

| | Authors | year | in/preservice | publication type | years of experience | Country | Method | n | Geography topic | Educational focus | PCK-1 | PCK-2 | PCK-3 | PCK-4 | PCK-5 | constraints | # |
|----|---|------|---------------|------------------|---------------------|-------------|--------------------------------------|-------|-------------------------------|--|-------|-------|-------|-------|-------|-------------|-------|
| 1 | Bednarz, Acheson & Bednarz | 2006 | in | peer reviewed | undefined | USA | survey | | maps | higher order thinking skills | 3 | | | | 2 | 1 | 6 |
| 2 | Tiknaz & Sutton | 2006 | in | peer reviewed | undefined | UK | interview | 12 | geography general | formative assessment | | | 3 | 3 | 9 | 7 | 1 23 |
| 3 | Monet & Etkina | 2008 | in | peer reviewed | 2 mo - 14 yr | USA | journals | 10 | earth science | professional development course | | | | | | | 1 1 |
| 4 | Reinfried | 2008 | pre/in | peer reviewed | undefined | Switzerland | survey, lesson plans | 811 | geography general | student/teacher perceptions | 4 | | 3 | | | 5 | 12 |
| 5 | Lane | 2009 | in | peer reviewed | 5 & 15 yr | Australia | interview, observation | 2 | tropical cyclones | student preconceptions | | | 3 | 9 | 4 | 25 | 4 45 |
| 6 | Alexandre | 2009 | in | peer reviewed | novice | Portugal | interview | 4 | geography general | epistemic knowledge | 11 | | | | | | 1 12 |
| 7 | Wise | 2010 | in | peer reviewed | undefined | USA | survey | 183 | climate change | influence of public controversies | 4 | 1 | | | | | 5 |
| 8 | Hanfling & Crews | 2011 | in | peer reviewed | undefined | USA | survey, interview | 24 | geology, GIS | inquiry based teaching, fieldwork | 1 | | | | | 8 | 9 |
| 9 | Hanley, Davis & Davey | 2012 | in | peer reviewed | undefined | USA | interviews | 50/13 | earth science | geospatial technologies | 1 | | | | | 1 | 2 |
| 10 | Zohir, Jamil & Razak | 2012 | in | peer reviewed | undefined | Malaysia | observation | 9 | geography general | productive pedagogies | | | 2 | 3 | | 15 | 1 21 |
| 11 | Tuna | 2012 | in | peer reviewed | >10 yr | Turkey | survey | 90 | geography general | active learning | | | | | | 1 | 1 2 |
| 12 | Pickering, Ague, Rath, Heiser & Sirch | 2012 | in | peer reviewed | > 4 yr | USA | pre post test | 47/23 | land forms | inquiry based teaching / active learning | | | | | | 4 | 4 |
| 13 | Bitso | 2012 | in | peer reviewed | 6 mo - 31 yr | Lesotho | interview | 82 | geography general | information behaviour | | | | | | 2 | 5 7 |
| 14 | Jo & Bednarz | 2014 | pre | peer reviewed | | USA | lesson plans, interview | 24 | settlement patterns in Canada | spatial thinking, higher order thinking skills | | | | 1 | 3 | 9 | 1 14 |
| | Hooghuis, Van der Schee, Van der Velde, | | | | | | | | | | | | | | | | |
| 15 | Imants & Volman | 2014 | in | peer reviewed | 1-42 yr | Netherlands | survey | 307 | geography general | geographical reasoning | 3 | | 4 | 2 | | 17 | 26 |
| 16 | Ababio & Dumba | 2014 | in | peer reviewed | > 5 yr | Ghana | survey teachers & students | 7/80 | geography general | teaching resources, teaching strategies | | | | | | 9 | 2 11 |
| 17 | Mphathiwa | 2015 | in | dissertation | 13-20 yr | Botswana | CoRe, lesson plans | 5 | water resource management | PCK description | 26 | | 6 | 20 | 2 | 23 | 7 84 |
| 18 | Lane | 2015 | in | peer reviewed | >5 yr | Australia | interviews, observation | 16 | tropical cyclones | PCK of students' ideas | 4 | | | 7 | | | 1 12 |
| 19 | Yoon & Peate | 2015 | pre | peer reviewed | | USA | pre-post test, survey | 106 | geologic time | teacher biography | | | | | | 3 | 3 |
| 20 | Zhang, Parker, Koehler & Eberhardt | 2015 | in | peer reviewed | 0-10 yr | VS | survey | 164 | earth science | teacher needs | | | | | | | 12 12 |
| 21 | Hong & Stonier | 2015 | in | peer reviewed | >10 yr | USA | interview | 4 | GIS | TPACK description | 1 | | | | | | 1 |
| 22 | Ayas | 2015 | pre | peer reviewed | | Turkey | interview, survey | 134 | geography general | use of media technology | | | | | | 8 | 1 9 |
| 23 | Reitano & Harte | 2016 | pre | peer reviewed | | Australia | focus-group interview | 4 | geography general | PCK description | 3 | | 2 | 3 | 1 | 25 | 1 35 |
| 24 | Clausen | 2016 | in | peer reviewed | undefined | Denmark | survey | 55 | climate & weather | PCK description | 3 | | 7 | 1 | | 6 | 17 |
| 25 | Seow | 2016 | pre | peer reviewed | | Singapore | interviews, lesson plans | 4 | geography general | geography teacher identities | 7 | | 9 | | | | 2 18 |
| 26 | Puttick | 2016 | in | peer reviewed | undefined | UK | interviews, observations | 1 | geography general | geography teacher identities | 13 | | 2 | | | 5 | 2 22 |
| 27 | Alexandre | 2016 | pre/in | peer reviewed | undefined | Portugal | materials | 20 | geography general | teacher biography | | | | | | | 2 2 |
| 28 | Thomas-Brown, Shaffer & Werner | 2016 | in | peer reviewed | 5-30 yr | USA | interview, pre-posttest | 28 | global geography | constructivist learning | | | | 1 | 1 | 15 | 3 20 |
| 29 | Campbell, Melville & Goodwin | 2017 | in | peer reviewed | >5 yr | USA | interview, observation | 1 | pollution, oceanography | teaching orientations & strategies | 9 | | | | | 5 | 2 16 |
| 30 | Kocalar & Demirkaya | 2017 | in | peer reviewed | undefined | Turkey | interview | 19 | geography general | teaching strategies | 5 | | | | | 5 | 10 |
| 31 | Kenna & Poole | 2017 | pre | peer reviewed | | VS | interview | 20 | Asia | subject knowledge & teaching practice | 3 | | 3 | | | | 6 |
| 32 | Rajović & Bulatović | 2017 | in | peer reviewed | 1>15 yr | Serbia | survey | 250 | geography general | use of education research | 1 | | | | | 1 | 2 |
| 33 | Clausen | 2018 | in | peer reviewed | undefined | Denmark | observation, interview | 4 | weather and climate change | PCK description | 6 | | 4 | 2 | | 37 | 2 51 |
| 34 | Hong, Yong & Wen | 2018 | in | peer reviewed | undefined | China | survey | 95 | geography general | Relationship SMK & PCK | | | | | | | 3 3 |
| 35 | Lee | 2018 | in | peer reviewed | experienced | South Korea | interview | 23 | regions around the world | teacher orientations | 3 | | | 2 | | | 1 6 |
| 36 | Virranmäki, Valtta-Hulkkonen & Rusanen | 2019 | in | peer reviewed | 5-33 yr | Finland | interview, concept map | 11 | geography general | powerful knowledge & teacher orientations | 22 | | 5 | | 5 | 3 | 35 |
| 37 | Hanifah, Mohmadisa, Yazid, Nasir & Balkhis | 2019 | in | peer reviewed | 5-31 yr | Malaysia | survey | 200 | geography general | Relationship SMK & PCK | | | | | | | 0 |
| 38 | Curtis | 2019 | in | peer reviewed | undefined | USA | survey, interview | 78 | geospatial technologies | TPACK description | 1 | | | | | 2 | 3 |
| | | | | | | | | | | | | | | | | | |
| 39 | Seow, Chang & Irvine | 2019 | in | peer reviewed | undefined | Singapore | observation, lesson plans, interview | 6 | water quality | inquiry based teaching, fieldwork | 16 | | | 1 | 1 | 12 | 5 35 |
| 40 | Bijsterbosch, Béneker, Kuiper & Van der Schee | 2019 | in | peer reviewed | >10 yr | Netherlands | interview | 8 | geography general | assessment of higher order thinking skills | | | | | | 1 | 2 3 |
| 41 | Fögele, Lubert & Mehren | 2020 | pre | peer reviewed | | Germany | interview | 151 | experiments | professional orientations | | | | | | | 0 |
| 42 | Knecht, Spurná & Svobodová | 2020 | pre | peer reviewed | | Czech | survey | 114 | geography general | teaching orientations | 5 | | | | | | 5 |
| 43 | Tezcan & Ütkür | 2020 | pre | peer reviewed | | Turkey | survey | 121 | social studies | teacher identities | 1 | | | | | 1 | 2 |
| | | | | | | | | | | | 156 | 54 | 55 | 26 | 257 | 64 | 612 |
| | | | | | | | | | | | 25% | 9% | 9% | 4% | 42% | 10% | |