VitalSource®

Learning Science

In today's complex learning ecosystem, simply making digital tools is not enough. At VitalSource, we are committed to creating products that are based on learning science—an interdisciplinary approach that combines the fields of psychology, cognitive science, instructional design, human-centred engineering design, and more, to improve student learning as well as our understanding of how students learn.

OUR PLEDGE

We have an ongoing commitment to:

- Offer products that are backed by the latest learning science research and proven to positively impact student outcomes
- Engage in ongoing research and development to apply cutting-edge technological advances in service to the learner
- Collaborate with our schools and partners to share data and further what we know about how students learn in natural contexts
- Share our research findings to maintain transparency and accountability among students, the educational community, and the scientif ic community

Impactful learning happens at scale when expansive reach meets learning science-based technology that improves student outcomes.

LEARNING SCIENCE

The foundation of our learning technology is rooted in innovative cognitive and learning science research that helps students become active participants in their own learning process . Our courseware platform, Acrobatiq, was founded on 12 years of research at Carnegie Mellon's Open Learning Initiative and their long history of excellence in cognitive science, human-computer interaction, and software engineering.

When VitalSource acquired Acrobatiq in 2018, we deepened our commitment to studying the science of learning and building our technology based on research. The learning scientists who joined us helped augment our efforts to enhance our products and technology using research and development. Together, we have affirmed

our dedication to bringing impactful learning to all students by advancing learning technology and researching effective learning methods.

From replicating findings that the Doer Effect [1] causes better learning using our own courses, to developing and studying automatic question generation to give students formative practice, to partnering with faculty to identify implementation practices that make an impact, our research and development team is focused on a comprehensive approach to creating effective learning environments for students.

AREAS OF RESEARCH

From our research, we have shown these core learning science findings:

• Doing practice causes better learning. [1]
• Adaptivity helps better prepare struggling learners. [2]
• Teachers are vital to the successful implementation of learning technology. [3]
• Artificial intelligence can create learning by doing at scale and engage students in the same way as human-authored questions. [4]

To continue to serve the learner, we will continue to expand our areas of study and incorporate new research findings into our products in an ever-improving cycle.

You can read our research studies in full here.

CONCLUSION

Students deserve learning resources that are not just digital, but effective. The learner-centred approach of our research and development team puts the needs of every student first, developing new tools specifically aimed at improving the learning process for students. Our ongoing research is part of a commitment to our partners, teachers, and students to not only base our products on learning science, but to prove their effectiveness through research and constant iterative improvement.

Never has technology based in learning science been more readily accessible to all types of learners. At VitalSource, we are excited about a future in which digital learning leads to greater educational impact and drives student success.

1. Van Campenhout, R. Johnson, B. G., & Olsen, J. A. (2021). The Doer Effect: Replicating Findings that Doing Causes Learning. Presented at eLmL 2021: The Thirteenth International Conference on Mobile, Hybrid, and On-line Learning. ISSN 2308-4367, pp. 1–6. Retrieved from: https://www.thinkmind.org/index.php?view=article&articleid=elml_2021_1_10_58001

2. Van Campenhout, R., Jerome, B., & Johnson, B. G. (2020). The impact of adaptive activities in Acrobatiq courseware: Investigating the efficacy of formative adaptive activities on learning estimates and summative assessment scores. In: Sottilare R., Schwarz J. (eds) Adaptive Instructional Systems. HCII 2020. LNCS, vol 12214. Springer. pp 543–554. https://doi.org/10.1007/978-3-030-50788-6_40

3. Van Campenhout, R. & Kimball, M. (2021). At the intersection of technology and teaching: The critical role of educators in implementing technology solutions. IICE 2021: The 6th IAFOR International Conference on Education. ISSN 2189-1036, pp. 151–161. Retrieved from: https://papers.iafor.org/submission59028/

4. Van Campenhout, R., Dittel, J. S., Jerome, B., & Johnson, B. G. (2021). Transforming textbooks into learning by doing environments: an evaluation of textbook-based automatic question generation. In: Third Workshop on Intelligent Textbooks at the 22nd International Conference on Artificial Intelligence in Education. CEUR Workshop Proceedings, ISSN 1613-0073, pp. 1–12. Retrieved from: http://ceur-ws.org/Vol-2895/paper06.pdf