TRANSLATION OF MARIE CURIE'S SCIENCE LESSONS IN FILIPINO

Project Report

Solutions Evaluation and Adaptation Unit
Educational Research and Innovation Office

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This short-term project emerged from the *Inquiry-based Science Education (IBSE)* international seminar organized by *La main à la pâte Fondation* held from June 3 to 8, 2013 in France. The seminar was attended by 49 science educators from 33 countries. The seminar aims to share and transfer the expertise and resources gathered by *La main à la pâte* towards improving science and technology education.

I. BACKGROUND

In commemoration of Marie Curie's 100 birth anniversary, *La Maison des Sciences* is promoting her lesson plan exemplars through educational posters that can be used for teaching elementary students and for teacher training in science. Currently, these educational posters are translated into 20 languages, including Bahasa Malaysia and Bahasa Indonesia (https://sites.google.com/site/lmdsmariecurie/).

To add to these two Southeast Asian national languages, SEAMEO INNOTECH felt the need to volunteer to undertake the Filipino translation to contribute to the enhancement of quality of teaching and understanding of basic concepts of chemistry and physics using the national language. Science is a core learning area for K to 12 which needs further support in terms of instructional materials to further develop the scientific literacy of the Filipino youth (*see* ***Annex 1:*** *Project Concept Note*).

The translated lessons presented in poster layout can be used by the Center in promoting science education for K to 10 (i.e., junior high school level) as instructional aid for teaching and learning. The materials can also be used by science teachers for knowledge sharing, stimulating the learner's interest in science and technology, developing the culture of science, and in developing scientific literacy among young learners.

II. ACTIVITIES

A. Initial Translation

SEAMEO INNOTECH engaged the services of Mr. Owen Peña, Master Teacher at the San Pedro Relocation Center National High School (SPRCNHS), as project consultant for the Filipino translation of Marie Curie's science lessons. Mr. Peña, together with a group of Science and Filipino teachers of SPRCNHS, completed and submitted the initial translation to SEAMEO INNOTECH on 20 October 2013.

B. Translation Workshops

To validate and further improve the initial translation submitted by SPRCNHS, SEAMEO INNOTECH conducted a series of translation workshops with science and Filipino experts. Alumni of the *La Main à la Pâte* Seminar in France Dr. Risa L. Reyes, Deputy Director of the University of the Philippines – National Institute of Science and Math Education Development (UP NISMED), and

Dr. Ma. Eliza P. Cruz, Professor at the San Beda College – Department of Natural Sciences, were invited to assist in refining the scientific content of the translated lessons. Dr. Amelia E. Punzalan, a Candidate PhD of Filipino at the University of the Philippines specializing in translation, was also invited to ensure the accuracy of translation in Filipino. In addition, SEAMEO INNOTECH staff were also engaged in the translation workshops held on the following dates:

1. November 8, 2013
2. November 27, 2013
3. December 19, 2013

To sum up, below are the members of the group that provided technical assistance in completing the Filipino translation of Marie Curie's science lessons:

1. Mr. Owen Peña and a group of Science and Filipino teachers – San Pedro Relocation Center National High School
2. Dr. Risa L. Reyes – Deputy Director for Research and Extension, UP NISMED
3. Dr. Ma. Eliza P. Cruz – Faculty, Department of Natural Sciences and Mathematics, San Beda College
4. Dr. Amelia E. Punzalan – Chair, Chemistry Department, University of the Philippines
5. Ms. Angelica Dalusong – Project Consultant, Instructional Design and Materials Development Unit, Learning Management Office, SEAMEO INNOTECH
6. Mr. Jesse Tuason – Senior Officer, Information Management Unit, Knowledge Management and Networking Office, SEAMEO INNOTECH
7. Ms. Yolanda De Las Alas – Senior Specialist, Solutions Evaluation and Adaptation Unit, Educational Research and Innovation Office, SEAMEO INNOTECH
8. Ms. Lauren Nerisse Bautista – Senior Associate, Solutions Evaluation and Adaptation Unit, Educational Research and Innovation Office, SEAMEO INNOTECH

Upon completion of the translation work, SEAMEO INNOTECH submitted the draft to *La Maison des Sciences* for proper layout design. On January 18, 2014, SEAMEO INNOTECH received the electronic format of the posters translated in Filipino (s*ee* ***Annex 2:*** *Marie Curie's science lessons in Filipino*).

C. Validation with Students

Although not part of the approved implementation plan, it was agreed that the translated lessons be presented to students to further validate its relevance and accuracy. Through Mr. Owen Peña, the SPRCNHS was selected as pilot site where the materials will be used.

Mr. Peña coordinated the following activities for the pilot run, which was held on 28 January 2014 at the SPRCNHS in San Pedro, Laguna:

1. Class demonstration

A selected group of Fourth Year (N = 45) students was organized to sit in a special class demonstration. The teacher, Ms. Orimar Madarcos Guab, Teacher I at the SPRCNHS, discussed the Archimedes' Principle (*see* ***Annex 3:*** *Lesson Plan*). To further illustrate the said principle, the students who were initially grouped into four were asked to perform experiments by group using one of the translated Marie Curie posters as a guide. Several copies of the selected experiment guide were initially printed on a 8 x 11 inches paper for use in a group discussion setting.

Posters were displayed in a room for student appreciation

Ms. Guab (left) probing a student's answer during the class demonstration at the SPRCNHS

Students using one of the translated Marie Curie posters as a guide in their group experiment

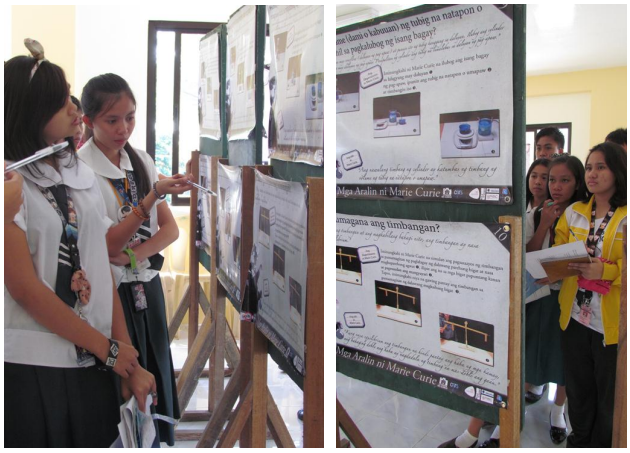
2. Poster appreciation

A selected group of Third Year (N = 25) students was also organized to conduct poster appreciation. All 21 posters (one set) were printed on a 20 x 30 inches canvas and exhibited in a room.

Mr. Peña oriented the students on the mechanics of the activity. The students were given 20 minutes to go around the room to look at and review the posters. The students were asked to evaluate the posters using a poster rubric, which was initially developed by SEAU and further enhanced by SPRCNHS. The rubric sets out the following criteria (categories) against which the posters were evaluated using a scale of Levels 1 to 4, where Level 1 represents the lowest rating and Level 4 corresponds to the highest rating (*see* ***Annex 4:*** *Poster Rubric for the specific descriptors for each level*): titles and subtitles; text in Filipino; writing; quality of information; and labels.

In addition to the poster rubric, open-ended questions in Filipino were also asked to further seek the students' opinion on the relevance and usefulness of the posters.

Mr. Peña briefing the students on the mechanics of the poster appreciation



Students going around the room to review the posters

III. RESULTS OF VALIDATION WITH STUDENTS

Generally, the students (N = 25) who conducted the poster appreciation find the Filipino translation of the Marie Curie science lessons reinforces their understanding of the indicated topics.

Sixty percent of the students indicated that the *text in Filipino* is clear and readable, and enhances their understanding of the lessons (Level 3). The content is adequately *written* and organized in Filipino, clear and reasonably easy to follow (Level 3) as implied by 68% of the students. The *quality of information* is perceived by 56% of the students to be at Level 4, which denotes that the concepts, instructions and product descriptions are clear, complete and concise.

With regard to the layout, 56% of the students found most of the *titles and subtitles* were helpful in enhancing readability (Level 3), while 60% of the students indicated that almost all items of importance on the poster have clear *labels* that can be read from at least three feet away (Level 3).

Following is the detailed result of the poster rubric completed by the students (N = 25):

CATEGORY	4 = Strong	3 = Moderately Strong	2 = Average	1 = Weak
Title and subtitles	10 (40%) All titles and subtitles are clear, enhances readability	**14** **(56%)** Most titles and subtitles are clear, enhances readability	1 (4%) Few titles or subtitles to clarify text	No titles or subtitles to clarify text
Text in Filipino	5 (20%) All text is clear and readable; enhances understanding	**15** **(60%)** Text is clear and readable; enhances understanding	5 (20%) Some text is clear and readable; not all text enhance understanding	Text do not enhance understanding
Writing	5 (20%) Well written in Filipino; organized, clear, easy to follow	**17** **(68%)** Adequately written and organized, clear, reasonably easy to follow	3 (12%) Somewhat clear and organized, slightly difficult to follow	Poorly written and organized, unclear, hard to follow
Quality of Information	**14** **(56%)** Concepts, instruction, and product description are clear, complete and concise	10 (40%) Concepts, instruction, and product description are most clear, could be a little more concise	1 (4%) Concepts, instruction, and product description are quite unclear, could be more concise	Concepts, instruction, and product description are unclear, incomplete and not concise
Labels	3 (12%) All items of importance on the poster have clear labels that can be read from at least 3 ft. away.	**15** **(60%)** Almost all items of importance on the poster have clear labels that can be read from at least 3 ft. away.	7 (28%) Many items of importance on the poster have clear labels that can be read from at least 3 ft. away.	Labels are too small to view or no important items were labelled

In addition to the students' feedback, the teachers mentioned that the poster layout could be further improved if some of the titles, subtitles and labels that were written in italicized font style (i.e., *script font*) will be re-written using a different font style. The *script font* is difficult to read especially from afar.

A more comprehensive report submitted by the Project Consultant that includes the summary of responses to open-ended questions can be found in the next section.

IV. EVALUATION REPORT (OWEN PEÑA)

Following is the evaluation report submitted by the Project Consultant:

1. Introduction

1.1 Background

SEAMEO INNOTECH commissioned San Pedro Relocation Center National High School – Science Department to translate in Filipino Marie Curie's experiments in Physics and Chemistry. The translated lessons were edited and enhanced by SEAMEO INNOTECH with the assistance of La Main a la Pate alumni from UP-NISMED and San Beda College.

Last January 28, 2014, SEAMEO INNOTECH ran a pilot use of these posters to selected students of San Pedro Relocation Center National High School. A total of 70 students participated in the assessment process. The posters were presented in a gallery, while the students roam around with their scoring rubric. Another set of students utilized the posters in an actual classroom scenario.

1.2 Evaluation Objectives

Following are the objectives of the activity:

- Evaluate the quality of translation and presentation of the posters.
- Assess the cognitive impact of the posters in learning the basic concepts in Physics and Chemistry.

1.3 The scope of this Report

This report details the findings of the pilot use of the Filipino translation of Marie Curie's experiments in Physics and Chemistry for teaching and learning purposes. It used a mixture of quantitative and qualitative surveys to address the following questions:

1. Did the translation and presentation format of the poster-lessons suite the level of young learners as the intended users?
2. What was the cognitive (understanding) impact of the posters on the target users/audience?

2. Evaluation

2.1 Methodology

The posters were presented to the target users/audience in two different scenarios.

Gallery viewing: A total of 25 students were given a scoring rubric as they walked through the gallery of posters.

Actual teaching: The posters were used as teaching guide in teaching Physics in an actual classroom situation. It aimed to determine the cognitive impact to students particularly in learning the basic concepts of Buoyancy and Archimedes Principle. A total of 45 students participated in the demonstration teaching.

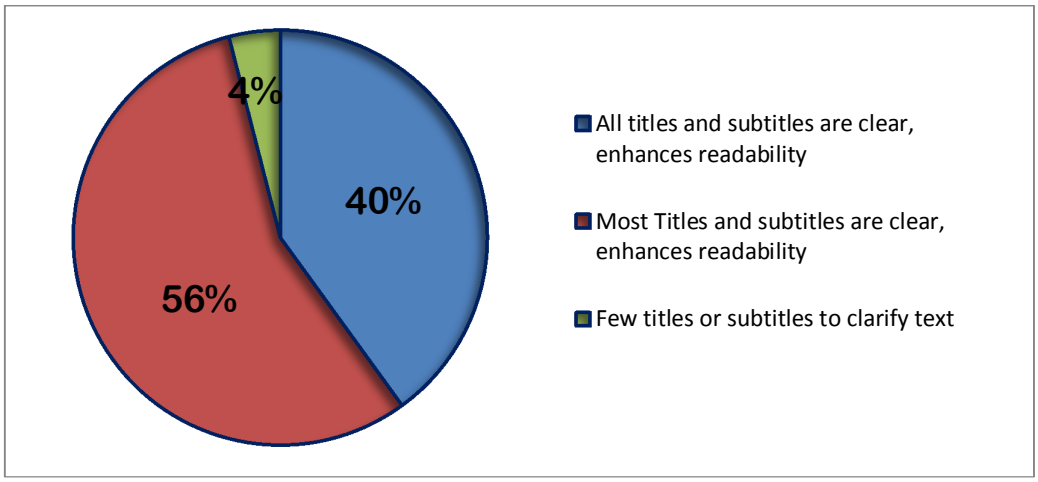
3. Evaluation findings

This section describes the findings on the pilot use of the posters conducted last January 28, 2014 during the period when the posters were displayed on a gallery and were used in an actual demonstration teaching activity. A total of 70 students participated in the pilot activity.

Impact of translation and presentation:

As shown in **Figure 1**, majority (56%) of the students perceived that *most titles and subtitles of the posters are clear and enhances readability.* While 40% have better appreciation as they perceived that *all titles and subtitles* are clear and enhances readability. Only 4% of the students commented that there are only *few titles or subtitles* in the posters to clarify the text.

Figure 1: Titles and Subtitles



As to the quality of text in Filipino, **Figure 2** reveals that 60% of students rated that the text is *clear, readable and enhances understanding.* While 20% of highly satisfied students rated that *all text is clear, readable and enhances understanding*. Another 20% of them revealed that *some text is clear, readable and not all text enhance understanding.*

Figure 2: Text in Filipino

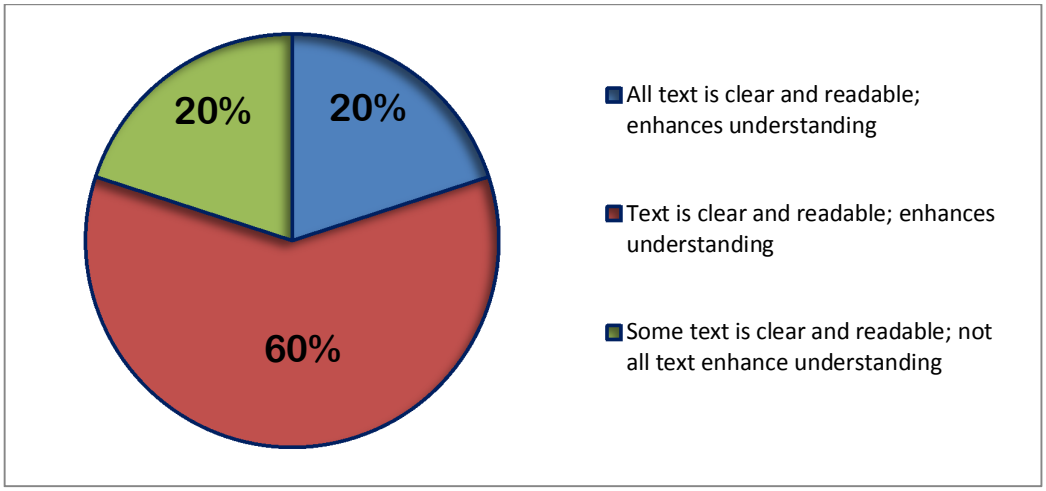


Figure 3 disclosed that majority (68%) of students rated all posters as *adequately written, organized, clear and reasonably easy to follow.* Twenty percent (20%) of them satisfactorily rated the posters as *well written* in Filipino, organized, clear and easy to follow. On one hand, 12% expressed that the posters are *somewhat clear, organized and slightly difficult to follow*.

Figure 3: Writing

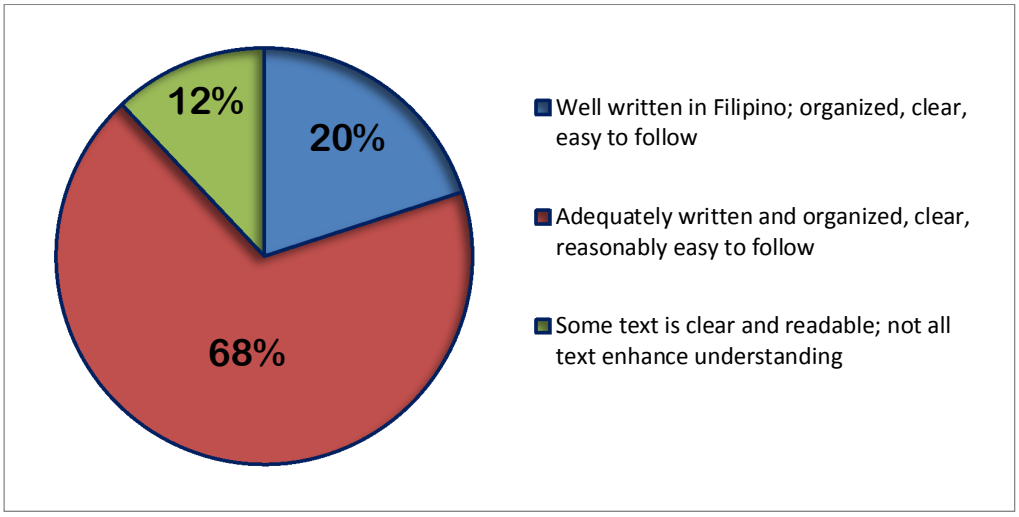


Figure 4 presents that 56% of satisfied students expressed that the concepts, instruction and product description are *clear, complete and concise*. While 40% of them disclosed that the concepts, instruction and product description are *most clear* but could be of little more concise.

Figure 4: Quality of Information

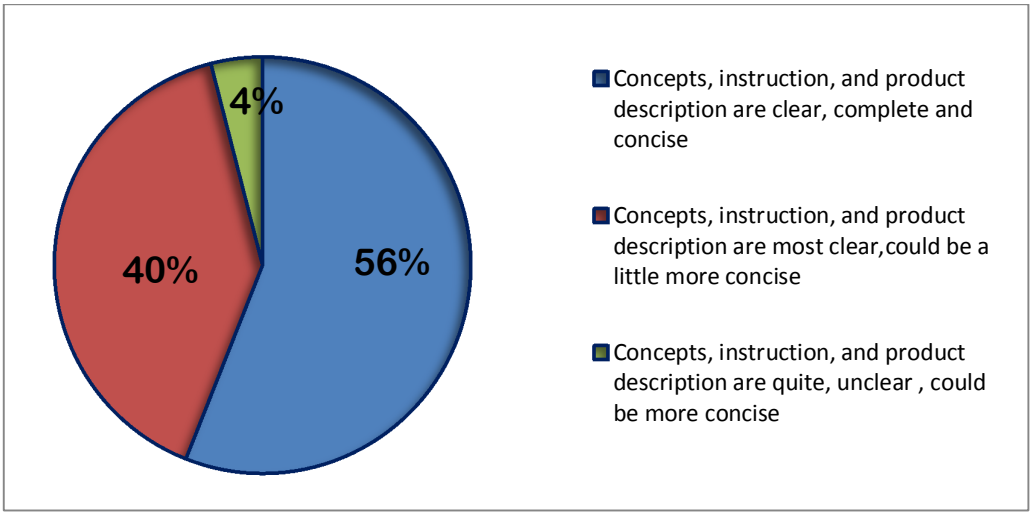
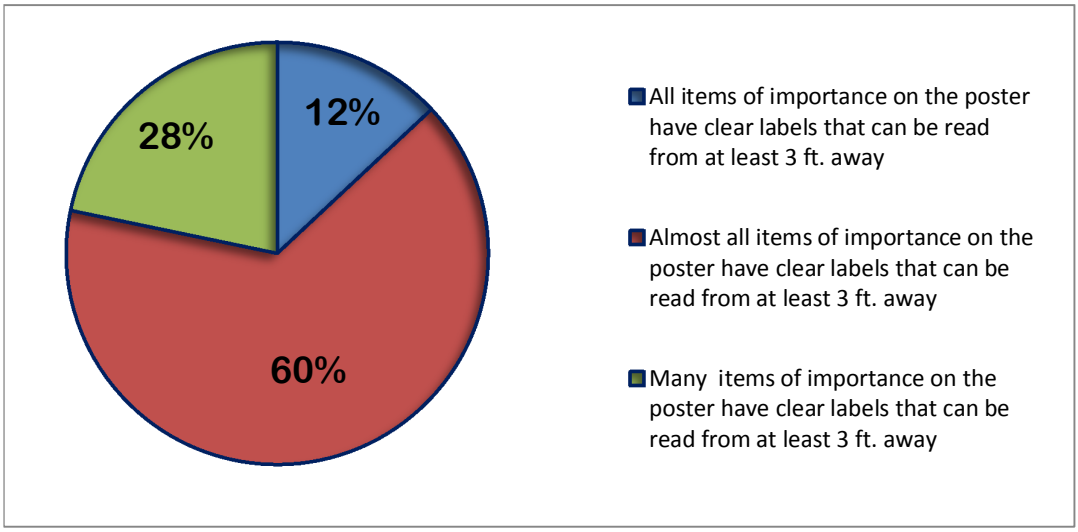


Figure 5 shows that only 12% of the students believed that all items of importance on the poster have clear labels that can be read from at least 3 ft. away. While 60% of them of the student-respondents agreed that almost all items that are significant on the posters have clear labels that can be read from at least 3 ft. away. And 28% of the students responded that many items of importance on the poster have clear labels that can be read from at least 3 ft. away.

Figure 5: Labels



4. Summary of Findings

Following is the summary of findings:

- 90% of the students agreed that the Filipino translation will help them in learning the concepts in Science.
- 98% of the students believed that the use of visual presentation (pictures) can help them in understanding the lessons presented in the posters.
- 100% of the students will recommend the use of these posters as a teaching and learning tool in science.

Please see **Annex 5** for the complete list of student responses on the cognitive impact of the posters.

5. Recommendations

Based on the feedback gathered from the pilot use of the posters, below are some recommendations related to layout and use of the materials:

- Revise the font type and font size of some of the text (e.g., italics) on the posters.
- Develop lesson guides using these posters as learning materials in an actual classroom situation.
- Develop assessment instruments for students which are similar to the presentation format of the posters to determine the relevance of posters in enhancing understanding of science concepts.

V. NEXT STEPS

SEAMEO INNOTECH intends to disseminate electronic format of the translated materials to all schools in the country through the Department of Education (DepEd), particularly through the offices of Schools Division Superintendents, to help popularize the basic concepts of Chemistry and Physics using the Filipino language. The schools can use the electronic posters as instructional aid for teaching and training purposes. The Center further encourages DepEd to use and disseminate the posters.

Moreover, the Center plans to hold a social event to engage France's active participation in SEAMEO INNOTECH's efforts to continuously and effectively provide quality educational solutions in Southeast Asia, particularly in the Philippines. Since 1973, France has been an Associate Member Country of SEAMEO, the first Associate Member to be admitted under the SEAMEO umbrella.

Limited sets of printed posters (one set consists of 21 posters) may be distributed to school heads during the said event depending on the availability of funds. Following is the estimated cost to be incurred for the social event:

COST ITEM	COST
1. Printing of posters (20 x 30 inches, photo paper)	***PHP 315,000.00***
PHP 10,500 x 30 sets (21 posters/set)	
2. Social event (cocktails)	***135,000.00***
Meals (PHP 500 x 100 pax)	50,000.00
Supplies and Materials	20,000.00
Poster display stand/panels	40,000.00
Communications	5,000.00
Tokens	10,000.00
Contingency	10,000.00
TOTAL	**PHP 450,000.00**

To make the activity more meaningful, the Center plans to hold the social event in June 2014 in celebration of the Philippine-France Friendship Day. A budget proposal will be submitted to the French Embassy in Manila for possible co-financing.

VI. ANNEX

The following documents are attached for further reference:

- Annex 1: Concept Note
- Annex 2: Translated Posters
- Annex 3: Lesson Plan
- Annex 4: Poster Rubric with Evaluation Questions
- Annex 5: Student Responses on the Cognitive Impact of the Posters

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ANNEX 1: Concept Note

ANNEX 2: Translated Posters

ANNEX 3: Lesson Plan

ANNEX 4: Poster Rubric with Evaluation Questions

ANNEX 5: Student Responses on the Cognitive Impact of the Posters

Instruction: Ilahad ang iyong opinion tungkol sa mga posters na iyong nakita at nabasa. Sagutin ang mga sumusunod na tanong.

1. **Makatutulong ba ang mga posters na nakita mo upang higit mong matutunan ang mga lessons mo sa Science? Ipaliwanag ang iyong sagot.**

- Opo, dahil mas naiintindihan ko ang lesson kapag may poster kasi may madaling makaintindi pag may poster at ang iba naman ay sa pakikinig lang.
- Opo, dahil ito'y isinalin sa wikang Filipino na ating ginagamit at naintindihan ko ang mga lessons na nakalahad sa mga posters.
- Sa tingin ko naman po ay opo para po kasi itong gabay na parang libro na kailangang – kailangan ng mga estudyante lalo po ngayong nagkakakulangan na para sa edukasyon lalo na po sa major subjects katulad ng science.
- Opo, sa kadahilanang may representasyon ang bawat aktibidad at kung paano ito gagawin. Mas natutunghayan ang nagaganap sa eksperimento.
- Opo, dahil mas maintindihan ng mga estudyanteng kagaya ko ang konteksto o laman ng poster. Maisasagawa ito ng ayos dahil mayroong malinaw na mga hakbangin sa paggawa nito. Marami pang matutunan at nakakagiliw ang larawan
- Opo, dahil sa marami po akong impormasyon na nauunawaan at mas informative ang bawat posters kung ilalagay iyon sa mga classrooms. At dagdag kaalaman sa mga mag-aaral na matutunan pa lamang.
- Opo, dahil ito ay mayroong angkop na paliwanag sa bawat ekperimento na nakapaloob ditto at madaling unawain dahil sa mga larawan at lengwahe na tagalog.
- Opo, dahil maraming bagong bagay at kaalaman po akong nakita sa mga posters na nakalagay dito. Para sa akin, bukod sa nakaaliw ang mga pictures tingin ko po sa tulong ng mga ito mas mapapadali ang pag-intindi ng mga ilang lessons sa Science.
- Opo, sa kadahilanang; may representasyon ang bawat aktibidad at kung paano ito gagawin. Mas natutunghayan ang mga reaksyon na nagaganap sa eksperimento.
- Opo, dahil ito ay isinalin sa wikang Pilipino; mas madaling maunawaan ang mga posters. Dahil dito, mas madaling matutunan ang aking mga leksyon sa agham.
- Opo, lalo ngayon sa *chemistry*, lagi po kaming gumagawa ng mga eksperimentong may koneksyon sa *Air* at *Air Pressure.*
- Opo, dahil mas lalo ko pang napalawak at nai-apply ang aking mga natutunan at matututunan pa lamang, at sa tulong din nito mas lalo pang nabuksan ang isip ko sa tulong ibang imaheng nakapaskil at dahil isinalin ito sa Filipino o Tagalog.
- Opo, dahil mas maiintindihan po naming mga mag-aaral ang kosepto o mga larawan na nasa poster. Maisasagawa ito ng maayos o maganda ito. Kami ay tulungan upang kami ay ma-engganyo sa bawat topic na tatalakayin ng mga guro.

- Para sa akin ito ay maaari naring makatulong dahil ito ay isinalin sa wikang Filipino. Mas higit na mauunawaan ang mga eksperimentong ginawa. Ngunit sa isang banda, mas higit na gusto ko pa kung ito ay ingles. Dahil sa mga poster na nakita ko, hindi ko na nakita ang dahilan sa mga nangyayaring reaksyon, hindi na ipinaliwanag ng maiigi ang mga dahilan kung paano nangyari ang mga resulta.
- Malaki ang mga kapakinabangan ng mga posters para sa aming mga mag-aaral dahil sa hindi lamang ang mga biswal, kung hindi mas madali itong intindihin dahil sa ito'y isinalin sa wikang Filipino.
- Opo sapagkat alam naman nating lahat na hindi lahat ng estudyante ay magaling sa wikang Ingles at nakatutulong din ito upang mas madaling maintindihan o maunawaan ang mga lessons sa Science.
- Para sa akin ito ay maari na ring makatulong dahil ito ay isinalin sa wikang Pilipino mas higit na naunawaan ang mga eksperimentong ginawa. Ngunit sa isang banda mas higit na gusto ko pa kung ito ay Ingles. Dahil sa mga poster na nakita ko hindi ko nakita ang dahilan sa mga nangyaring reaksyon , Hindi na ipaliwanag nang maigi ang mga dahilan kung paano nangyari ang mga resulta.
- Malaki ang kapakinabangan ng mga posters para sa aming mga mag-aaral dahil sa hindi lamang ito informative at kanais- nais ang mga visuals kung hindi mas madali itong intindihan dahil sa ito'y isinalin sa Filipino.
- Opo, dahil mas maiintindihan ng mga estudyanteng kagaya ko ang konteksto o laman ng poster. Maisasagawa ito ng ayos dahil mayroong malinaw na mga hakbangin at nakakaagiliw ang larawan.
- Opo, dahil mas maiintindihan po naming mga mag-aaral ang konsepto o mga larawan na nasa poster. Naisasagawa ito ng maayos o maganda ay walang manigalyo sa bawat topic na ita-tackle ng guro.
- Ang mga paliwanag at hakbangin nakalimbag sa ating asariling wika ang siyang nagbigay pa ng dadag kaalaman at madali itong naintindihan ng dahil sa mga larawang nakikita rito.
- Yes, because it has been translated in Filipino so that we can be able to understand more about this.
- Sa aking pagsusuri, hindi lahat ay aking na-intindihan bagamat ang iba ay sobra ang lalim na ginamit na termino sa wika. Siguro dahil ang nakasanayan na wikang Ingles ang ginagamit. At ang mga resulta, hindi umaayon sa mga nailahad sa posters.
- Opo! Dahil yung mga poster ay madali naming maintindihan at lalo kong naintindihan ang lesson namin sa agham.
- Opo, dahil nakatutulong ito upang mas higit na maunawaan naming mga mag-aaral ang mga lessons sa Agham. Dagdag kaalaman din po ito maari po naming ibahagi sa iba .

2. **Ano ang mga bahagi (features: tagalog text , pictures) ang higit na nakatulong sa iyo upang maunawaan mo ang mga aralin na inilalahad sa mga posters? Ipaliwanag ang iyong sagot.**

- Ang mga paliwanag at hakbangin nakalimbag sa ating sariling wika ang siyang nagbigay pa ng dagdag kaalaman at madali itong naintindihan ng dahil sa mga larawang makikita nito.
- Sa paraang visual ay madali kong naunawaan ang nilalaman ng poster bukod sa ito'y Tagalog.
- Para sa akin lahat naman nang bahagi ay nakatulong dahil ito nga ay nakasalin sa wikang Pilipino ito ay mas higit na mauunawan.
- Ang mga larawan at tagalog text, ang higit na makakatulong sa aming estudyante dahil sa tingin ko madali itong maunawaan naming mga estudyante.
- Una, ay ang larawan dahil sa sa tulong ng larawan naipapakita ang aktwal sa mga mag-aaral ang tunay na nangyayari sa isang eksperimento at ikalawa ay ang teksto na nakasalin sa wikang kinasanayan ng mga mag-aaral.
- Ang mga bahagi na nakatulong sa akin ay ang pictures kung pagkumpara kung gaano kabigat ang hangin sa tubig, at pagtining ang mga bagay upang mas madali itong maisala o ma-ifiltrate at ang pag crystallise sa minerals para madali itong magpahiwalay.
- Pictures, dahil pinakita po nito kung paano gawin ang experiment at ang kinalabasan nito.
- Para sa akin po ay yung mga step by step pictures kasi po bukod sa may written steps in words may mga pictures na kasama yung mga step na yon.
- Mga larawan, dahil mas madaling maintindihan ang mga *procedures* at *chemical reactions* na nakasaad sa mga posters.
- Ang mga literato; dahil lahat ng mga ito na kasama sa mga posters ay "*reader friendly*" at may mga klarong eksplanasyon.
- Para sa akin po, ang mga larawang ipinakita ang higit na nakapapaunawa sa akin dahil sa pamamagitan nito ay makikita natin ang aktwal na pagsasagawa ng eksperimento at ang nagging resulta nito.
- Pictures dahil maliban sa verbal na pagpapaliwanag ay mayroon pang mga "pictures" na lalo pang nakapagpapaintindi sa lesson na ito.
- Ang mga larawan at "Filipino text", ang higit na makakatulong sa aming mga estudyante, dahil sa tingin ko madali itong maunawaan naming mga estudyante.
- Para sa akin, lahat naman ng bahagi ay nakatulong dahil ito nga ay nakasalin sa wikang Filipino, ito ay mas higit na mauunawaan ng mga estudyante.
- Sa paraang visual ay madali kong naunawaan ang nilalaman ng poster bukod sa ito'y wikang Filipino.

- Tagalog text po dahil mas naunawaan ko ang bawat detalye na nais na iparating o sabihin at lao tayong mga bihasa sa sarili nating wika.
- Para sa akin lahat naman nang bahagi ay nakakatulong dahil ito nga ay nakasalin sa wikang Pilipino it ay mas higit na mauunawaan ng mga estudyante
- Sa paraang visual ay madali kong naunawaan ang nilalaman ng poster bukod sa ito'y Tagalog.
- Ang mga paliwanag at hakbangin nakalimbag sa ating asariling wika ang siyang nagbigay pa ng dadag kaalaman at madali itong naintindihan ng dahil sa mga larawang nakikita rito.
- Ang mga larawan at tagalog text, ang higit na makakatulong sa aming mga estudyante , dahil sa tingin ko madali tuloy maununawaan naming mga estudyante
- Higit na nakatulong para sakin ay yung mga larawan kung paano at kalian dapat gawin yung mga given experiments. Pati na rin yung mga label kung papaano ang sunud-sunod na dapat gawin ng sa gayon ay madaling masundan yung mga examples.
- Nakatutulong po sa akin ang aralin ni Marie Curie na about sa Pressure ng hangin bagkus ito an gaming tinatala kay namin ngayon sa Chemistry.
- The pictures we've seen in the posters really help to understand these things although some of them are quite colloquial. But the translation of the words can help all the students to comprehend these things.
- Parehas nakakatulong , dahil nakaka-enganyo kapag may nakikita tayong larawan kasama nain ang pahayag. Mas maganda pa rin kung nagagawa rin ito ang actual dahil hindi maiintindihan kung wala rin explanation.
- Opo, dahil ito ay mayroong angkop na paliwanag sa bawat ekperimento na nakapaloob dito at madaling unawain dahil sa mag larawan at lengwahe na tagalon.

3. **Bilang isang mag-aaral, maimumungkahi mo ba na gamitin ang mga posters na ito sa inyong klase sa Science? Bakit?**

- Opo para po mas maraming matuto sa amin at para naman po magkaroon ng interest ang bawat mag-aaral dito na matuto.
- Opo dahil sa nai- translate ito sa wikang tagalong na ating maiintindihan at maunawaan.
- Opo, kung ano man po ang mga ikabubuti ng paaralan para marami pang maturuan ay dapat gamitin. Katulad po ng mga poster na ipinakita sa amin mas maganda po siguro kung marami pang makakakita bukod sa amin
- Maimumungkahi ko ito para sa amin dahil mas madaling naunawaan ang mga nakatala sa mga poster.

- Opo, dahil sakaling hindi ito magawa dahil sa kakulangan ng gamit o oras maari pa rin mga larawan dito ngunit mas makabubuti pang paunlarin o mas pagandahin ang poster na maaring makakuha ng atensyon ng iba bukod pa nito lakihan ang ilang "font " ng poster.
- Oo, maari itong ipalit sa mga nakadikit na manila paper , pero irerekomenda ko na lakihan at gawan ng paraan ang fonts para mas makita ng mga estudyante sa dulo ng room
- Opo, dahil mas madaling maunawaan at maintindihan ng mga mag-aaral ang mga nakatala sa bawat posters na ikakabit .
- Opo dahil mas madali po itong maunawaan at katulad ko po kailangan ko po ang ilan sa mga impormasyon na nakapaloob dito katulad na lang po sa gas na aming pinag-aaralan.
- Para sa akin opo, kasi po malaki po ang maitutulong ng mga poster sa amin lalo na po kung magsasagawa po ulit kami ng mga experiments.
- Opo, sapagkat mas madali itong unawain at intindihin kaysa sa wikang Ingles. Makatutulong din ito upang mas maisagawa ng maayos ang mga experiments sa bawat aralin.
- Maimumungkahi ko ito para sa amin dahil mas madaling maunawaan ang mga nakatala sa mga posters.
- Opo dahil ito ay makakatulong upang mas maunawaan ang mga leksyon sa *Science.*
- Tingin ko po ay opo, dahil masasagutan nitong mga poster ang mga tanong naming mag-aaral hinggil sa air, air pressure, volume, density at iba pa. At dahil na din sa pakiramdam ko ay mamamangha ang kapwa ko kamag-aral sa makikita nilang biswal.
- Opo, dahil isa ring opportunidad ang lahat ng poster at mga leksyong nakalahad dito na magamit sa aming klase, at lalo pang ma-enhance ang aming mga kakayahan at natutunang eksperimento sa tulong nito.
- Opo, dahil sa mga posters na aking nakita ay nakaka-engganyo at sa tingin ko ito ay isang paraan upang lalong maging aktibo ang mga estudyante. Ngunit siguro po ay dapat medyo lakihan ang ibang *font*.
- Opo , sapagkat nakatutulong ito upang mas lalo at mapadaling intindihin ang mga lektura lakipan lamang ito ng malinaw at maayos na paliwanag.
- Opo, dahil mas higit na mauunawaan kung ito ay nakasalin sa wikang Filipino. Ngunit sa isang banda nais ko pa rin ang wikang Ingles dahil mas naipapaliwanag ng husto. Dahil may mga bagay talaga na mahirap isalin sa Filipino. Maaaring magkahalong wika ng sa gayon ang gamitin at mas mauunawaan pa ito ng husto.
- Opo para mas madaling matutunan ang mga aralin sa science at mas maintindihan ang mga nakapaloob sa mga iba't ibang aralin at para lahat ng estudyante ay mas

makinig sa kanilang guro dahil alam nilang may mga halimbawa para lalo nilang maintindihan.

- Opo dahil sa mga additional information na nakasaad nito at naipaliwanag nito nang maayos dahil ito ay tagalog at sa mga litrato kahit na blurred ito ay may actual agad. At maganda at informative ang mga poster.
- Yes. Just like what I've said (in no land), it has been translated in Filipino, and in that way we can easily distinguish all the thoughts embodied by the poster.
- Opo, dahil mas nalalakipan nito na maintindihan pa lalo sa mga lektura. Maipaibayo pa ang kaalaman at dahil dito rin ay nagkaroon ng karagdagan impormasyon kapag gumamit ng poster, mas napapadaling intindihin.
- Opo dahil lubos itong nakatutulong upang lalong maintindihan ng aking mga mag-aaral ang mga aralin namin sa agham.
- Opo, dahil makatutulong ito sa mga estudyante sa kanilang mga ulat at activity na maaring gawing gabay nila sa kanilang pag-aaral.
- Ako, bilang isang mag-aaral, maiimumungkahi ko na gamitin ang mga posters na ito upang madagdagan pa ang aking kaalaman pati na rin sa ibang makakabasa nito. Dahil hindi lahat ng mga estudyante na nag-aaral ay madaling nakakaintindi ng wikang Ingles.
- Opo dahil bilang Science student marami po akong natutunan sa mga posters katulad ng mga aralin ni Marie Curie at sa mga substance na ginagamit namin sa experiment. Honestly napaka interesting ng mga posters na nakita ko.