

Appendix B

Design Principles and Implementation Strategies for Creating Modeled Learning Experiences

Design Principle	Implementation Strategies	Citations
Contextual and content-specific	1) Teacher educators have and showcase content area expertise	Baran et al., 2019; Bell et al., 2013; Brenner & Brill, 2016; Cheng et al., 2022; Dorner & Kumar, 2016; Eustler, 2022; Neumann et al., 2021; Ryu et al., 2019; Setiawan et al., 2018; Tibay & Cody, 2021; Tondeur et al., 2012; Tondeur et al., 2016; Tondeur et al., 2018; Tondeur et al., 2019; Tondeur et al., 2021; Trainin et al., 2018; Truesdell & Birch, 2013
	2) Consider the access and availability of technology in teacher preparation programs and field placements and select devices and programs accessible in the field	Eutsler, 2022; Henderson et al., 2013; Lu & Lei, 2012; Neumann et al., 2021; Rokenes & Krumsvik, 2014; Tiba & Cody, 2021; Voithofer & Nelson, 2021; Zipke et al., 2019
	3) Be aware of PK-12 teachers' technology integration approaches in the field and make connections	Eutsler, 2022; Henderson et al., 2013; Lu & Lei, 2012; Neumann et al., 2021; Rokenes & Krumsvik, 2014; Voithofer & Nelson, 2021
Personalized, researched-based, and equitable	4) Align theory and practice	Aydin, 2017; Baran et al., 2019; Brenner & Brill, 2016; Kale, 2018; Ryu et al., 2019; Sardone, 2019; Setiawan et al., 2018; Tondeur et al., 2012; Tondeur et al., 2018; Tondeur et al., 2019; Tondeur et al., 2021; Vaughan, 2014
	5) Consider developmental factors for sequencing activities	Brenner & Brill, 2016; Hughes et al., 2016
	6) Rich opportunities for identity construction	Chai et al., 2019; Charbonneau-Gowdy, 2015

	7) Catering for diversity	Donner & Kumar, 2016; Jones & McLearn, 2012; Voithofer & Nelson, 2021
Explicit and sustained modeling	8) Modeling a variety of technologies	Admiraal et al., 2017; Aydin, 2017; Baran et al., 2019; Bell et al., 2013; Brenner & Brill, 2016; Charbonneau-Gowdy, 2015; Clausen, 2022; Eutsler, 2022; Gawrisch et al., 2020; Henderson et al., 2013; Hughes et al., 2016; Kale, 2018; Lu & Lei, 2012; Neumann et al., 2021; Sardone, 2019; Setiawan et al., 2018; Tiba & Cody, 2021; Tondeur et al., 2012; Tondeur et al., 2016; Tondeur et al., 2018; Tondeur et al., 2019; Tondeur et al., 2021; Trainin et al., 2018; Truesdell & Birch, 2013; Uerz et al., 2018; Vaughan, 2014; Wetzel et al., 2014; Zipke et al., 2019
	9) Explicit modeling of the utility value of technologies	Admiraal et al., 2017; Brenner & Brill, 2016; Clausen, 2022; Gawrisch et al., 2020; Henderson et al., 2013; Kale, 2018; Lu & Lei, 2012; Trainin et al., 2018; Uerz et al., 2018
	10) Explicitly explain/show the connections to theory	Baran et al., 2019; Brenner & Brill, 2016; Clausen, 2022; Sardone, 2019; Setiawan et al., 2018; Tondeur et al., 2012; Tondeur et al., 2016; Tondeur et al., 2018; Tondeur et al., 2019; Tondeur et al., 2021
	11) Explicitly model content-specific technology integration examples and applications	Admiraal et al., 2017; Aydin, 2017; Baran et al., 2019; Bell et al., 2013; Chang et al., 2012; Charbonneau-Gowdy, 2015; Cheng et al., 2022, Chien et al., 2012; Clausen, 2022; Cydis, 2015; Dorner & Kumar, 2016; Eutsler, 2022; Hsu & Lin, 2020; Hughes et al., 2016; Lu & Lei, 2012; Menon et al., 2018; Neumann et al., 2021; Sardone, 2019; Setiawan et al., 2018; Tiba & Condry, 2021; Tondeur et al., 2012; Tondeur et al., 2016; Tondeur et al., 2018; Tondeur et al., 2019; Tondeur et al., 2021; Trainin et al., 2018; Truesdell & Birch, 2013; Uerz et al., 2018
	12) Explicitly cognitive modeling of the decision-making/pedagogical	Brenner & Brill, 2016; Chai et al., 2019; Henderson et al., 2013; Lu & Lei, 2012; Setiawan et al., 2018; Trainin et al., 2018; Uerz et al., 2018; Vaughan, 2014

	reasoning of technology integration in the field considering contextual factors	
	13) Emphasize student-centered benefits of technology integration	Admiraal et al., 2017; Cydis, 2015; Sardone 2019; Trainin et al., 2018; Vaughan, 2014
	14) Explicitly model multiple aspects of technology in teaching and learning	Henderson et al., 2013; Hsu & Lin, 2020; Trainin et al., 2018
	15) Explicitly model technology integration in a social context	Bell et al., 2013; Henderson et al., 2013; Kale, 2018; Lu & Lei, 2012; Trainin et al., 2018
	16) Modeling sustained over time and discipline	Bell et al., 2013; Charbonneau-Gowdy, 2015; Dorner & Kumar, 2016; Henderson et al., 2013; Menon et al., 2018; Trainin et al., 2018
	17) Provide teacher candidates opportunities to critically review and assess relevant resources, curricula, or lesson examples	Aydin, 2017; Dorner & Kumar, 2016; Kale, 2018; Sardone, 2019
	18) Design collaborative activities	Admiraal et al., 2017; Aydin, 2017; Baran et al., 2019; Bell et al., 2013; Brenner & Brill, 2016; Chai et al., 2019; Chang et al., 2012; Cheng et al., 2022, Chien et al., 2012; Cydis, 2015; Dorner & Kumar, 2016; Henderson et al., 2013; Hsu & Lin, 2020; Jones & McLean, 2012; Kale, 2018; Sardone, 2019; Setiawan et al., 2018; Tondeur et al., 2012; Tondeur et al., 2016; Tondeur et al., 2018; Tondeur et al., 2019; Tondeur et al., 2021; Trainin et al., 2018; Truesdell & Birch, 2013; Vaughan, 2014
Authentic hands-on assessment	19) Provide teacher candidates with authentic, hands-on learning by design projects focusing on technology integration	Admiraal et al., 2017; Aydin, 2017; Baran et al., 2019; Bell et al., 2013; Brenner & Brill, 2016; Chai et al., 2019; Chang et al., 2012; Cheng et al., 2022, Chien et al., 2012; Cydis, 2015; Eutsler, 2022; Henderson et al., 2013; Hsu & Lin, 2020; Hughes et al., 2016; Jones & McLean, 2012; Kale, 2018; Karaoglan Yilmaz & Durak, 2018; Lu

		& Lei, 2012; Menon et al., 2018; Neumann et al., 2021; Rokenes & Krumsvik, 2014; Ryu et al., 2019; Sardone, 2019; Setiawan et al., 2018; Tondeur et al., 2012; Tondeur et al., 2016; Tondeur et al., 2018; Tondeur et al., 2019; Tondeur et al., 2021; Truesdell & Birch, 2013; Vaughan, 2014
	20) Offer teacher candidates explicit evaluation criteria for technology integration in assignments and field experiences	Bell et al., 2013; Dorner & Kumar, 2016; Henderson et al., 2013; Jones & McLean, 2012; Tiba & Cody, 2021; Wetzel et al., 2014; Zipke et al., 2019
	21) Offer teacher candidates ample opportunities for ongoing discussion, reflection, and feedback	Aydin, 2017; Baran et al., 2019; Chang et al., 2012; Cheng et al., 2022, Chien et al., 2012; Donner & Kumar, 2016; Henderson et al., 2013; Hsu & Lin, 2020; Kale, 2018; Neumann et al., 2021; Sardone, 2019; Setiawan et al., 2018; Tondeur et al., 2012; Tondeur et al., 2016; Tondeur et al., 2018; Tondeur et al., 2019; Tondeur et al., 2021; Trainin et al., 2018; Truesdell & Birch, 2013; Wetzel et al., 2014; Zipke et al., 2019
	22) Give teacher candidates opportunities to revise and refine their design	Aydin, 2017; Dorner & Kumar, 2016; Menon et al., 2018; Truesdell & Birch, 2013
	23) Recommend teacher candidates share their projects with others	Aydin, 2017; Wetzel et al., 2014
	24) Give teacher candidates sustained encouragement	Chien et al., 2012; Tiba & Cody, 2021
	25) Celebrate the learning with stakeholders	Jones & McLean, 2012

Note: Please cite Jin, Y., Clausen, J. M., Elkordy, A., Greene, K., & McVey, M. (2023). Design principles for modeled experiences in technology-infused teacher preparation programs. *Contemporary Issues in Technology and Teacher Education*, 23(1).