



STEAM Educators Proficiency Indicators

TPACK in Philippine STEAM Education

STEAM Educators Proficiency Indicators



Philippine Normal University
The National Center for Teacher Education
Taft Ave., Manila

This self-rating scale, *STEAM Educators Proficiency Indicators*, may inform the level of STEAM Educator Proficiency as Beginning STEAM Educator, Proficient STEAM Educator, Highly Proficient STEAM Educator, and Distinguished STEAM Educator.

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TECHNOLOGICAL PEDAGOGICAL ASSESSMENT CONTENT KNOWLEDGE (TPACK) IN PHILIPPINE STEAM EDUCATION

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STEAM EDUCATORS PROFICIENCY INDICATORS

Informed Consent Form

Being over the age of 18 years old (legally independent), I hereby consent to participate in the research project titled: "Technological-Pedagogical-Assessment-Content-Knowledge (TPACK) in STEAM Education" by answering the herein STEAM EDUCATORS PROFICIENCY INDICATORS

I am aware that my participation is voluntary in nature;

I understand that I may not directly benefit from taking part in this research;

While the information gained in this study will be published as a research article, I will not be identified, and individual information will remain confidential;

Any information and related data obtained during the pilot testing shall be used solely for research and academic purposes; and

I may provide comment/s and suggestion/s to the items in the research instrument and the process of pilot testing as I deemed necessary.

Dear Respondent,

The Philippine Normal University would like to know your level of proficiency as a STEAM Educator. Please rate yourself in terms of the indicators/attributes listed by highlighting the choice of your answer.

Scale to use (4-point scale):

- 4 = Always true to myself**
- 3 = Often true to myself**
- 2 = Occasionally true to myself**
- 1 = Rarely true to myself**
- N/A = Not applicable**

This self-rating scale may inform the level of STEAM Educator Proficiency as Beginning STEAM Educator, Proficient STEAM Educator, Highly Proficient STEAM Educator, and Distinguished STEAM Educator.

Thank you for taking time in answering.

PNU Researchers

*E-mail Address:

Name (Optional):

*Gender: _____

*Age: _____

*School Affiliation: _____

*Address: _____

*No. of Years of STEAM Teaching: _____

*Specific Area/Field (Science, Technology, Engineering, Agriculture, or Mathematics) _____

*Subject being taught _____

*Year Level being taught _____

Item No.	Indicators	4	3	2	1	N/A
1	Possesses content knowledge on STEAM (Science, Technology, Engineering, Agriculture, and Mathematics).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2	Demonstrates content knowledge on core STEAM courses.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3	Demonstrates content knowledge on STEAM-related fields (i.e., research, language and communication).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4	Demonstrates STEAM-related laboratory/clinical skills.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5	Possesses knowledge on related industry/community as service providers.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6	Exhibits knowledge on STEAM fields (content and skills) responsive to national goals and global concerns.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7	Plans, conducts, and disseminates STEAM-related research.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8	Designs, improves, innovates, and supervises basic to advance systems and/or procedures as solutions to local and global problems within realistic constraints.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9	Utilizes research outputs to enhance professional practice and to address national and global concerns.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10	Develops/Improves new technology (software, laboratory equipment, and teaching materials) using locally available resources to advance effective and efficient practice of the profession.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11	Uses modern statistical and computing techniques and tools in predicting future trends and processes of STEAM.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12	Familiarizes with database relevant to the STEAM profession.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13	Uses advanced and research-based techniques and tools in teaching STEAM content knowledge.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14	Communicates effectively across multiple platforms, both oral and written, especially in the English language.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15	Seeks out information on subject related research, e.g., via journals or by attending conferences.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16	Facilitates development of reflective and critical thinking among students.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17	Promotes inquiry attitude through questioning.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18	Facilitates active classroom discussion using inquiry learning strategies (project-based, problem-based, product-based).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19	Allows flexible channels of communication to get across students of different abilities and comprehension skills and even allows occasional use of mother	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	tongue to help express themselves or their answers better (then translate them to a common language for everyone to appreciate and learn from).					
Comment for Item Nos. 1-19						
20	Observes precautionary measures in the laboratory rooms and classrooms (fire extinguishers, fire force) alarm systems, and campus security.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
21	Facilitates ethical use of online resources.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
22	Promotes working effectively in multidisciplinary and multi-cultural teams.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
23	Exhibits capability to facilitate large classes.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
24	Promotes proper care and handling of laboratory instruments, tools, equipment, online systems, virtual laboratories, and software.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
25	Promotes seamless transition of topics and establishes relevant relationship of concepts.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
26	Utilizes teaching strategies suited to diverse learners.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
27	Monitors each student by establishing eye contact, walking around the area, being aware of what's happening in the class during sessions, site visits, field trips, tours, and other supervised visits.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
28	Models various scientific attitudes and STEAM professional traits.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
29	Promotes the concept of voluntary service by making students carry out classroom-related duties (e.g., monitoring cleanliness and orderliness in the classroom).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Comment for Item Nos. 20-29						
30	Facilitates lessons and activities that are suited to the students' interests and individual differences and do not discriminate any cultural groups and are sensitive to students' needs.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
31	Arranges opportunities for students to learn by allowing them to form varied group structures (solo, pair, groups, and teams).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
32	Develops gender-sensitive instructional materials.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
33	Takes into consideration the cultural, social, and emotional differences among students.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
34	Prepares materials and lessons appropriate to specific learning capability.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
35	Facilitates peer learning to support other students cognitively and affectively.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
36	Listens skillfully, reasonably, and patiently to his or her students during consultation.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Comment for Item Nos. 30-36						
37	Possesses knowledge on curricular programs including goals and framework.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
38	Engages the students in planning and achieving the learning outcomes.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
39	Utilizes various teaching methods.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
40	Applies current trends, practices, and innovations in the teaching process.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

41	Uses updated syllabi and teaching methods to meet the desired learning outcomes.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
42	Ensures that the learning outcomes are attained.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
43	Designs, communicates, and implements STEAM-related activities in partnership with the community/industry.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
44	Uses multimedia and other learning resources like journals and online materials in the teaching and learning process.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
45	Adapts and utilizes STEAM technologies in the teaching and learning process.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Comment for Item Nos. 37-45						
46	Selects standard assessment methods appropriate for instructional decisions.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
47	Recognizes unethical, illegal and otherwise inappropriate assessment methods and uses of assessment information.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
48	Possesses skills in using assessment results when making decisions about individual students, planning teaching, developing curriculum, and school improvement.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Comment for Item Nos. 46-48						
49	Emphasizes the effects and impacts of the STEAM disciplines to the community and society.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
50	Conducts STEAM-related activities involving the learners, parents and the community.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
51	Demonstrates dedication and commitment to work with honesty and integrity.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
52	Recognizes and understands the professional, social and ethical responsibilities of the STEAM profession.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
53	Practices STEAM profession in accordance with the existing laws, legal, ethical and moral standards.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
54	Models the existing general policies, rules and regulations to promote the welfare of the STEAM professions.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
55	Observes the existing policies to better serve the students, the school, and the community.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Comment for Item Nos. 49-55						
56	Maintains reputation as a pedagogical leader.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
57	Participates in seminars and conferences that may provide valuable inputs to make STEAM teaching relevant and responsive to the changing times.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
58	Uses appropriate modern techniques and tools necessary for the practice of STEAM profession in order to be globally competitive.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
59	Pursues higher learning (ex. graduate studies or short term courses) and accomplishes higher goals to advance in one's career stage.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
60	Engages in professional activities other than teaching (publish articles, conduct valuable and impactful research, take part in the curriculum development, re-echo seminars etc.) to further improve teaching competencies as well as leadership qualities and make a distinction in the field of science.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Comment for Item Nos. 56-60						

