District NGSS Implementation Planning Tool

Dawn O'Connor, Kathryn Hayes, Sara Dozier, Phil Lafontaine

The NGSS are complex and require resources, professional capacity, and buy-in from multiple stakeholders for deep and sustainable implementation. However, there are few existing tools to help districts plan for and measure the organizational structures and practices necessary to support shifts in teacher instruction towards the Next Generation Science Standards (NGSS). In order to support districts locally and nationwide in their efforts, the Science Partnership team created a detailed NGSS Implementation Planning Tool (IPT) based on the California NGSS Implementation plan, extensive NGSS roll-out experiences, literature review, and our prior NSF research (Hayes, et al., 2016; in review; Lee, et al., in review).

The tool designates specific structures and processes for six indicators that span continuums from NGSS awareness, through transition and implementation. The indicators pertain to the following:

1. Implementation planning
2. Designation of instructional time and financial and material resources for science
3. Designation of science professional learning and collaboration time
4. Communication and partnership building with internal and external stakeholders
5. Building a classroom culture conducive to NGSS
6. Assessment processes that foster teacher understanding of student conceptualization and growth

Each phase of each indicator is made up of 5-10 more specific suggestions. For example, for indicator 3 (professional learning), an awareness phase suggestion is "Craft a PL model and implementation plan for gradually bringing teachers and administrators into the philosophy and practices of NGSS;" the transition phase wording is "Establish professional learning time that is articulated across schools and grade bands;" and the implementation phase suggestion is "Provide frequent PL time dedicated to planning and reflecting on student understanding and use of practices at the site level."

Use of the NGSS Implementation Planning Tool

The NGSS IPT tool is meant to be used by PD providers and NGSS roll out teams in the process of helping districts plan for NGSS implementation. Currently, the NGSS IPT is being used in the NGSS implementation planning process by the Science Partnership in its work with 11 districts. Each participating district sends 1-3 district administrators, several principals, and several science teacher leaders to the District Leadership Institute, convened once per quarter. After grounding the conversation in an experience of science education based on NGSS and scientific phenomena, the district teams are given 1-3 hours of time to discuss their implementation plans, facilitated by a Science Partnership coach, who uses the IPT in guiding district process. In this process, the multiple phases (from awareness to implementation) have provided key supports for district planning and designing and carrying out communication regarding NGSS.

Based on our testing of the tool over two years, we have several recommendations for its use:

1. Facilitation by someone knowledgeable regarding both the tool and district processes is key to moving forward with implementation plans with both stakeholder buy-in and coherence with other initiatives.
2. Facilitators select the indicator(s) or elements on which to focus (in communication with the district) so as not to overwhelm stakeholders. This can be done in smaller committees, depending on the organization of the district.
3. Begin by grounding the conversation in the current state of the district (where they fall on the continuum), and then move forward on decisions for the future.
4. Certain grade bands may be more advanced than others in the process. For example, one grade band may be more established in terms of leadership teams, progressions, and professional development. If this is the case, it works well to focus on that grade band, and scale out to other grade bands.
5. The process should be articulated with the vision of the district; as much as possible NGSS implementation should be aligned with other district initiatives.

Implementation Planning Tool Design Process

The creation of the NGSS IPT proceeded in three stages. The tool emerged out of Science Partnership efforts to meet the needs of partner districts in terms of professional development, teacher leadership, and systemic capacity building (first stage). The second stage of development of this initial draft consisted of collaborative work between the Science Partnership (Dawn O'Connor) and CDE's Professional Learning for California (Phil Lafontaine) to revise the tool based on the California State NGSS Implementation Plan. During this stage, the NGSS IPT went through iterative revision based on reception by the districts and review by statewide stakeholders involved in the NGSS rollout. In response to recommendations that arose out of this process—particularly the need for detailed procedures--we drew on other state implementation plans. Adjustments included: more specific actions and alignment of actions over the years.

Finally, the Science Partnership researcher (Kathryn Hayes) examined the IPT to ensure inclusion of resources and processes shown in the research literature to be pivotal to supporting science education reform (e.g., Hatch, 2013; Hayes, et al. in review; Spillane, et al. 2001). This examination resulted in the addition of specific stakeholders, resources, and processes (e.g., "supports for access and participation in science by underrepresented minorities").

References

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