Oral Paper Presentation

Creating 21st Century Assessments in Different Modalities: A Response for Access to Quality Learning in the Post-Pandemic Era

*Danda Crimelda Buhain-Garcia[1],
Paulo Formalejo[1] , Edwin Barba, Jr. [1] , Marilyn U. Balagtas[2] ,
1 Rex Institute for Student Excellence, Inc. 2. Philippine Normal University

* Paper Presentor

OUTLINE

1. Background of the Study
2. About the 21st Century Assessment Tools in Basic Education
3. Conceptual Framework of the Study
4. Statement of the Problem
5. Methodology
6. Results
7. Conclusions
8. Recommendations

BACKGROUND OF THE STUDY

How do we transform these **paper-based pre-pandemic** assessments into quality **post-pandemic 21st century assessment** tools?

Paper-based Standardized Assessments

FRAMEWORK OF THE 21ST CENTURY ASSESSMENT TOOLS

Over-all Framework of ACES Products for Basic Education

K to 12 Program
(Philippines)

International Benchmarks
(IEA, OECD, SEAMEO-UNICEF)

Tenets of Whole Child
(ASCD)

Revised Bloom's Taxonomy
(Krathwohl & Anderson)

21st Century Skills and Themes
(P21)

SOLO Framework
(Biggs & Collis)

Item Response Theory
(Rasch)

Growth Mindset Theory
(Dweck)

Constructivist Theory
(Vykotsky)
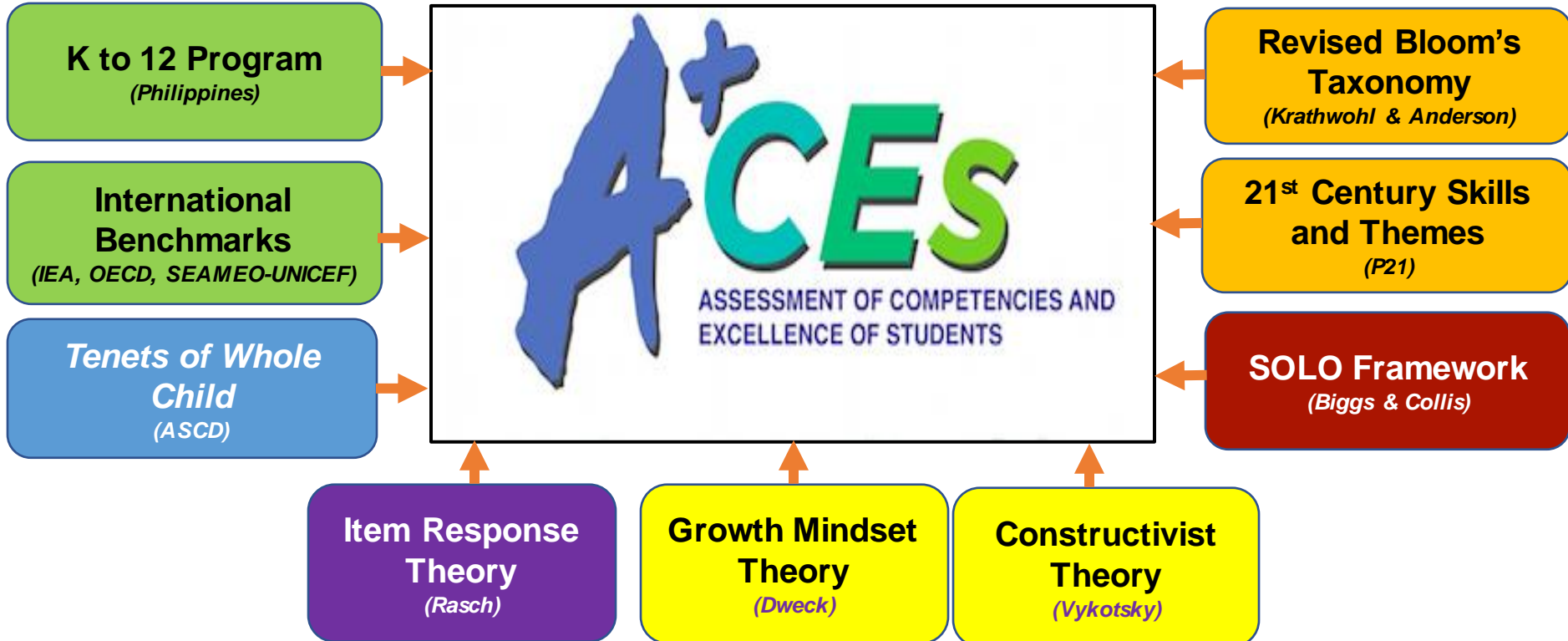
FRAMEWORK OF THE 21T CENTURY HOLISTIC ASSESSMENT

Over-all Framework of ACES Products for Basic Education

IEA-Adapted Personal Information

IEA-adapted Attitude to Learning

Cognitive Processes

Knowledge Dimension

K to 12 & ILSA Competencies for Student Assessment

Levels of Understanding

21st century skills

IEA-adapted Learning Resources

Attitude to God

ILSA-benchmarked

ILSA-benchmarked

REX EDUCATION
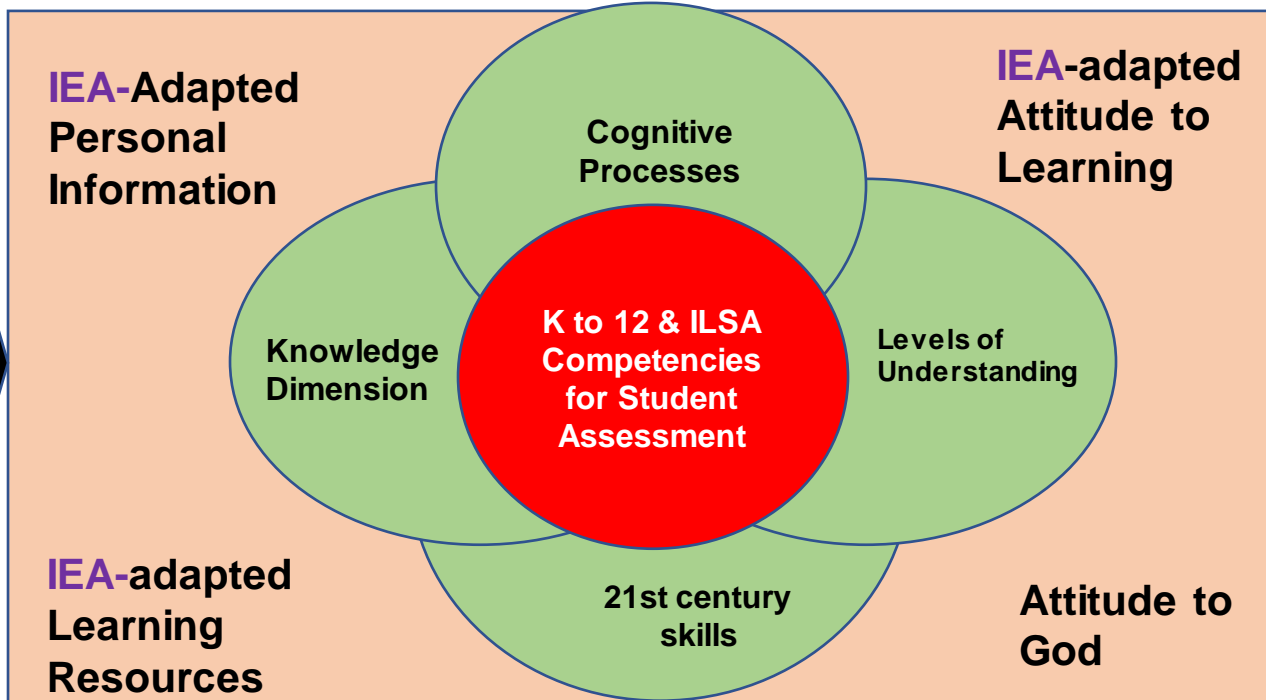
Conceptual Framework of the Study
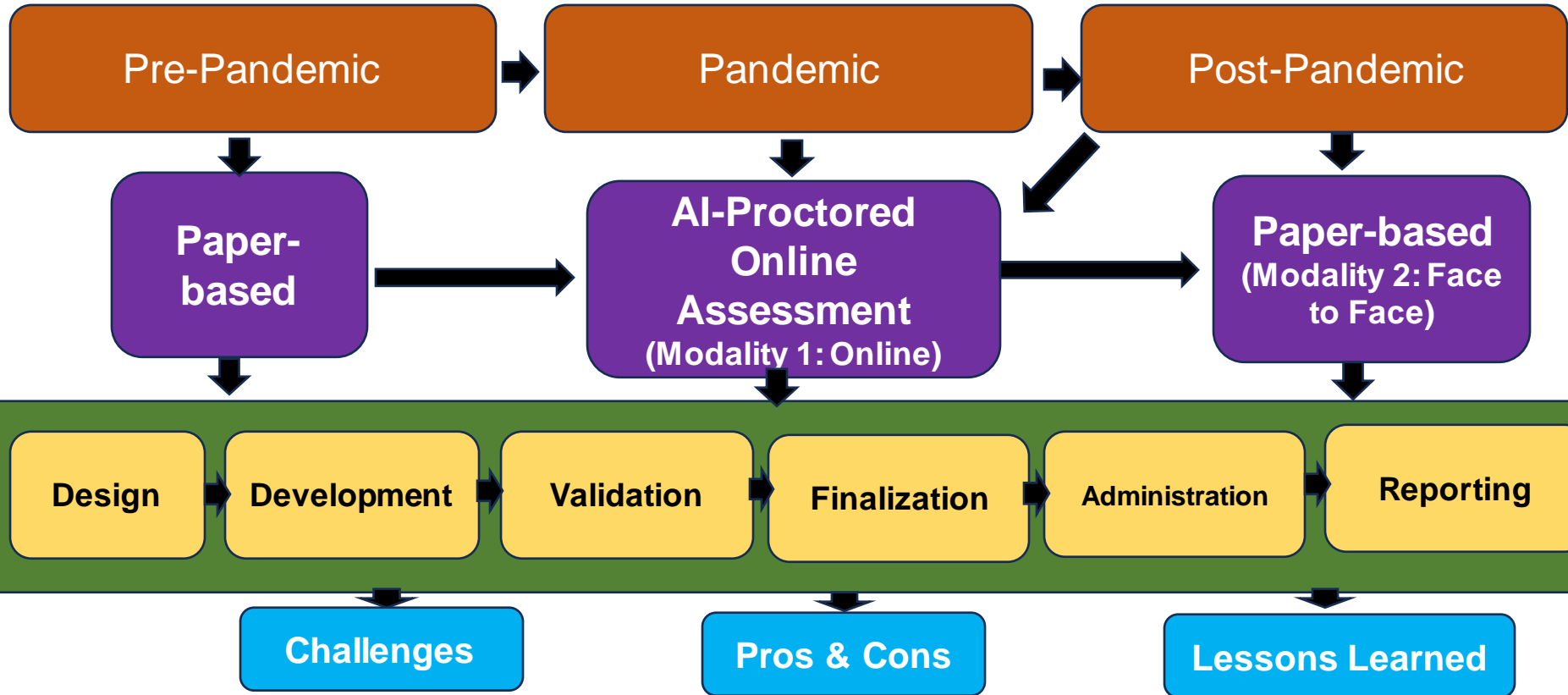
Statement of the Problem

This study aimed to describe the **processes, challenges, pros and cons, and the lessons** learned in developing 21st century online and paper-based assessment tools in various levels and areas in basic education to make them more accessible in assessing quality learning.

Specifically, this paper sought to answer the following:

1. What **processes** were involved in the development and use of RISE's 21st century paper-based and online assessment tools before, during, and after the pandemic?

2. What **challenges** were experienced in the development and use of RISE's 21st century assessment tools before, during, and after the pandemic?

3. What were the **pros and cons** in the development and use of paper-based and AI-proctored 21st century assessment tools?

4. What were the **lessons learned** in the development and use of the 21st century assessment tools before, during, and after the pandemic?

Methodology

Research Design: Descriptive-Survey

Participants: Students, Editors/Validators, Test Administrators, Checkers, New Media Team, Learning Solutions Endorsers

Sampling Technique: Purposive and Convenient Sampling

Data Gathering Instrument: Survey Questionnaire Using a 4-Point Rating Scale, 5-pt Likert Scale, Open-Ended Questionnaire, Interview and Focus Group Discussion Guide

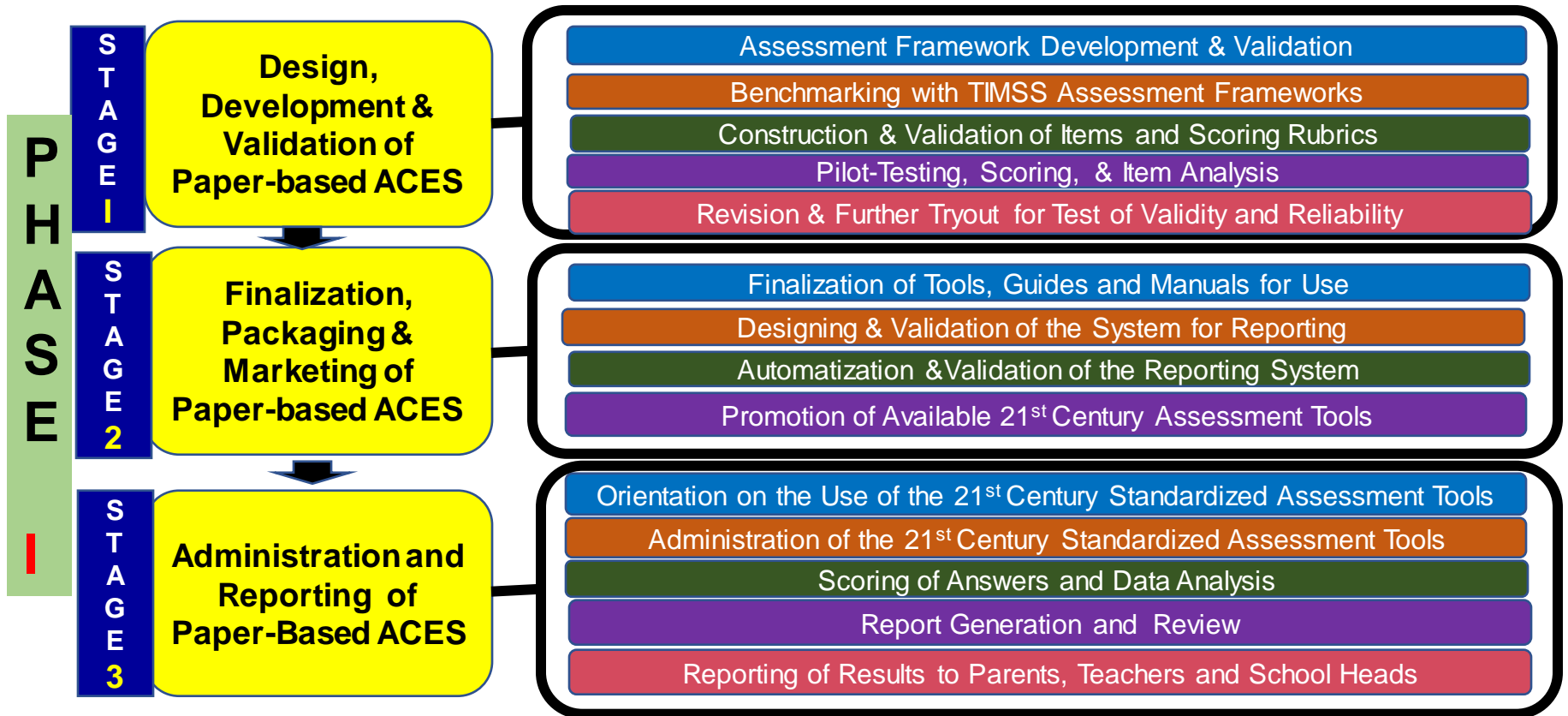**Data Gathering Procedure:** Survey, Interview, and Focus Group Discussion

Data Analysis:
Descriptive Statistics for Quantitative Survey Data
Thematic Analysis for Qualitative Data

RESULTS

Process in Developing the Paper-based 21st Century Assessment Tools in Basic Education Before the Pandemic (2017-2019)

PHASE I

STAGE I — Design, Development & Validation of Paper-based ACES

- Assessment Framework Development & Validation
- Benchmarking with TIMSS Assessment Frameworks
- Construction & Validation of Items and Scoring Rubrics
- Pilot-Testing, Scoring, & Item Analysis
- Revision & Further Tryout for Test of Validity and Reliability

STAGE 2 — Finalization, Packaging & Marketing of Paper-based ACES

- Finalization of Tools, Guides and Manuals for Use
- Designing & Validation of the System for Reporting
- Automatization & Validation of the Reporting System
- Promotion of Available 21st Century Assessment Tools

STAGE 3 — Administration and Reporting of Paper-Based ACES

- Orientation on the Use of the 21st Century Standardized Assessment Tools
- Administration of the 21st Century Standardized Assessment Tools
- Scoring of Answers and Data Analysis
- Report Generation and Review
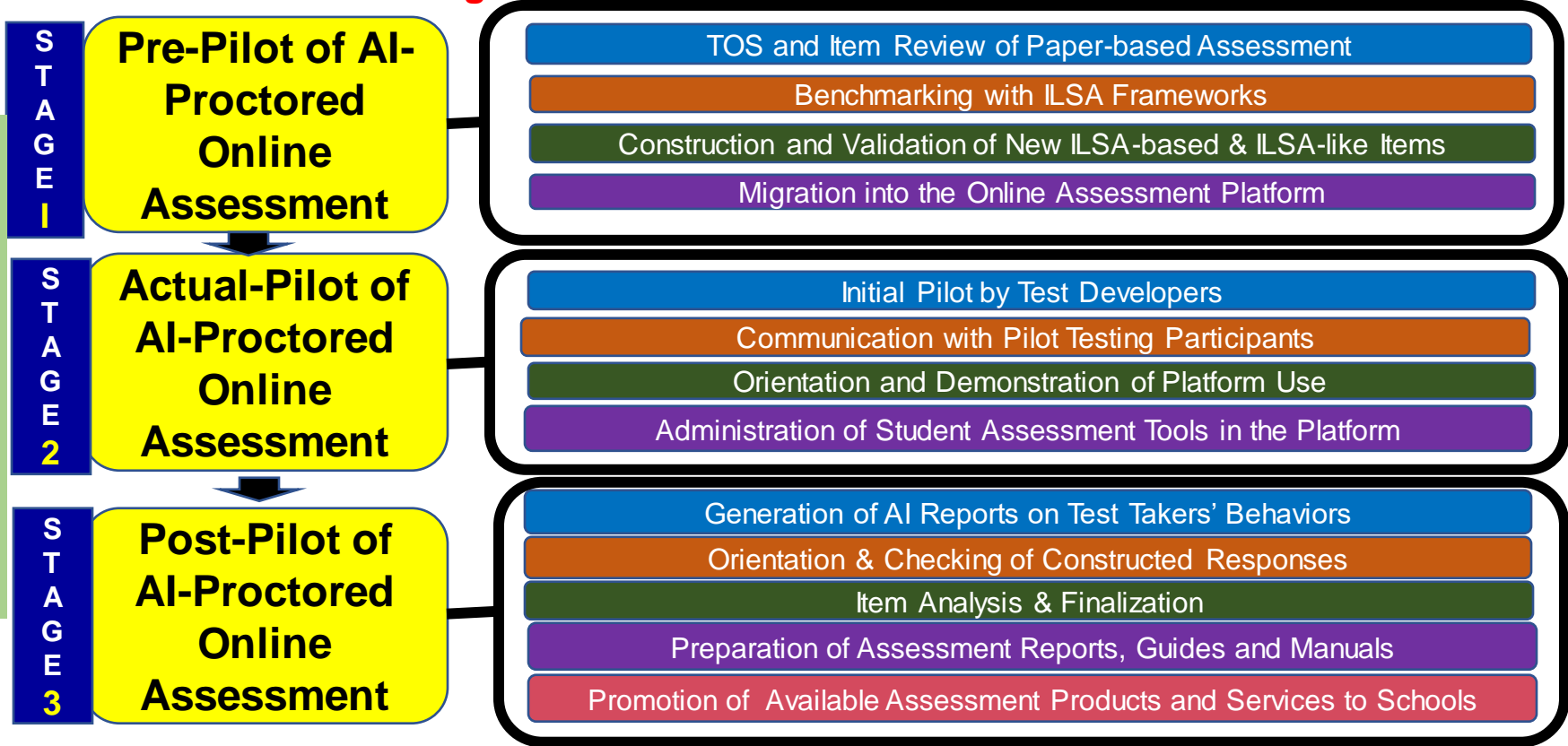- Reporting of Results to Parents, Teachers and School Heads

RESULTS

Process in Transforming Paper-based to AI- Proctored Online Assessment Tools During the Pandemic (2020-2022)
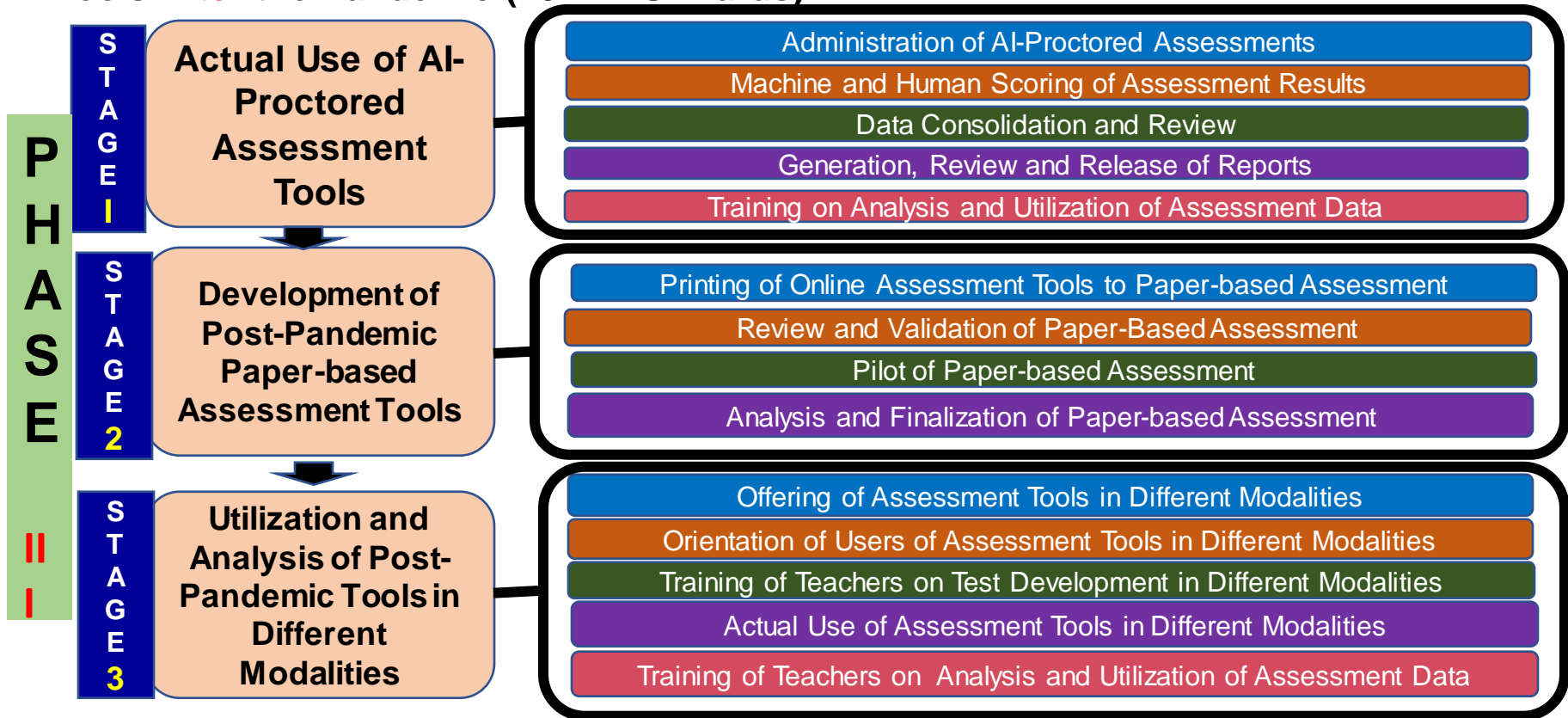
PHASE I

STAGE I

Pre-Pilot of AI-Proctored Online Assessment

- TOS and Item Review of Paper-based Assessment
- Benchmarking with ILSA Frameworks
- Construction and Validation of New ILSA-based & ILSA-like Items
- Migration into the Online Assessment Platform

STAGE 2

Actual-Pilot of AI-Proctored Online Assessment

- Initial Pilot by Test Developers
- Communication with Pilot Testing Participants
- Orientation and Demonstration of Platform Use
- Administration of Student Assessment Tools in the Platform

PHASE II

STAGE 3

Post-Pilot of AI-Proctored Online Assessment

- Generation of AI Reports on Test Takers' Behaviors
- Orientation & Checking of Constructed Responses
- Item Analysis & Finalization
- Preparation of Assessment Reports, Guides and Manuals
- Promotion of Available Assessment Products and Services to Schools

RESULTS

Process in Transforming AI-Proctored Online Assessment to Paper-based Tools After the Pandemic (2022 – Onwards)

PHASE I

STAGE 1 — Actual Use of AI-Proctored Assessment Tools

- Administration of AI-Proctored Assessments
- Machine and Human Scoring of Assessment Results
- Data Consolidation and Review
- Generation, Review and Release of Reports
- Training on Analysis and Utilization of Assessment Data

STAGE 2 — Development of Post-Pandemic Paper-based Assessment Tools

- Printing of Online Assessment Tools to Paper-based Assessment
- Review and Validation of Paper-Based Assessment
- Pilot of Paper-based Assessment
- Analysis and Finalization of Paper-based Assessment

PHASE II

STAGE 3 — Utilization and Analysis of Post-Pandemic Tools in Different Modalities

- Offering of Assessment Tools in Different Modalities
- Orientation of Users of Assessment Tools in Different Modalities
- Training of Teachers on Test Development in Different Modalities
- Actual Use of Assessment Tools in Different Modalities
- Training of Teachers on Analysis and Utilization of Assessment Data

Challenges in Using and Developing 21ˢᵗ Century Assessment

Aspect	Paper-Based Assessment	AI-Proctored Online Assessment
Platform Usage		• There is difficulty in uploading images as the required size is smaller than what the image requires. • It is not easy to navigate the testing page. • Not easy to find the test questions per subject area and grade level for checking and validation • Some students find difficulty in uploading answers in open-ended and constructed-type of items in the platform or through mobile phones.
Staff Support		• No immediate support/assistance when there are technical difficulties in uploading items. • Proper endorsement of uploaded content for checking. • Lack of discussion on program shortcuts.
Preparation and Retrieval of Test Materials	• Preparing the test materials, administering the test onsite, and retrieval of test materials requires a decent amount of manpower, time, and effort.	
Administration and Monitoring		Some test administrators find it difficult to monitor and respond to test supervisors' concerns and to check the time logs of each test taker in the platform.
Readability of Test Items		• Some font size of test questions are small. • Some images are not clear and colorful.

Students' response to Feedback Form of Paper-based assessment are all favorable.

Pros and Cons in Using and Developing 21st Century Assessment

Aspect	Paper-Based Assessment	AI-Proctored Online Assessment
Design, Development, Validation, Finalization	• The development process is fairly easy.	• Uploading content and creating online test requires training or orientation for content developers. • There is limitation in the kind of question or type of response that the online platform can implement.
Preparation of Test Materials	• Simple and easy process of preparing and retrieving (checking, counting, and packaging) test materials such as test booklets, answer sheets, survey form, etc.	• Easy preparation of test materials (test form, test links) since all contents are uploaded to the test platform.
	• Requires a lot of effort and time to prepare and retrieve test materials, hence decent amount of manpower is necessary.	
Administering the Test and Monitoring Students	• Test administration is easy and not complicated since students are already accustomed to taking paper-based tests.	• Remote test administration and monitoring of students progress is easy.
	• Exhausting for test administrators to travel to different locations for onsite test administration.	• Some students, particularly lower grade students as well as their guardian or parent, may require constant assistance in the use of computer and the online test platform. • Training and orientation is necessary for all users to use the online test platform, especially for their first time of use. • AI proctor is very strict in flagging suspicious behavior and sending warning to students. This may cause anxiety to students while taking the online test.
Technical Support	• Minimum issues or concerns are usually reported in a paper-based assessment. • Support is given immediately by test administrators present onsite.	• Online test platform has no dedicated feature for students to report issues and for support staff to resolve issues during the test. • Additional manpower may be required to provide immediate support or assistance to students and teachers during online assessment.
Data Preparation for Report Generation	• Requires time to scan all the answer sheets to record students' responses.	• Responses are immediately recorded and data for report generation is readily available after the administration of the online test.
Collection of Survey Feedback	• Responses to survey are immediately collected after the onsite test administration.	• Takes time for the survey responses to be collected from teachers. It is observed that when survey form are administered online, teachers take longer time to answer them.

Legend: ■ - *Pros* ■ - *Cons*

Conclusions

1. The **processes** involved in developing paper-based to online assessment are the same except that they only differ in the platform and manner of administration.
2. Developing AI-proctored assessment tools have more **challenges** than paper-based assessment to include challenges in platform usage, staff support, administration and monitoring, and readability of items.
3. Development of paper-based assessment has more **advantages than disadvanta**ges to the students than that of AI-proctored assessment.
4. Both paper-based and AI-proctored assessments require **time and manpower** for their development but it would be more practical to begin first with paper-based assessment then transform this into digital or AI-proctored assessment so that there are options for the students to choose from when they participate in the assessment.

Recommendation

1. The development and administration of both paper-based and online assessment should continue to provide the students more options in accessing a quality 21st century assessment tool.
2. Improve the use of AI-proctored assessment tools to address challenges in platform usage, staff support, administration and monitoring, and readability of items.
3. Provide the students exposure to both paper-based assessment and AI-proctored assessments for them to benefit from their advantages as each modality has its own strengths to offer.
4. Provide time and manpower in developing paper-based and AI-proctored assessments to ensure quality 21st century assessment tools regardless of modality.

Thank you!