# Twitter Thread by Todd Campbell

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## The #NGSS propose diff experiences 4 Ss n sci classrooms, a ‘practice turn’. Recognizing this, we (Hyunju Lee @LonghurstMax @tjscience Dan Coster @LisaLundgren21 ) sensed a need 4 a survey 4 Ss 2 report their experiencs. Here’s a thread■abt it 1/n

So what’s a ‘practice turn’? Forman (2018) shared how the practice turn is a move toward emphasizing the professional activities that scientists undertake 2 refine & critique explanations about events that happen in the world #NGSS 2/n https://t.co/AYXANkzQdD

We started from National Academies of Science’s Taking Sci 2 School (2007)/Ready Set Science (2008) 4 Strands of Sci Learning mapped 2 3-D learning in the Frameworks 4 K-12 Sci Ed 2 as features of science classroom experiences we wanted 2 ask Ss abt 3/n

These 4 strands of science learning include 1) Reflecting on Scientific Knowledge 2) Generating Scientific Evidence 3) Participating Productive n Science & 4) Understanding Scientific Explanations 4/n https://t.co/Rr0xtWsZBu

Next we developed questions 4 our survey w several questions about the 4 strands of learning (see example of questions some of these strands) - trying 2 use language from NAS documents as possible/appropriat 5/n

How do we know it measures what we say it does? We used a 5 stage development process (see figure) - As part of this, we asked some #NGSS experts 2 give us feedback on early drafts of our questions and refined our q’s based on feedback 6/n

How do we know the survey is reliable? We tested it w a buncha Ss in a middle school as they completed our survey 2 describe their experiences in science classrooms (approx. 300 of them! 7th/8th graders) 7/n

After collecting the surveys from a buncha Ss, we did some analysis 2 c if the question that were supposed to measure the same thing did - While many questions did what we intended some didn’t, so we got rid of them 8/n

From this, we ended up w a survey we call Next Generation Science Classrooms that has 35 questions and that is ready 4 us & others 2 try out as a resources for learning abt how successful we r n providing Ss practice turn focused experiences

envisioned n #NGSS 9/n

In the end we think the NGSC can b used n the future 2 examine opportunity 2 learn n science classrooms at the school, district, state, or national level 10/n

And, here’s a link were we shared it w our friends/colleagues earlier - DM me/us if you are in interested in a copy! 11/n https://t.co/gFi2TeYYA9

> Excited 2 c this out, 'Next generation science classrooms: The development of a questionnaire for examining student experiences in science
> classrooms' out w @LonghurstMax @tjscience @LisaLundgren21 et al - DM me if interested n a copy!#NGSS @CSSSupervisors #NGSSChat @NGSS_tweeps pic.twitter.com/MypVw1xqTW
>
> — Todd Campbell (@dtcampbe) January 26, 2021

Thnxs @LisaLundgren21 (our co-author, friend, & science communicator extraordinaire) 4 this most excellent link for supporting us & others n communicating our research 2 our tweeps! 12/n■■■■ https://t.co/wGXRRN5d1D

> Say you want to share your research on Twitter using a thread. How do you do it succinctly, effectively, and coherently? Boy, have I got a thread for you!#AcademicTwitter #SciComm 1/9
>
> — Lisa Lundgren, PhD (she/her) (@LisaLundgren21) September 4, 2019