. S. A. (2019). Behavior intention of animation usage among university students. *Heliyon*, *5*(10), Article e02536. <https://doi.org/10.1016/j.heliyon.2019.e02536>
- Daws, K., McBrearty, K., & Bell, D. (2020). “If somebody just showed me once how to do it”: How are workplace cultures and practice development conceptualised and operationalised for early career nurses? *Nurse Education Today*, *85*, Article e104267. <https://doi.org/10.1016/j.nedt.2019.104267>
- Day, E. A., Espejo, J., Kowollik, V., Boatman, P. R., & McEntire, L. E. (2007). Modeling the links between need for cognition and the acquisition of a complex skill. *Personality and Individual Differences*, *42*(2), 201–212. <https://doi.org/10.1016/j.paid.2006.06.012>
- de Koning, B. B., Rop, G., & Paas, F. (2020a). Effects of spatial distance on the effectiveness of mental and physical integration strategies in learning from split-attention examples. *Computers in Human Behavior*, *110*, Article e106379. <https://doi.org/10.1016/j.chb.2020.106379>
- de Koning, B. B., Rop, G., & Paas, F. (2020b). Learning from split-attention materials: Effects of teaching physical and mental learning strategies. *Contemporary Educational Psychology*, *61*, Article e101873. <https://doi.org/10.1016/j.cedpsych.2020.101873>
- de la Fuente, J., Martínez-Vicente, J. M., Peralta-Sánchez, F. J., Garzón-Umerenkova, A., Vera, M. M., & Paoloni, P. (2019). Applying the SRL vs ERL theory to the knowledge of achievement emotions in undergraduate university students. *Frontiers in Psychology*, *10*, Article e2070. <https://doi.org/10.3389/fpsyg.2019.02070>

- de la Fuente, J., Sander, P., Kauffman, D. F., & Yilmaz Soylu, M. (2020). Differential effects of self-vs. External-regulation on learning approaches, academic achievement, and satisfaction in undergraduate students. *Frontiers in Psychology, 11*, Article e2678. <https://doi.org/10.3389/fpsyg.2020.543884>
- Demirören, M., Turan, S., & Taşdelen Teker, G. (2020). Determinants of self-regulated learning skills: the roles of tutors and students. *Advances in Physiology Education, 44*(1), 93–98. <https://doi.org/10.1152/advan.00121.2019>
- Dietrich, J., Greiner, F., Weber-Liel, D., Berweger, B., Kämpfe, N., & Kracke, B. (2021). Does an individualized learning environment improve university student online learning? Effects of digital differentiation grids. *Computers in Human Behavior, 122*, Article e106819. <https://doi.org/10.1016/j.chb.2021.106819>
- Ding, Y., & Zhao, T. (2019). Emotions, engagement, and self-perceived achievement in a small private online course. *Journal of Computer Assisted Learning, 36*(4), 449–457. <https://doi.org/10.1111/jcal.12410>
- Eckerlein, N., Roth, A., Engelschalk, T., Steuer, G., Schmitz, B., & Dresel, M. (2019). The role of motivational regulation in exam preparation: Results from a standardized diary study. *Frontiers in Psychology, 10*, 1–9. <https://doi.org/10.3389/fpsyg.2019.00081>
- Engin, A. O. (2009). Second language learning success and motivation. *Social Behavior and Personality, 37*(8), 1035–1041. <https://doi.org/10.2224/sbp.2009.37.8.1035>
- Epp, C. D., Phirangee, K., Hewitt, J., & Perfetti, C. A. (2020). Learning management system and course influences on student actions and learning experiences. *Educational Technology Research & Development, 68*(6), 3263–3297. <https://doi.org/10.1007/s11423-020-09821-1>
- Fang, H., Fu, H., Li, X., & Meng, L. (2019). Trapped in the woods: High performance goal orientation impedes competence restoration. *Personality and Individual Differences, 150*, Article e109479. <https://doi.org/10.1016/j.paid.2019.06.022>
- Fang, J., Tang, L., Yang, J., & Peng, M. (2019). Social interaction in MOOCs: The mediating effects of immersive experience and psychological needs satisfaction. *Telematics & Informatics, 39*, 75–91. <https://doi.org/10.1016/j.tele.2019.01.006>
- Farhan, W., Razmak, J., Demers, S., & Laflamme, S. (2019). E-learning systems versus instructional communication tools: Developing and testing a new e-learning user interface from the perspectives of teachers and students. *Technology in Society, 59*, Article e101192. <https://doi.org/10.1016/j.techsoc.2019.101192>
- Feng, Y., Iriarte, F., & Valencia, J. (2020). Relationship between learning styles, learning strategies and academic performance of Chinese students who learn spanish as a foreign language. *Asia-Pacific Education Researcher, 431–440*. <https://doi.org/10.1007/s40299-019-00496-8>
- Fischer, E., & Hänze, M. (2019). Back from 'guide on the side' to 'sage on the stage'? Effects of teacher-guided and student-activating teaching methods on student learning in higher education. *International Journal of Educational Research, 95*, 26–35. <https://doi.org/10.1016/j.ijer.2019.03.001>
- Fonseca, D., Martí, N., Redondo, E., Navarro, I., & Sánchez, A. (2014). Relationship between student profile, tool use, participation, and academic performance with the

- use of Augmented Reality technology for visualized architecture models. *Computers in Human Behavior*, 31, 434–445. <https://doi.org/10.1016/j.chb.2013.03.006>
- Formanek, M., Buxner, S., Impey, C., & Wenger, M. (2019). Relationship between learners' motivation and course engagement in an astronomy massive open online course. *Physical Review Physics Education Research*, 15(2), Article e020140. <https://doi.org/10.1103/PhysRevPhysEducRes.15.020140>
- Fountoukidou, S., Ham, J., Matzat, U., & Midden, C. (2019). Effects of an artificial agent as a behavioral model on motivational and learning outcomes. *Computers in Human Behavior*, 97, 84–93. <https://doi.org/10.1016/j.chb.2019.03.013>
- Fryer, L. K., & Ainley, M. (2019). Supporting interest in a study domain: A longitudinal test of the interplay between interest, utility-value, and competence beliefs. *Learning and Instruction*, 60, 252–262. <https://doi.org/10.1016/j.learninstruc.2017.11.002>
- Fuster-Guilló, A., Pertegal-Felices, M. L., Jimeno-Morenilla, A., Azorín-López, J., Rico-Soliveres, M. L., & Restrepo-Calle, F. (2019). Evaluating impact on motivation and academic performance of a game-based learning experience using Kahoot. *Frontiers in Psychology*, 10, 1–8. <https://doi.org/10.3389/fpsyg.2019.02843>
- Ganotice, F. A., & Chan, L. K. (2019). How can students succeed in computer-supported interprofessional team-based learning? Understanding the underlying psychological pathways using Biggs' 3P model. *Computers in Human Behavior*, 91, 211–219. <https://doi.org/10.1016/j.chb.2018.09.029>
- García, M. V., López, M. F., & Castillo, M. Á. S. (2019). Determinants of the acceptance of mobile learning as an element of human capital training in organisations. *Technological Forecasting & Social Change*, 149, Article e119783. <https://doi.org/10.1016/j.techfore.2019.119783>
- García-Cabot, A., García-Lopez, E., Caro-Alvaro, S., Gutierrez-Martinez, J. M., & de-Marcos, L. (2020). Measuring the effects on learning performance and engagement with a gamified social platform in an MSc program. *Computer Applications in Engineering Education*, 28(1), 207–223. <https://doi.org/10.1002/cae.22186>
- Gareau, A., Gaudreau, P., & Boileau, L. (2019). Past academic achievement contributes to university students' autonomous motivation (AM) which is later moderated by implicit motivation and working memory: A Bayesian replication of the explicit-implicit model of AM. *Learning and Individual Differences*, 73, 30–41. <https://doi.org/10.1016/j.lindif.2019.05.004>
- Garn, A. C., & Morin, A. J. S. (2021). University students' use of motivational regulation during one semester. *Learning & Instruction*, 74, Article e101436. <https://doi.org/10.1016/j.learninstruc.2020.101436>
- Garnjost, P., & Lawter, L. (2019). Undergraduates' satisfaction and perceptions of learning outcomes across teacher- and learner-focused pedagogies. *International Journal of Management Education*, 17(2), 267–275. <https://doi.org/10.1016/j.ijme.2019.03.004>
- Gatti, L., Ulrich, M., & Seele, P. (2019). Education for sustainable development through business simulation games: An exploratory study of sustainability gamification and its effects on students' learning outcomes. *Journal of Cleaner Production*, 207, 667–678. <https://doi.org/10.1016/j.jclepro.2018.09.130>

- Gerritsen-van Leeuwenkamp, K. J., Joosten-ten Brinke, D., & Kester, L. (2019). Students' perceptions of assessment quality related to their learning approaches and learning outcomes. *Studies in Educational Evaluation*, *63*, 72–82. <https://doi.org/10.1016/j.stueduc.2019.07.005>
- Gillet, N., Morin, A. J. S., Huyghebaert, T., Burger, L., Maillot, A., Poulin, A., & Tricard, E. (2019). University students' need satisfaction trajectories: A growth mixture analysis. *Learning and Instruction*, *60*, 275–285. <https://doi.org/10.1016/j.learninstruc.2017.11.003>
- Göksün, D. O., & Gürsoy, G. (2019). Comparing success and engagement in gamified learning experiences via Kahoot and Quizizz. *Computers & Education*, *135*, 15–29. <https://doi.org/10.1016/j.compedu.2019.02.015>
- González-García, N., Sánchez-García, A. B., Nieto-Librero, A. B., & Galindo-Villardón, M. P. (2019). Attitude and learning approaches in the study of general didactics: A multivariate analysis. *Revista de Psicodidáctica*, *24*(2), 154–162. <https://doi.org/10.1016/j.psicoe.2019.03.001>
- Gupta, K. P., & Maurya, H. (2020). Adoption, completion and continuance of moocs: A longitudinal study of students' behavioural intentions. *Behaviour & Information Technology*, *41*(3), 611–628. <https://doi.org/10.1080/0144929X.2020.1829054>
- Gupta, S., & Sabitha, A. S. (2019). Deciphering the attributes of student retention in massive open online courses using data mining techniques. *Education and Information Technologies*, *24*(3), 1973–1994. <https://doi.org/10.1007/s10639-018-9829-9>
- Hamidi, H., & Jahanshaheefard, M. (2019). Essential factors for the application of education information system using mobile learning: A case study of students of the university of technology. *Telematics and Informatics*, *38*, 207–224. <https://doi.org/10.1016/j.tele.2018.10.002>
- Harmon, O. R., & Tomolonis, P. A. (2019). The effects of using Facebook as a discussion forum in an online principles of economics course: Results of a randomized controlled trial. *International Review of Economics Education*, *30*, Article e100157. <https://doi.org/10.1016/j.iree.2019.100157>
- Hayat, A. A., Shateri, K., Amini, M., & Shokrpour, N. (2020). Relationships between academic self-efficacy, learning-related emotions, and metacognitive learning strategies with academic performance in medical students: a structural equation model. *BMC medical education*, *20*(1), 1–11. <https://doi.org/10.1186/s12909-020-01995-9>
- Heckel, C., & Ringeisen, T. (2019). Pride and anxiety in online learning environments: Achievement emotions as mediators between learners' characteristics and learning outcomes. *Journal of Computer Assisted Learning*, *35*(5), 667–677. <https://doi.org/10.1111/jcal.12367>
- Hefter, M. H., & Berthold, K. (2020). Preparing learners to self-explain video examples: Text or video introduction? *Computers in Human Behavior*, *110*, Article e106404. <https://doi.org/10.1016/j.chb.2020.106404>
- Hein, J., Daumiller, M., Janke, S., Dresel, M., & Dickhäuser, O. (2019). How learning time mediates the impact of university scholars' learning goals on professional learning in

- research and teaching. *Learning and Individual Differences*, 72, 15–25.
<https://doi.org/10.1016/j.lindif.2019.04.002>
- Hellings, J., & Haelermans, C. (2020). The effect of providing learning analytics on student behaviour and performance in programming: a randomised controlled experiment. *Higher Education*, 1–18. <https://doi.org/10.1007/s10734-020-00560-z>
- Henderikx, M., Kreijns, K., Castaño Muñoz, J., & Kalz, M. (2019). Factors influencing the pursuit of personal learning goals in MOOCs. *Distance Education*, 40(2), 187–204. <https://doi.org/10.1080/01587919.2019.1600364>
- Hernández-Sellés, N., Muñoz-Carrilb, P.-C., & González-Sanmamed, M. (2019). Computer-supported collaborative learning: An analysis of the relationship between interaction, emotional support and online collaborative tools. *Computers & Education*, 138, 1–12. <https://doi.org/10.1016/j.compedu.2019.04.012>
- Hilliard, J., Kear, K., Donelan, H., & Heaney, C. (2020). Students' experiences of anxiety in an assessed, online, collaborative project. *Computers & Education*, 143, Article e103675. <https://doi.org/10.1016/j.compedu.2019.103675>
- Ho, L.-A., & Kuo, T.-H. (2010). How can one amplify the effect of e-learning? An examination of high-tech employees' computer attitude and flow experience. *Computers in Human Behavior*, 26(1), 23–31. <https://doi.org/10.1016/j.chb.2009.07.007>
- Honcke, T., Broadbent, J., & Fuller-Tyszkiewicz, M. (2020). Learner self-efficacy, goal orientation, and academic achievement: Exploring mediating and moderating relationships. *Higher Education Research & Development*, 39(4), 689–703. <https://doi.org/10.1080/07294360.2019.1685941>
- Hsieh, P.-A. J., & Cho, V. (2011). Comparing e-Learning tools' success: The case of instructor–student interactive vs. self-paced tools. *Computers & Education*, 57(3), 2025–2038. <https://doi.org/10.1016/j.compedu.2011.05.002>
- Hu, X., Chen, J., & Wang, Y. (2021). University students' use of music for learning and well-being: A qualitative study and design implications. *Information Processing & Management*, 58(1), Article e102409. <https://doi.org/10.1016/j.ipm.2020.102409>
- Hu, X., & Yeo, G. B. (2020). Emotional exhaustion and reduced self-efficacy: The mediating role of deep and surface learning strategies. *Motivation and Emotion*, 44, 785–795. <https://doi.org/10.1007/s11031-020-09846-2>
- Huang, B., Hwang, G.-J., Hew, K. F., & Warning, P. (2019). Effects of gamification on students' online interactive patterns and peer-feedback. *Distance Education*, 40(3), 350–379. <https://doi.org/10.1080/01587919.2019.1632168>
- Huang, T.-C., Chen, M.-Y., & Lin, C.-Y. (2019). Exploring the behavioral patterns transformation of learners in different 3D modeling teaching strategies. *Computers in Human Behavior*, 92, 670–678. <https://doi.org/10.1016/j.chb.2017.08.028>
- Hui, Y. K., Li, C., & Qian, S. (2019). Learning engagement via promoting situational interest in a blended learning environment. *Journal of Computing in Higher Education*, 31(2), 408–425. <https://doi.org/10.1007/s12528-019-09216-z>
- Hult, H. V., Hansson, A., & Gellerstedt, M. (2020). Digitalization and physician learning: Individual practice, organizational context, and social norm. *The Journal of*

- Continuing Education in the Health Professions*, 40(4), 220–227.
<https://doi.org/10.1097/CEH.0000000000000303>
- Hung, J.-L., Shelton, B. E., Yang, J., & Du, X. (2019). Improving predictive modeling for at-risk student identification: A multistage approach. *IEEE Transactions on Learning Technologies*, 12(2), 148–157. <https://doi.org/10.1109/TLT.2019.2911072>
- Hursen, C. (2019). The effect of technology supported problem-based learning approach on adults' self-efficacy perception for research-inquiry. *Education and Information Technologies*, 24(2), 1131–1145. <https://doi.org/10.1007/s10639-018-9822-3>
- Hwu, F., & Sun, S. (2012). The aptitude-treatment interaction effects on the learning of grammar rules. *System*, 40(4), 505–521. <https://doi.org/10.1016/j.system.2012.10.009>
- Ikeda, K., Kakinuma, K., Jiang, J., & Tanaka, A. (2021). Achievement goals affect memory encoding. *Contemporary Educational Psychology*, 65, Article e101945.
<https://doi.org/10.1016/j.cedpsych.2021.101945>
- İlic, U., & Akbulut, Y. (2019). Effect of disfluency on learning outcomes, metacognitive judgments and cognitive load in computer assisted learning environments. *Computers in Human Behavior*, 99, 310–321. <https://doi.org/10.1016/j.chb.2019.06.001>
- Jagoda, T., & Rathnayake, S. (2021). Perceived stress and learning environment among nursing students: A cross-sectional study. *Collegian*, 28(5), 587–594.
<https://doi.org/10.1016/j.colegn.2021.03.003>
- Janelli, M., & Lipnevich, A. A. (2021). Effects of pre-tests and feedback on performance outcomes and persistence in massive open online courses. *Computers & Education*, 161, Article e104076. <https://doi.org/10.1016/j.compedu.2020.104076>
- Jansen, R. S., van Leeuwen, A., Janssen, J., Conijn, R., & Kester, L. (2020). Supporting learners' self-regulated learning in massive open online courses. *Computers & Education*, 146, Article e103771. <https://doi.org/10.1016/j.compedu.2019.103771>
- Jena, R. (2019). Understanding academic achievement emotions towards business analytics course: A case study among business management students from India. *Computers in Human Behavior*, 92, 716–723. <https://doi.org/10.1016/j.chb.2018.08.024>
- Jeno, L. M., Adachi, P. J., Grytnes, J. A., Vandvik, V., & Deci, E. L. (2019). The effects of m-learning on motivation, achievement and well-being: A Self-Determination Theory approach. *British Journal of Educational Technology*, 50(2), 669–683.
<https://doi.org/10.1111/bjet.12657>
- Jia, M., Gong, D., Luo, J., Zhao, J., Zheng, J., & Li, K. (2019). Who can benefit more from massive open online courses? A prospective cohort study. *Nurse Education Today*, 76, 96–102. <https://doi.org/10.1016/j.nedt.2019.02.004>
- John, J. E., Nelson, P. A., Klenczar, B., & Robnett, R. D. (2020). Memories of math: Narrative predictors of math affect, math motivation, and future math plans. *Contemporary Educational Psychology*, 60, Article e101838.
<https://doi.org/10.1016/j.cedpsych.2020.101838>
- Joo, Y. J., Lim, K. Y., & Kim, J. (2013). Locus of control, self-efficacy, and task value as predictors of learning outcome in an online university context. *Computers & Education*, 62, 149–158. <https://doi.org/10.1016/j.compedu.2012.10.027>
- Jung, E., Kim, D., Yoon, M., Park, S., & Oakley, B. (2019). The influence of instructional design on learner control, sense of achievement, and perceived effectiveness in a

- supersize MOOC course. *Computers & Education*, 128, 377–388.
<https://doi.org/10.1016/j.compedu.2018.10.001>
- Jurgelaitis, M., Čeponienė, L., Čeponis, J., & Drungilas, V. (2019). Implementing gamification in a university-level UML modeling course: A case study. *Computer Applications in Engineering Education*, 27(2), 332–343.
<https://doi.org/10.1002/cae.22077>
- Karbaksh, R., & Safa, M. A. (2020). Basic psychological needs satisfaction, goal orientation, willingness to communicate, self-efficacy, and learning strategy use as predictors of second language achievement: A structural equation modeling approach. *Journal of Psycholinguistic Research*, 49(5), 803–822.
<https://doi.org/10.1007/s10936-020-09714-7>
- Katrimouza, A., Tselios, N., & Kasimati, M.-C. (2019). Twitter adoption, students' perceptions, Big Five personality traits and learning outcome: Lessons learned from 3 case studies. *Innovations in Education and Teaching International*, 56(1), 25–35.
<https://doi.org/10.1080/14703297.2017.1392890>
- Kaur, P., Kumar, H., & Kaushal, S. (2021). Affective state and learning environment based analysis of students' performance in online assessment. *International Journal of Cognitive Computing in Engineering*, 2, 12–20.
<https://doi.org/10.1016/j.ijcce.2020.12.003>
- Kazakova, J. K., & Shastina, E. M. (2019). The impact of socio-cultural differences on formation of intrinsic motivation: The case of local and foreign students. *Learning and Motivation*, 65, 1–9. <https://doi.org/10.1016/j.lmot.2018.10.001>
- Kim, S. C., Jillapali, R., & Boyd, S. (2021). Impacts of peer tutoring on academic performance of first-year baccalaureate nursing students: A quasi-experimental study. *Nurse Education Today*, 96, Article e104658.
<https://doi.org/10.1016/j.nedt.2020.104658>
- Kim, Y.-e., Brady, A. C., & Wolters, C. A. (2020). College students' regulation of cognition, motivation, behavior, and context: Distinct or overlapping processes? *Learning and Individual Differences*, 80, Article e101872.
<https://doi.org/10.1016/j.lindif.2020.101872>
- Kingir, S., Gok, B., & Bozkir, A. S. (2020). Exploring relations among pre-service science teachers' motivational beliefs, learning strategies and constructivist learning environment perceptions through unsupervised data mining. *Journal of Baltic Science Education*, 19(5), 804–823. <https://doi.org/10.33225/jbse/20.19.804>
- Kostagiolas, P., Lavranos, C., & Korfiatis, N. (2019). Learning analytics: Survey data for measuring the impact of study satisfaction on students' academic self-efficacy and performance. *Data in Brief*, 25, Article e104051.
<https://doi.org/10.1016/j.dib.2019.104051>
- Kourgiantakis, T., Sewell, K. M., & Bogo, M. (2019). The importance of feedback in preparing social work students for field education. *Clinical Social Work Journal*, 47(1), 124–133. <https://doi.org/10.1007/s10615-018-0671-8>
- Kramer, C., König, J., Strauss, S., & Kaspar, K. (2020). Classroom videos or transcripts? A quasi-experimental study to assess the effects of media-based learning on pre-service teachers' situation-specific skills of classroom management. *International Journal of*

- Educational Research*, 103, Article e101624.
<https://doi.org/10.1016/j.ijer.2020.101624>
- Kremer, T., Mamede, S., Martins, M. A., Tempiski, P., & van den Broek, W. W. (2019). Investigating the Impact of Emotions on Medical Students' Learning. *Health Professions Education*, 5(2), 111–119. <https://doi.org/10.1016/j.hpe.2018.12.003>
- Ku, L., Bernardo, A. B., & Zaroff, C. M. (2020). Are higher-order life values antecedents of students' learning engagement and adaptive learning outcomes? The case of materialistic vs. intrinsic life values. *Current Psychology*, 1–11.
<https://doi.org/10.1007/s12144-020-00851-9>
- Kühbeck, F., Berberat, P. O., Engelhardt, S., & Sarikas, A. (2019). Correlation of online assessment parameters with summative exam performance in undergraduate medical education of pharmacology: A prospective cohort study. *BMC Medical Education*, 19(1), Article e19412. <https://doi.org/10.1186/s12909-019-1814-5>
- Kühl, T., & Bertrams, A. (2019). Is learning with elaborative interrogation less desirable when learners are depleted? *Frontiers in Psychology*, 10, 1–11.
<https://doi.org/10.3389/fpsyg.2019.00707>
- Kühl, T., Moersdorf, F., Römer, M., & Münzer, S. (2019). Adding emotionality to seductive details—Consequences for learning? *Applied Cognitive Psychology*, 33(1), 48–61.
<https://doi.org/10.1002/acp.3477>
- Law, K. M., Geng, S., & Li, T. (2019). Student enrollment, motivation and learning performance in a blended learning environment: The mediating effects of social, teaching, and cognitive presence. *Computers & Education*, 136, 1–12.
<https://doi.org/10.1016/j.compedu.2019.02.021>
- Lee, B.-C., Yoon, J.-O., & Lee, I. (2009). Learners' acceptance of e-learning in South Korea: Theories and results. *Computers & Education*, 53(4), 1320–1329.
<https://doi.org/10.1016/j.compedu.2009.06.014>
- Lee, J.-E., & Recker, M. (2021). The effects of instructors' use of online discussions strategies on student participation and performance in university online introductory mathematics courses. *Computers & Education*, 162, Article e104084.
<https://doi.org/10.1016/j.compedu.2020.104084>
- Lee, M., Na, H. M., Kim, B., Kim, S. Y., Park, J., & Choi, J. Y. (2021). Mediating effects of achievement emotions between peer support and learning satisfaction in graduate nursing students. *Nurse Education in Practice*, 52, Article e103003.
<https://doi.org/10.1016/j.nepr.2021.103003>
- Li, K. (2019). MOOC learners' demographics, self-regulated learning strategy, perceived learning and satisfaction: A structural equation modeling approach. *Computers & Education*, 132, 16–30. <https://doi.org/10.1016/j.compedu.2019.01.003>
- Li, K. C., Lee, L. Y.-K., Wong, S.-L., Yau, I. S.-Y., & Wong, B. T.-M. (2019). The effects of mobile learning for nursing students: An integrative evaluation of learning process, learning motivation, and study performance. *International Journal of Mobile Learning and Organisation*, 13(1), 51–67.
<https://doi.org/10.1504/IJMLO.2019.096471>
- Lim, J., & Richardson, J. C. (2021). Predictive effects of undergraduate students' perceptions of social, cognitive, and teaching presence on affective learning outcomes according

- to disciplines. *Computers & Education*, 161, Article e104063.
<https://doi.org/10.1016/j.compedu.2020.104063>
- Ling, G., Elliot, N., Burstein, J. C., McCaffrey, D. F., MacArthur, C. A., & Holtzman, S. (2021). Writing motivation: A validation study of self-judgment and performance. *Assessing Writing*, 48, Article e100509. <https://doi.org/10.1016/j.asw.2020.100509>
- Liverpool-Tasie, L. S. O., Adjognon, G. S., & McKim, A. J. (2019). Collaborative learning in economics: Do group characteristics matter? *International Review of Economics Education*, 31, Article e100159. <https://doi.org/10.1016/j.iree.2019.100159>
- Loeffler, S. N., Stumpp, J., Grund, S., Limberger, M. F., & Ebner-Priemer, U. W. (2019). Fostering self-regulation to overcome academic procrastination using interactive ambulatory assessment. *Learning and Individual Differences*, 75, Article e101760. <https://doi.org/10.1016/j.lindif.2019.101760>
- Los, R., & Schweinle, A. (2019). The interaction between student motivation and the instructional environment on academic outcome: A hierarchical linear model. *Social psychology of education*, 22(2), 471–500. <https://doi.org/10.1007/s11218-019-09487-5>
- Lou, N. M., & Noels, K. A. (2020). “Does my teacher believe I can improve?”: The role of meta-lay theories in ESL learners’ mindsets and need satisfaction. *Frontiers in Psychology*, 11, 1–15. <https://doi.org/10.3389/fpsyg.2020.01417>
- Lung-Guang, N. (2019). Decision-making determinants of students participating in MOOCs: Merging the theory of planned behavior and self-regulated learning model. *Computers & Education*, 134, 50–62. <https://doi.org/10.1016/j.compedu.2019.02.004>
- Mahvelati, E. H. (2021). Learners’ perceptions and performance under peer versus teacher corrective feedback conditions. *Studies in Educational Evaluation*, 70, Article e100995. <https://doi.org/10.1016/j.stueduc.2021.100995>
- Makransky, G., Terkildsen, T. S., & Mayer, R. E. (2019). Role of subjective and objective measures of cognitive processing during learning in explaining the spatial contiguity effect. *Learning and Instruction*, 61, 23–34. <https://doi.org/10.1016/j.learninstruc.2018.12.001>
- Margaryan, A. (2019). Comparing crowdworkers’ and conventional knowledge workers’ self-regulated learning strategies in the workplace. *Human Computation*, 6, 83–97. <https://doi.org/10.15346/hc.v6i1.5>
- Martin, D. D., Wright, A. C., & Krieg, J. M. (2020). Social networks and college performance: Evidence from dining data. *Economics of Education Review*, 79, Article e102063. <https://doi.org/10.1016/j.econedurev.2020.102063>
- Mason, H. D. (2019). Factors that enhance academic learning and study behaviours: A qualitative study. *Journal of Psychology in Africa*, 29(1), 67–72. <https://doi.org/10.1080/14330237.2019.1568087>
- Maurer, T. J., Lippstreu, M., & Judge, T. A. (2008). Structural model of employee involvement in skill development activity: The role of individual differences. *Journal of Vocational Behavior*, 72(3), 336–350. <https://doi.org/10.1016/j.jvb.2007.10.010>
- Mehta, A., Morris, N. P., Swinnerton, B., & Homer, M. (2019). The influence of values on E-learning adoption. *Computers & Education*, 141, Article e103617. <https://doi.org/10.1016/j.compedu.2019.103617>

- Miller, A. L., Fassett, K. T., & Palmer, D. L. (2021). Achievement goal orientation: A predictor of student engagement in higher education. *Motivation and Emotion, 45*(3), 327–344. <https://doi.org/10.1007/s11031-021-09881-7>
- Mimis, M., El Hajji, M., Es-Saady, Y., Guejdi, A. O., Douzi, H., & Mammass, D. (2019). A framework for smart academic guidance using educational data mining. *Education and Information Technologies, 24*(2), 1379–1393. <https://doi.org/10.1007/s10639-018-9838-8>
- Moffitt, R. L., Padgett, C., & Grieve, R. (2020). Accessibility and emotionality of online assessment feedback: Using emoticons to enhance student perceptions of marker competence and warmth. *Computers & Education, 143*, Article e103654. <https://doi.org/10.1016/j.compedu.2019.103654>
- Mouri, K., Ren, Z., Uosaki, N., & Yin, C. (2019). Analyzing learning patterns based on log data from digital textbooks. *International Journal of Distance Education Technologies, 17*(1), 1-14. <https://doi.org/10.1016/j.compedu.2019.103654>
- Murillo-Zamorano, L. R., Sánchez, J. Á. L., & Godoy-Caballero, A. L. (2019). How the flipped classroom affects knowledge, skills, and engagement in higher education: Effects on students' satisfaction. *Computers & Education, 141*, Article e103608. <https://doi.org/10.1016/j.compedu.2019.103608>
- Nabizadeh, S., Hajian, S., Sheikhan, Z., & Rafiei, F. (2019). Prediction of academic achievement based on learning strategies and outcome expectations among medical students. *BMC Medical Education, 19*(1), 1–11. <https://doi.org/10.1186/s12909-019-1527-9>
- Navratil, S. D., & Kühn, T. (2019). Learning with elaborative interrogations and the impact of learners' emotional states. *Journal of Computer Assisted Learning, 35*(2), 218–227. <https://doi.org/10.1111/jcal.12324>
- Ng, E. M. (2018). Integrating self-regulation principles with flipped classroom pedagogy for first year university students. *Computers & Education, 126*, 65–74. <https://doi.org/10.1016/j.compedu.2018.07.002>
- Ninaus, M., Greipl, S., Kiili, K., Lindstedt, A., Huber, S., Klein, E., Karnath, H.-O., & Moeller, K. (2019). Increased emotional engagement in game-based learning—A machine learning approach on facial emotion detection data. *Computers & Education, 142*, Article e103641. <https://doi.org/10.1016/j.compedu.2019.103641>
- Núñez, J. L., & León, J. (2019). Determinants of classroom engagement: A prospective test based on self-determination theory. *Teachers and Teaching, 25*(2), 147–159. <https://doi.org/10.1080/13540602.2018.1542297>
- O'Brien, M., & Verma, R. (2019). How do first year students utilize different lecture resources? *Higher Education, 77*(1), 155–172. <https://doi.org/10.1007/s10734-018-0250-5>
- Olanipekun, T., Effoe, V., Bakinde, N., Bradley, C., Ivonye, C., & Harris, R. (2020). Learning Styles of Internal Medicine Residents and Association With the In-Training Examination Performance. *Journal of the National Medical Association, 112*(1), 44–51. <https://doi.org/10.1016/j.jnma.2019.12.002>
- Oluwajana, D., Nat, M., & Fadiya, S. (2019). An investigation of students' interactivity in the classroom and within learning management system to improve learning outcomes.

- Croatian Journal of Education*, 21(1), 77–102.
<https://doi.org/10.15516/cje.v21i1.3085>
- Oriol-Granado, X., Mendoza-Lira, M., Covarrubias-Apablaza, C.-G., & Molina-López, V.-M. (2017). Positive emotions, autonomy support and academic performance of university students: The mediating role of academic engagement and self-efficacy. *Revista de Psicodidáctica* 22(1), 45–53.
<https://doi.org/10.1387/RevPsicodidact.14280>
- Ortega-Arranz, A., Er, E., Martínez-Monés, A., Bote-Lorenzo, M. L., Asensio-Pérez, J. I., & Muñoz-Cristóbal, J. A. (2019). Understanding student behavior and perceptions toward earning badges in a gamified MOOC. *Universal Access in the Information Society*, 18(3), 533–549. <https://doi.org/10.1007/s10209-019-00677-8>
- Orvis, K. A., Horn, D. B., & Belanich, J. (2008). The roles of task difficulty and prior videogame experience on performance and motivation in instructional videogames. *Computers in Human Behavior*, 24(5), 2415–2433.
<https://doi.org/10.1016/j.chb.2008.02.016>
- Öz, G. Ö., & Abaan, S. (2021). Use of a flipped classroom “Leadership in Nursing” course on nursing students' achievement and experiences: A quasi-experimental study. *Journal of Professional Nursing*, 37(3), 562–571.
<https://doi.org/10.1016/j.profnurs.2021.02.001>
- Pachler, D., Kuonath, A., & Frey, D. (2019). How transformational lecturers promote students' engagement, creativity, and task performance: The mediating role of trust in lecturer and self-efficacy. *Learning and Individual Differences*, 69, 162–172.
<https://doi.org/10.1016/j.lindif.2018.12.004>
- Palos, R. (2020). Exploring the impact of achievement goals orientation and study engagement on nursing students' approaches to learning. *Educational Studies*, 46(2), 205–220. <https://doi.org/10.1080/03055698.2018.1555454>
- Paloş, R., Maricuţoiu, L. P., & Costea, I. (2019). Relations between academic performance, student engagement and student burnout: A cross-lagged analysis of a two-wave study. *Studies in Educational Evaluation*, 60, 199–204.
<https://doi.org/10.1016/j.stueduc.2019.01.005>
- Pan, Y., Guyon, C., Borragán, G., Hu, Y., & Peigneux, P. (2020). Interpersonal brain synchronization with instructor compensates for learner's sleep deprivation in interactive learning. *Biochemical pharmacology*, Article e114111.
<https://doi.org/10.1016/j.bcp.2020.114111>
- Panadero, E., Alonso-Tapia, J., García-Pérez, D., Fraile, J., Galán, J. M. S., & Pardo, R. (2021). Deep learning self-regulation strategies: Validation of a situational model and its questionnaire. *Revista de Psicodidáctica*, 26(1), 10–19.
<https://doi.org/10.1016/j.psicod.2020.11.003>
- Papamitsiou, Z., & Economides, A. A. (2019). Exploring autonomous learning capacity from a self-regulated learning perspective using learning analytics. *British Journal of Educational Technology*, 50(6), 3138–3155. <https://doi.org/10.1111/bjet.12747>
- Park, B., Korbach, A., & Brünken, R. (2020). Does thinking-aloud affect learning, visual information processing and cognitive load when learning with seductive details as

- expected from self-regulation perspective? *Computers in Human Behavior*, *111*, Article e106411. <https://doi.org/10.1016/j.chb.2020.106411>
- Parker, P. C., Perry, R. P., Hamm, J. M., Chipperfield, J. G., Pekrun, R., Dryden, R. P., Daniels, L. M., & Tze, V. M. (2021). A motivation perspective on achievement appraisals, emotions, and performance in an online learning environment. *International Journal of Educational Research*, *108*, Article e101772. <https://doi.org/10.1016/j.ijer.2021.101772>
- Paulsen, J., & McCormick, A. C. (2020). Reassessing disparities in online learner student engagement in higher education. *Educational Researcher*, *49*(1), 20–29. <https://doi.org/10.3102/0013189X19898690>
- Perchinunno, P., Bilancia, M., & Vitale, D. (2019). A statistical analysis of factors affecting higher education dropouts. *Social Indicators Research*, *2019*, 1–22. <https://doi.org/10.1007/s11205-019-02249-y>
- Pereles, A., Núñez, J. C., Rodríguez, C., Fernández, E., & Rosário, P. (2020). Personal and Instructional Variables Related to the Learning Process in Postgraduate Courses. *Psicothema*, *32*(4), 525–532. <https://doi.org/10.7334/psicothema2020.189>
- Pi, Z., Tang, M., & Yang, J. (2020). Seeing others' messages on the screen during video lectures hinders transfer of learning. *Interactive Learning Environments*, 1–14. <https://doi.org/10.1080/10494820.2020.1749671>
- Preenen, P., Verbiest, S., Van Vianen, A., & Van Wijk, E. (2015). Informal learning of temporary agency workers in low-skill jobs: The role of self-profiling, career control, and job challenge. *Career Development International*, *40*(4), 339–362. <https://doi.org/10.1108/CDI-12-2013-0158>
- Qi, D., Zhang, M., & Zhang, Y. (2020). Influence of participation and value co-creation on learner satisfaction of MOOCs learning: Learner experience perspective. *Asia-Pacific Education Researcher*, 1–10. <https://doi.org/10.1007/s40299-020-00538-6>
- Rabin, E., Henderikx, M., Yoram, M. K., & Kalz, M. (2020). What are the barriers to learners' satisfaction in MOOCs and what predicts them? The role of age, intention, self-regulation, self-efficacy and motivation. *Australasian Journal of Educational Technology*, *36*(3), 119–131. <https://doi.org/10.14742/ajet.5919>
- Rabin, E., Kalman, Y. M., & Kalz, M. (2019). An empirical investigation of the antecedents of learner-centered outcome measures in MOOCs. *International Journal of Educational Technology in Higher Education*, *16*(1), 1–20. <https://doi.org/10.1186/s41239-019-0144-3>
- Rahiem, M. D. (2021). Remaining motivated despite the limitations: University students' learning propensity during the COVID-19 pandemic. *Children and Youth Services Review*, *120*, Article e105802. <https://doi.org/10.1016/j.childyouth.2020.105802>
- Rajabalee, Y. B., & Santally, M. I. (2021). Learner satisfaction, engagement and performances in an online module: Implications for institutional e-learning policy. *Education and Information Technologies*, *26*(3), 2623–2656. <https://doi.org/10.1007/s10639-020-10375-1>
- Rascón-Hernán, C., Fullana-Noell, J., Fuentes-Pumarola, C., Romero-Collado, A., Vila-Vidal, D., & Ballester-Ferrando, D. (2019). Measuring self-directed learning

- readiness in health science undergraduates: A cross-sectional study. *Nurse Education Today*, 83, Article e104201. <https://doi.org/10.1016/j.nedt.2019.08.019>
- Rau, P.-L. P., Zheng, J., & Wei, Y. (2020). Distractive effect of multimodal information in multisensory learning. *Computers & Education*, 144, Article e103699. <https://doi.org/10.1016/j.compedu.2019.103699>
- Rawas, H., Bano, N., & Alaidarous, S. (2020). Comparing the effects of individual versus group face-to-face class activities in flipped classroom on student's test performances. *Health Professions Education*, 6(2), 153–161. <https://doi.org/10.1016/j.hpe.2019.06.002>
- Ray, M., Onifade, E., & Davis, C. (2019). Using 'happy' or 'sad' face in a decision-making grid to motivate students to improve academic success. *International Review of Economics Education*, 30, Article e100131. <https://doi.org/10.1016/j.iree.2018.03.006>
- Rigolizzo, M. (2019). Ready and willing to learn: exploring personal antecedents to taking on learning challenges. *Journal of Workplace Learning*, 31(4), 289–304. <https://doi.org/10.1108/JWL-08-2018-0101>
- Romero-Rodríguez, L. M., Ramirez-Montoya, M. S., & González, J. R. V. (2019). Gamification in MOOCs: Engagement application test in energy sustainability courses. *IEEE Access*, 7, 32093–32101. <https://doi.org/10.1109/ACCESS.2019.2903230>
- Rozgonjuk, D., Elhai, J. D., Ryan, T., & Scott, G. G. (2019). Fear of missing out is associated with disrupted activities from receiving smartphone notifications and surface learning in college students. *Computers & Education*, 140, Article e103590. <https://doi.org/10.1016/j.compedu.2019.05.016>
- Ruthotto, I., Kreth, Q., Stevens, J., Trively, C., & Melkers, J. (2020). Lurking and participation in the virtual classroom: The effects of gender, race, and age among graduate students in computer science. *Computers & Education*, 151, Article e103854. <https://doi.org/10.1016/j.compedu.2020.103854>
- Sabti, A. A., Rashid, S. M., Nimehchisalem, V., & Darmi, R. (2019). The Impact of writing anxiety, writing achievement motivation, and writing self-efficacy on writing performance: A correlational study of Iraqi tertiary EFL Learners. *SAGE Open*, 9(4), 1–13. <https://doi.org/10.1177/2158244019894289>
- Saiboon, I. M., Musni, N., Daud, N., Shamsuddin, N. S., Jaafar, M. J., Hamzah, F. A., & Bakar, A. A. (2021). Effectiveness of self-directed small-group-learning against self-directed individual-learning using self-instructional-video in performing critical emergency procedures among Medical Students in Malaysia: A single-blinded randomized controlled study. *Clinical Simulation in Nursing*, 56, 46–56. <https://doi.org/10.1016/j.ecns.2021.02.006>
- Sáiz-Manzanares, M. C., Marticorena-Sánchez, R., Díez-Pastor, J. F., & García-Osorio, C. I. (2019). Does the use of learning management systems with hypermedia mean improved student learning outcomes? *Frontiers in Psychology*, 10, 1–14. <https://doi.org/10.3389/fpsyg.2019.00088>
- Samarasooriya, R. C., Park, J., Yoon, S. H., Oh, J., & Baek, S. (2019). Self-directed learning among nurse learners in Sri Lanka. *The Journal of Continuing Education in Nursing*, 50(1), 41–48. <https://doi.org/10.3928/00220124-20190102-09>

- Sanaie, N., Vasli, P., Sedighi, L., & Sadeghi, B. (2019). Comparing the effect of lecture and Jigsaw teaching strategies on the nursing students' self-regulated learning and academic motivation: A quasi-experimental study. *Nurse Education Today*, 79, 35–40. <https://doi.org/10.1016/j.nedt.2019.05.022>
- Sanz-Martínez, L., Er, E., Martínez-Monés, A., Dimitriadis, Y., & Bote-Lorenzo, M. L. (2019). Creating collaborative groups in a MOOC: A homogeneous engagement grouping approach. *Behaviour & Information Technology*, 38(11), 1107–1121. <https://doi.org/10.1080/0144929X.2019.1571109>
- Sarra, A., Fontanella, L., & Di Zio, S. (2019). Identifying students at risk of academic failure within the educational data mining framework. *Social Indicators Research*, 146(1), 41–60. <https://doi.org/10.1007/s11205-018-1901-8>
- Schoor, C., & Bannert, M. (2011). Motivation in a computer-supported collaborative learning scenario and its impact on learning activities and knowledge acquisition. *Learning and Instruction*, 21(4), 560–573. <https://doi.org/10.1016/j.learninstruc.2010.11.002>
- Schrader, C., & Grassinger, R. (2021). Tell me that I can do it better. The effect of attributional feedback from a learning technology on achievement emotions and performance and the moderating role of individual adaptive reactions to errors. *Computers & Education*, 161, Article e104028. <https://doi.org/10.1016/j.compedu.2020.104028>
- Schrader, C., & Kalyuga, S. (2020). Linking students' emotions to engagement and writing performance when learning Japanese letters with a pen-based tablet: An investigation based on individual pen pressure parameters. *International Journal of Human-Computer Studies*, 135, Article e102374. <https://doi.org/10.1016/j.ijhcs.2019.102374>
- Senko, C. (2019). When do mastery and performance goals facilitate academic achievement? *Contemporary Educational Psychology*, 59, Article e101795. <https://doi.org/10.1016/j.cedpsych.2019.101795>
- Shao, K., Pekrun, R., Marsh, H. W., & Loderer, K. (2020). Control-value appraisals, achievement emotions, and foreign language performance: A latent interaction analysis. *Learning and Instruction*, 69, Article e101356. <https://doi.org/10.1016/j.learninstruc.2020.101356>
- Shih, H.-c. J., & Huang, S.-h. C. (2020). College students' metacognitive strategy use in an EFL flipped classroom. *Computer Assisted Language Learning*, 33(7), 755–784. <https://doi.org/10.1080/09588221.2019.1590420>
- Silva, M. D. S., da Silva, A. B., & Coelho, A. L. d. A. L. (2019). Implications of the learning environment in a professional Master's degree in business administration in Brazil. *Learning Environments Research*, 22(2), 173–192. <https://doi.org/10.1007/s10984-018-9272-2>
- Simonton, K. L., & Garn, A. C. (2020). Control-value theory of achievement emotions: A closer look at student value appraisals and enjoyment. *Learning and Individual Differences*, 81, Article e101910. <https://doi.org/10.1016/j.lindif.2020.101910>
- Skuballa, I. T., Xu, K. M., & Jarodzka, H. (2019). The impact of Co-actors on cognitive load: When the mere presence of others makes learning more difficult. *Computers in Human Behavior*, 101, 30–41. <https://doi.org/10.1016/j.chb.2019.06.016>

- Smith, S. A., Foster, M. E., Baffoe-Djan, J. B., Li, Z., & Yu, S. (2020). Unifying the current self, ideal self, attributions, self-authenticity, and intended effort: A partial replication study among Chinese university English learners. *System*, *95*, Article e102377. <https://doi.org/10.1016/j.system.2020.102377>
- Solanki, S., McPartlan, P., Xu, D., & Sato, B. K. (2019). Success with EASE: Who benefits from a STEM learning community? *PloS One*, *14*(3), Article e0213827. <https://doi.org/10.1371/journal.pone.0213827>
- Spence, A., Beasley, K., Gravenkemper, H., Hoefler, A., Ngo, A., Ortiz, D., & Campisi, J. (2020). Social media use while listening to new material negatively affects short-term memory in college students. *Physiology & Behavior*, *227*, Article e113172. <https://doi.org/10.1016/j.physbeh.2020.113172>
- Stanton, J. D., Dye, K. M., & Johnson, M. S. (2019). Knowledge of learning makes a difference: A comparison of metacognition in introductory and senior-level biology students. *CBE—Life Sciences Education*, *18*(2), 1–13. <https://doi.org/10.1187/cbe.18-12-0239>
- Stull, A. T., Gainer, M. J., & Hegarty, M. (2018). Learning by enacting: The role of embodiment in chemistry education. *Learning and Instruction*, *55*, 80–92. <https://doi.org/10.1016/j.learninstruc.2017.09.008>
- Sumell, A. J., Chiang, E. P., Koch, S., Mangelaja, E., Sun, J., & Wu, J. P. (2021). A cultural comparison of mindfulness and student performance: Evidence from university students in five countries. *International Review of Economics Education*, *37*, Article e100213. <https://doi.org/10.1016/j.iree.2021.100213>
- Sun, J. C.-Y., Yu, S.-J., & Chao, C.-H. (2019). Effects of intelligent feedback on online learners' engagement and cognitive load: the case of research ethics education. *Educational Psychology*, *39*(10), 1293–1310. <https://doi.org/10.1080/01443410.2018.1527291>
- Sun, T., & Wang, C. (2020). College students' writing self-efficacy and writing self-regulated learning strategies in learning English as a foreign language. *System*, *90*, Article e102221. <https://doi.org/10.1016/j.system.2020.102221>
- Tadesse, T., Gillies, R. M., & Manathunga, C. (2020). Shifting the instructional paradigm in higher education classrooms in Ethiopia: What happens when we use cooperative learning pedagogies more seriously? *International Journal of Educational Research*, *99*, Article e101509. <https://doi.org/10.1016/j.ijer.2019.101509>
- Takase, M., Niitani, M., Imai, T., & Okada, M. (2019). Students' perceptions of teaching factors that demotivate their learning in lectures and laboratory-based skills practice. *International journal of nursing sciences*, *6*(4), 414–420. <https://doi.org/10.1016/j.ijnss.2019.08.001>
- Tang, H. (2021). Person-centered analysis of self-regulated learner profiles in MOOCs: A cultural perspective. *Educational Technology Research and Development*, *69*(2), 1247–1269. <https://doi.org/10.1007/s11423-021-09939-w>
- Tao, D., Fu, P., Wang, Y., Zhang, T., & Qu, X. (2019). Key characteristics in designing massive open online courses (MOOCs) for user acceptance: an application of the extended technology acceptance model. *Interactive Learning Environments*, 1–14. <https://doi.org/10.1080/10494820.2019.1695214>

- Tempelaar, D. T., Rienties, B., & Nguyen, Q. (2017). Towards actionable learning analytics using dispositions. *IEEE Transactions on Learning Technologies*, *10*(1), 6–16. <https://doi.org/10.1109/TLT.2017.2662679>
- Theobald, M., Breitwieser, J., Murayama, K., & Brod, G. (2021). Achievement emotions mediate the link between goal failure and goal revision: Evidence from digital learning environments. *Computers in Human Behavior*, *119*, Article e106726. <https://doi.org/10.1016/j.chb.2021.106726>
- Thomas, L. J., Parsons, M., & Whitcombe, D. (2019). Assessment in smart learning environments: Psychological factors affecting perceived learning. *Computers in Human Behavior*, *95*, 197–207. <https://doi.org/10.1016/j.chb.2018.11.037>
- Tonguç, G., & Ozkara, B. O. (2020). Automatic recognition of student emotions from facial expressions during a lecture. *Computers & Education*, *148*, Article e103797. <https://doi.org/10.1016/j.compedu.2019.103797>
- Tsai, C.-Y. (2019). Improving students' understanding of basic programming concepts through visual programming language: The role of self-efficacy. *Computers in Human Behavior*, *95*, 224–232. <https://doi.org/10.1016/j.chb.2018.11.038>
- Tsai, I. I. (2019). The effect of peer collaboration-based learning on enhancing English oral communication proficiency in MICE. *Journal of Hospitality, Leisure, Sport & Tourism Education*, *24*, 38–49. <https://doi.org/10.1016/j.jhlste.2018.10.006>
- Van Bragt, C. A., Bakx, A. W., Van der Sanden, J. M., & Croon, M. A. (2007). Students' approaches to learning when entering higher education: Differences between students with senior general secondary and senior secondary educational backgrounds. *Learning and Individual Differences*, *17*(1), 83–96. <https://doi.org/10.1016/j.lindif.2007.02.003>
- Van Laer, S., & Elen, J. (2019). The effect of cues for calibration on learners' self-regulated learning through changes in learners' learning behaviour and outcomes. *Computers & Education*, *135*, 30–48. <https://doi.org/10.1016/j.compedu.2019.02.016>
- van Roy, R., & Zaman, B. (2019). Unravelling the ambivalent motivational power of gamification: A basic psychological needs perspective. *International Journal of Human-Computer Studies*, *127*, 38–50. <https://doi.org/10.1016/j.ijhcs.2018.04.009>
- Vanslambrouck, S., Zhu, C., Pynoo, B., Lombaerts, K., Tondeur, J., & Scherer, R. (2019). A latent profile analysis of adult students' online self-regulation in blended learning environments. *Computers in Human Behavior*, *99*, 126–136. <https://doi.org/10.1016/j.chb.2019.05.021>
- Vayre, E., & Vonthron, A.-M. (2019). Relational and psychological factors affecting exam participation and student achievement in online college courses. *The Internet and Higher Education*, *43*, Article e100671. <https://doi.org/10.1016/j.iheduc.2018.07.001>
- Venkatesh, S., Rao, Y. K., Nagaraja, H., Woolley, T., Alele, F. O., & Malau-Aduli, B. S. (2020). Factors influencing medical students' experiences and satisfaction with blended integrated E-learning. *Medical Principles and Practice*, *29*(4), 396–402. <https://doi.org/10.1159/000505210>
- Villafañe, S. M., Xu, X., & Raker, J. R. (2016). Self-efficacy and academic performance in first-semester organic chemistry: testing a model of reciprocal causation. *Chemistry*

- Education Research and Practice*, 17(4), 973–984.
<https://doi.org/10.1039/c6rp00119j>
- Volodina, A., Lindner, C., & Retelsdorf, J. (2019). Personality traits and basic psychological need satisfaction: Their relationship to apprentices' life satisfaction and their satisfaction with vocational education and training. *International Journal of Educational Research*, 93, 197–209. <https://doi.org/10.1016/j.ijer.2018.11.003>
- Wang, C., Hsu, H.-C. K., Bonem, E. M., Moss, J. D., Yu, S., Nelson, D. B., & Levesque-Bristol, C. (2019). Need satisfaction and need dissatisfaction: A comparative study of online and face-to-face learning contexts. *Computers in Human Behavior*, 95, 114–125. <https://doi.org/10.1016/j.chb.2019.01.034>
- Wang, F., Zhao, T., Mayer, R. E., & Wang, Y. (2020). Guiding the learner's cognitive processing of a narrated animation. *Learning and Instruction*, 69, Article e101357. <https://doi.org/10.1016/j.learninstruc.2020.101357>
- Wang, W., He, L., Guo, L., & Wu, Y. J. (2019). Effects of social-interactive engagement on the dropout ratio in online learning: insights from MOOC. *Behaviour & Information Technology*, 38(6), 621–636. <https://doi.org/10.1080/0144929X.2018.1549595>
- Wang, Y., Gao, H., Liu, J., & Fan, X.-l. (2021). Academic procrastination in college students: The role of self-leadership. *Personality and Individual Differences*, 178, Article e110866. <https://doi.org/10.1016/j.paid.2021.110866>
- Wang, Z., Gong, S.-Y., Xu, S., & Hu, X.-E. (2019). Elaborated feedback and learning: Examining cognitive and motivational influences. *Computers & Education*, 136, 130–140. <https://doi.org/10.1016/j.compedu.2019.04.003>
- Wäschle, K., Allgaier, A., Lachner, A., Fink, S., & Nückles, M. (2014). Procrastination and self-efficacy: Tracing vicious and virtuous circles in self-regulated learning. *Learning and Instruction*, 29, 103–114. <https://doi.org/10.1016/j.learninstruc.2013.09.005>
- Weber, M. R. (2019). An exploratory study into student leadership and True Colors Personality with learning and training. *Journal of Hospitality and Tourism Management*, 40, 125–133. <https://doi.org/10.1016/j.jhtm.2019.08.001>
- Wedel, A., Müller, C. R., Pfetsch, J., & Ittel, A. (2019). Training teachers' diagnostic competence with problem-based learning: A pilot and replication study. *Teaching and Teacher Education*, 86, Article e102909. <https://doi.org/10.1016/j.tate.2019.102909>
- Werner, K. M., Milyavskaya, M., Klimo, R., & Levine, S. L. (2019). Examining the unique and combined effects of grit, trait self-control, and conscientiousness in predicting motivation for academic goals: A commonality analysis. *Journal of Research in Personality*, 81, 168–175. <https://doi.org/10.1016/j.jrp.2019.06.003>
- Willems, J., Coertjens, L., Tambuyzer, B., & Donche, V. (2019). Identifying science students at risk in the first year of higher education: The incremental value of non-cognitive variables in predicting early academic achievement. *European Journal of Psychology of Education*, 34(4), 847–872. <https://doi.org/10.1007/s10212-018-0399-4>
- Woo, E. M. W., Serenko, A., & Chu, S. K. W. (2019). An exploratory study of the relationship between the use of the learning commons and students' perceived learning outcomes. *Journal of Academic Librarianship*, 45(4), 413–419. <https://doi.org/10.1016/j.acalib.2019.05.007>

- Wook, M., Ismail, S., Yusop, N. M. M., Ahmad, S. R., & Ahmad, A. (2019). Identifying priority antecedents of educational data mining acceptance using importance-performance matrix analysis. *Education and Information Technologies, 24*(2), 1741–1752. <https://doi.org/10.1007/s10639-018-09853-4>
- Wu, C.-H., Tzeng, Y.-L., & Huang, Y.-M. (2020). Measuring performance in leaning process of digital game-based learning and static E-learning. *Educational Technology Research and Development, 68*, 2215–2237. <https://doi.org/10.1007/s11423-020-09765-6>
- Wu, L., Liu, Q., Mao, G., & Zhang, S. (2020). Using epistemic network analysis and self-reported reflections to explore students' metacognition differences in collaborative learning. *Learning and Individual Differences, 82*, Article e101913. <https://doi.org/10.1016/j.lindif.2020.101913>
- Xing, W., Tang, H., & Pei, B. (2019). Beyond positive and negative emotions: Looking into the role of achievement emotions in discussion forums of MOOCs. *The Internet and Higher Education, 43*, Article e100690. <https://doi.org/10.1016/j.iheduc.2019.100690>
- Xu, J., Du, J., & Fan, X. (2013). Individual and group-level factors for students' emotion management in online collaborative groupwork. *The Internet and Higher Education, 19*, 1–9. <https://doi.org/http://dx.doi.org/10.1016/j.iheduc.2013.03.001>
- Yilmaz, F. G. K. (2021). Utilizing learning analytics to support students' academic self-efficacy and problem-solving skills. *Asia-Pacific Education Researcher, 1*–17. <https://doi.org/10.1007/s40299-020-00548-4>
- Yin, H., Shi, L., Tam, W. W. Y., & Lu, G. (2020). Linking university mathematics classroom environments to student achievement: The mediation of mathematics beliefs. *Studies in Educational Evaluation, 66*, Article e100905. <https://doi.org/10.1016/j.stueduc.2020.100905>
- Yu, B. (2019). The predicting roles of approaches to learning, L2 learning motivation, L2 learning strategies and L2 proficiency for learning outcomes: A comparison between Mainland and Hong Kong Chinese students. *Educational Studies, 45*(4), 520–532. <https://doi.org/10.1080/03055698.2018.1509775>
- Yuruk, S. E., Yilmaz, R. M., & Bilici, S. (2019). An examination of postgraduate students' use of infographic design, metacognitive strategies and academic achievement. *Journal of Computing in Higher Education, 31*(3), 495–513. <https://doi.org/10.1007/s12528-018-9201-5>
- Zeynali, S., Pishghadam, R., & Fatemi, A. H. (2019). Identifying the motivational and demotivational factors influencing students' academic achievements in language education. *Learning and Motivation, 68*, Article e101598. <https://doi.org/10.1016/j.lmot.2019.101598>
- Zhang, S., & Liu, Q. (2019). Investigating the relationships among teachers' motivational beliefs, motivational regulation, and their learning engagement in online professional learning communities. *Computers & Education, 134*, 145–155. <https://doi.org/10.1016/j.compedu.2019.02.013>
- Zhang, X., Meng, Y., de Pablos, P. O., & Sun, Y. (2019). Learning analytics in collaborative learning supported by Slack: From the perspective of engagement. *Computers in Human Behavior, 92*, 625–633. <https://doi.org/10.1016/j.chb.2017.08.012>

- Zheng, B., & Zhang, Y. (2020). Self-regulated learning: The effect on medical student learning outcomes in a flipped classroom environment. *BMC Medical Education*, 20(1), 1–7. <https://doi.org/10.1186/s12909-020-02023-6>
- Zheng, L., Li, X., Zhang, X., & Sun, W. (2019). The effects of group metacognitive scaffolding on group metacognitive behaviors, group performance, and cognitive load in computer-supported collaborative learning. *The Internet and Higher Education*, 42, 13–24. <https://doi.org/10.1016/j.iheduc.2019.03.002>
- Zhou, M. (2019). The role of personality traits and need for cognition in active procrastination. *Acta psychologica*, 199, Article e102883. <https://doi.org/10.1016/j.actpsy.2019.102883>
- Zhou, N., Kisselburgh, L., Chandrasegaran, S., Badam, S. K., Elmqvist, N., & Ramani, K. (2020). Using social interaction trace data and context to predict collaboration quality and creative fluency in collaborative design learning environments. *International Journal of Human-Computer Studies*, 136, Article e102378. <https://doi.org/10.1016/j.ijhcs.2019.102378>
- Zhou, Q., Lee, C. S., Sin, S.-C. J., Lin, S., Hu, H., & Ismail, M. F. F. B. (2020). Understanding the use of YouTube as a learning resource: a social cognitive perspective. *Aslib Journal of Information Management*, 72(3), 339–359. <https://doi.org/10.1108/AJIM-10-2019-0290>
- Zhou, Q., Mao, J.-Y., & Tang, F. (2020). Don't be afraid to fail because you can learn from it! How intrinsic motivation leads to enhanced self-development and benevolent leadership as a boundary condition. *Frontiers in Psychology*, 11, 1–12. <https://doi.org/10.3389/fpsyg.2020.00699>