



PHILIPPINE STEAM EDUCATION IN FOCUS POLICY BRIEFING

Research and Analysis from
TPACK in Philippine STEAM Education Program



The Philippine STEAM Teacher Quality

The Philippine initiative towards Education 4.0 underscores quality STEAM education at the forefront that emphasizes the preparation of the future workforce with strong background on the meta-discipline. Efforts then focus on enhancing and developing quality STEAM education through STEAM teacher quality. However, this ingenuity as a novel approach to improve country metrics on innovation requires assessment tools that will provide baseline data to inform policies and programs. Thus, this brief reports the development of a self-rating proficiency indicator for STEAM educators grounded on quality assurance principles of the Philippine Qualifications Framework (PQF), PPST, and TPACK framework, and the assessment of Philippine STEAM teacher quality using the tool.

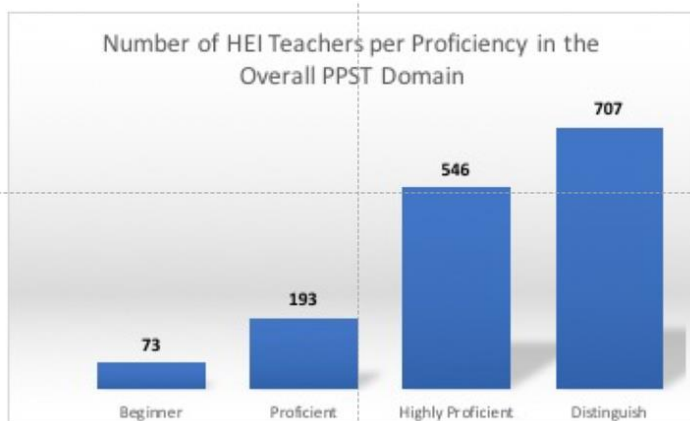


Figure 1. Number of HEI Teachers per Proficiency in the Overall PPST Domain

“Philippine Higher STEAM educators’ perceived proficiency ranges from ‘Highly Proficient to Distinguished leaning on the ‘Distinguished’ self-perception as STEAM educators.”

At a glance

The developed and standardized Self-Proficiency Indicators for STEAM Educators grounded on three major frameworks (Policies, Standards and Guidelines [PSGs], Philippine Professional Standards for Teachers [PPST], and TPACK) explored the Philippine STEAM teacher quality through a country-wide survey investigation. Analysis of culled data emphasize using the knowledge dimensions of the TPACK framework and the domains of PPST.

HIGHLIGHTS

The first attempt to gauge STEAM teacher quality in the Philippines through self-professed proficiency level of Educators of STEAM.

Emphasized combination of three major principles and frameworks

- Philippine Commission on Higher Education Policies, Standards and Guidelines (PSGs)
- Technological Pedagogical Content Knowledge (TPACK) framework
- Philippine Professional Standards for Teachers (PPST)

KEY MESSAGES

✓ The 60-item developed and standardized self-rating STEAM educators' proficiency tool is an elaboration of PPST and TPACK that suits the Philippine culture and context of STEAM Educators capable of drawing reflective practices in higher and advanced STEAM learning.

✓ Male and female educators do not register significant differences on how they perceive themselves except in one or two (i.e., learning environment, diversity of learners, pedagogy) domains and dimensions, which by nature favor the female gender.

✓ School type (private and government-owned) do not index significant difference either, except on Community Linkages and TPACK as a whole.

POLICY RECOMMENDATIONS

1. Create Philippine STEAM Education research center, where all studies and knowledge on STEAM Education across levels (secondary, tertiary, and vocational) are crafted, disseminated and sustained. STEAM Curricular reforms and expansions may also be scrutinized by the center.

2. Expansion of STEAM teachers benefits (e.g., 20% discount on the purchase of school, and STEAM-related devices) to address technological affordances.

3. Spearhead enactment of circulars and memoranda for country-wide capacity building of Philippine STEAM Educators across levels to sustain the STEAM pipeline.

4. Design micro-credentialing system or highly structured capacity building programs for Philippine STEAM Education to upskill and re-skill STEAM teachers and learners to transition to Education 4.0.

5. Direct the enactment of a law of country-wide to craft and strengthen School-University-Industry partnership or triad to improve the global innovativeness of Filipinos.

6. Increase general appropriation for extension and community service for SUCs and LUCs.

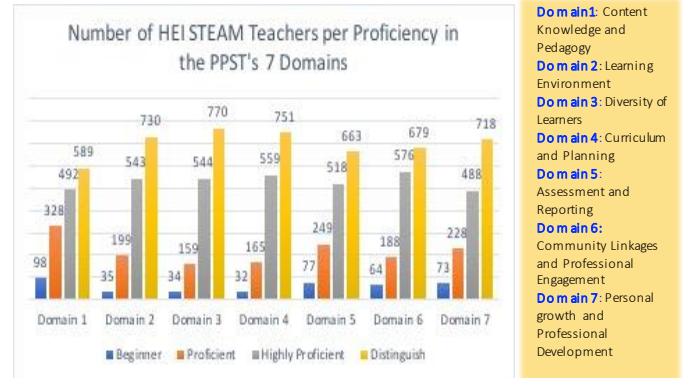


Figure 2. Number of HEI Teachers per Proficiency in the Overall PPST's 7 Domains

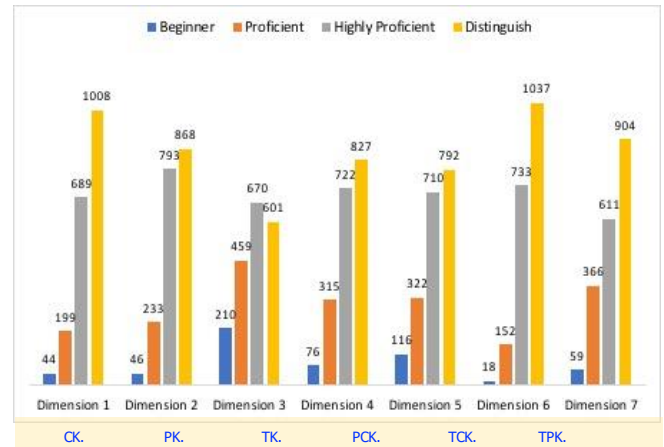


Figure 3. Number of HEI Teachers per Proficiency according to TPACK Dimensions

Morales, M.P.E., Anito, J.C., Avilla, R.A., Abulon, E.L.R. & Palisoc, C.P. (2019) Proficiency Indicators for Philippine STEAM (Science, Technology, Engineering, Agri/fisheries, Mathematics) Educators. *Philippine Journal of Science*. 148 (2): 265-281.

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